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A UNIVERSITY 'CENTRE' FOR MADRAS.

BY

Mr. T. G. ARAVAMUTHAN, M.A., L.T., B.L.

HOPES of a Residential University in Madras have been stirred by the Hon-ourable Mr. Patro's Bill, but the realisation of those hopes seems to be far away. Without entering into the merits of the Bill or its defects, it is yet possible to prophesy that if the present geographical distribution of the various colleges and other institutions composing the University is to remain unaltered the hopes that have been raised are bound to remain unrealised. Rarely has it been possible to create a Residential University out of colleges scattered broadcast over a city of distances. The atmosphere of University life cannot spread itself over large areas in which the colleges are almost oppressed by the dust and haze of traffic-laden thoroughfares or are swallowed up by the shops of grocers and drapers or are silenced by the activities of smiths and tinkers.

The present movement towards the reform of the Madras University is the fruit of the recognition of the fact that Madras is sorely in need of a Residential and Teaching University and the means adopted in the Bill for the purpose of converting the University into such a one, so far as its local jurisdiction is concerned, are to compel the constituent colleges to provide hostels for their students and to empower the University itself to establish hostels for students to reside and receive tutorial and other supplementary instruction therein. But a few more hostels scattered in the bye-ways of the city, each with a teacher perching in one of the rooms or out-houses, are not likely to make the University any more residential than it has been all these years. The hostels will be only hotels and the teachers will be no better than martinets "billeted" on a haphazard assemblage of youths. Where students do not meet together from day to day except in the class-rooms and under the shadow of the teacher's rostrum and where student and teacher do not fall in with each other except

in the college corridors or in the alleys of the city, there can be no real Residential University and no such teaching as it is the function of a University of the residential type to provide.

An effective residential system is almost an impossibility unless the University is given, what the Americans call, a Campus. An extensive site over which the colleges might lay themselves out and within which they might cluster thick, is almost an indispensable requisite of a residential University. As conditions obtain at Madras, there is likely to be no real University life of the residential type unless the University is provided, as early as possible, with a Campus within the orbit of which it could bring its colleges and hostels and other institutions and residences.

Colleges, hostels and educative institutions lie scattered all over the face of the City. The concentrating of all these on one Campus so that a real University atmosphere might be possible is a matter of no little difficulty. To utilise the present resources and yet to bring them gradually within the range of a Campus is the task that anyone ambitious of converting our University into a residential one has to undertake.

In the fervour of the advocacy of a residential type of University it is possible to fail to recognise that, where a University has grown up and is active in a populous centre, the rule of residence ought not to be strictly enforced; the non-resident student should not be denied admission. Students making their homes in Madras,—and, in the present stage of the evolution of Indian society, their number is large,—should not be shut out from the benefits of this residential University, for though they might not strictly be in residence,

they might yet be able to breathe of the residential atmosphere. The choice of a site for the Campus must therefore be made with due regard to the conveniences of non-resident students.

Our University which is situated in a centre of large population from among whom it may draw large numbers of youths to fill its lecture-halls must therefore be located in the most central portion available within the city's confines. Even a casual examination of the map of Madras will show that the area suggested below is, but for the Fort, the most central part of the city.

Three plans suggest themselves. Taking advantage of the Libraries, the Museum, the Observatory and the Maternity and the Ophthalmic Hospitals being located in and about Nungambakam, we might seek to evolve an educational centre in Nungambakam. But land for colleges, hostels, professors' quarters and recreation fields will have to be acquired at enormous expense. More than this, most of the present-day hostels and colleges would have to migrate to Nungambakam as it is a part of the city which cannot be reached easily either by tram or by train. Nungambakam has therefore to be ruled out.

The second plan is to follow Mr. Lanchester in locating the educational centre on the sands of the Beach opposite the Senate House. Granted that the sands can bear the superstructures of college buildings and granted also that it is sound town-planning to interpose a fresh block of buildings between the sea and the present line of Government offices and granted as well that the Corporation will undertake to shift the Marina a furlong or two to the east, we have yet to find out what we gain. The Senate House,

the Presidency and Queen Mary's College, the Aquarium and the Victoria Hostel are well within this area. But how could the other colleges and institutions contribute to the fuller corporate life out of which we seek to evolve the residential and teaching University of our dreams?

The third plan is to ask the Local Government, the authors of the present Bill, to place the large area round the Fort and the extensive plain known as the 'Island' under the control of the University to be utilised as its Campus. Think of this as a crescent, as indeed it roughly is in shape, surrounding the Fort on the landward side. One end of this crescent touches the Senate House, and the other rests on the Christian College and the outer arc runs through Pachaiyappa's. The Law and the Medical Colleges are within the outer and the inner arcs of the crescent. Were the central institutions of the University, such as its Library, Laboratories and Lecture-Rooms, to be located in the middle of this Campus, there should be no difficulty in students from the various colleges situated even on the outer arc meeting together and living a common life for at least certain hours in the day.

This scheme leaves it open to the colleges and hostels of to-day to remain in their present homes till circumstances change for the better, and yet, renders it possible for them to start forthwith on a new common life. On the fringes of the crescent or within its compass are to be found the Senate House, the General Hospital, the Medical, the Law and Pachaiyappa's Colleges and the Christian College with its many hostels. A little outside, but not too far away, are the Aquarium, the Presidency College and the Victoria Hostel. These are numerous enough and

sufficiently varied in character to give reality to a new University life. If the hostels for the Presidency, the Medical and the Law Colleges which we may be sure the Government—at least because of its being the author of the new Bill—will not fail to provide at an early date, are located in the Campus and if the University authorities will choose for their Library a site within the crescent, and if a common Laboratory, some Lecture-Rooms, a Students' Club and residences for some of the University teachers,—among whom may be included all those attached to the constituent colleges,—are provided, we will have a respectable University quarter at no distant date. A little re-routing of roads within the area should be enough to make every part of it accessible easily from every other and from all parts of the city. In course of time this crescent is bound to grow into the city's educational "hub."

We may expect the various institutions gradually to shift their abodes to the Campus. They might be able to dispose of their present habitations at advantageous prices and move into the chosen land without financial loss. Government itself might give much help by acquiring some of the buildings now occupied by colleges for the use of those many departments of it for which no permanent homes have yet been provided and the University might in turn help the Government,—and also itself,—by affording room on the Campus for such Government offices as those of the Superintendents of Archaeology and Epigraphy who are engaged on work of academic interest. Possibilities of this kind need neither enumeration nor elaboration. A careful and wise rationing of space will enable the University to provide room within the crescent,—so spacious is it—for all the institutions that are likely in

the process of years to nestle under the University's wings.

An attempt has been made above to show not only how by adopting this scheme it would be unnecessary, in the earlier stages of the growth of the residential University, for the constituent educational institutions to move from their present habitations but also how they would be able gradually to shift into the University area without undue financial strain. While every other scheme would commit our University, and therefore the Government, to the acquiring of a Campus at a cost that neither the University nor the Government can afford and would permit of very little being spent on developing the University the scheme advocated here would enable the University to spend all the money it can get on work of real development. The Government too is enabled to help the University substantially without putting its hands into the pockets of tax-payers all over the Presidency. If Government had the imagination to adopt what is probably an unconventional mode of financing University development and if the University had the acumen to perceive that its finances should not depend wholly on Government Grants and Examination Fees, Government would enable the University to exploit the Campus as any business-man would and the University itself would not be loth to exercise a power which would give it a new source of income. If the University marked off a belt of land of the width of, say, a hundred feet along the main roads edging the borders of the Campus and granted leases to business-men it would derive a substantial revenue, greater, in all probability, than the income from examination fees. Clearly, therefore, the strong point of this scheme is that it cuts partly the

financial knot that threatens to strangle University reform.

But will the Government give the suggestion a dispassionate hearing? The objection that this scheme involves the abandoning of the race-course on the Island has now lost all weight in consequence of the development of Guindy. The objection, for reasons of sanitation, to the proximity of the Cooum and the Canal, has never influenced the development of this area! Are not Government House, the Medical College and the General Hospital on their very banks? It is common knowledge that sanitarians raised no objection to the proposal of Lord Pentland to utilise as a General Students' Hostel the block of buildings which the General Hospital was then expected to vacate. The scheme to convert the Cooum into a tidal river, it is known, will be a *fait accompli* within two or three years.

The only quarter from which serious opposition may be expected is the Military department. The whole of this area is reserved for military purposes and the principal arguments for the continuation of the reservation are that the security of the Fort is likely to be endangered by structures being erected too close to the Fort and that emergencies might arise in which it would be necessary to quarter military forces in this area. But the layman can see no reason why the military authorities should not be content with a prohibition against the University putting up buildings within the arc of circle passing through the High Court and the Medical College. This would not mean, however, that the area within the arc would lie unutilised, for they could be turned to use as recreation grounds for the students of the University. The layman

NEW TENDENCIES IN EDUCATION*

BY

PROFESSOR H. B. MALLANI, M.A., S.T.C.D.

THIS is the last gathering at which it is our privilege to meet. It is essentially a social function. Once in a year we, teachers, are required to make amends to our pupils for the "insolence of office and the spurns that patient merit of the unworthy takes." We have to put at ease those whom we have whipped and scourged with the most inoffensive yet by no means the least effective instrument—the fountain-pen. Perhaps we were a little too critical; perhaps we appeared a little too cruel. Perhaps the wicked fountain-pen imbibing the malignance of its writer outran even his intentions. Let us, therefore, assure our students of our deepest sympathy. Let us regain the human equilibrium.

But as this occasion comes once in a year and as it comes last, let us not let it slip without getting as good a lesson as we can from it. Let us estimate the achievements of the year rightly and solemnly. Let us see what hopes have been deferred and promises unfulfilled, what fears banished and aspirations unrealized. In the words of the Victorian poet, let us

Discern, compare, pronounce at last
This rage was right in the main,
That acquiescence vain,
The future we may face now we have proved
the Past.

Friends, the course of studies through which we had the privilege to take you is wonderfully short. Perhaps no other educational institution suffers so much from the transitoriness of time as the Training Colleges that train graduates for education. Every year sends out a new batch of students; and every batch of students ushers in a new academic

* An Address delivered at the Annual Meeting of the Benares Hindu University Teachers' Training College Association.

cannot realise that in these days of high-power artillery the Fort is any better than a mere archaeological survival. The quartering of the military on the Island does not seem to be necessary any longer when we remember that ample accommodation in St. Thomas Mount and Pallavaram is running to waste and that the difficulties that might have been experienced some decades ago in bringing troops to the Metropolis have disappeared through the marvellous development in recent years in rapid and trackless transport. That the military authorities themselves are not blind to the frail defence offered by the Fort seems to be evidenced by the rumours now afloat that the Wireless station is to be removed from its protection to a point some miles from the coast. Military experts are indeed prone to be conservative and cautious and would veto any suggestion that would materially alter the existing scheme of things, but we are sure that even they are not unaware that ever since the Fort ceased to be a Factory of the Company it has served no purpose except on the one occasion when, if conjecture is true, it gave great offence, by its mere existence, to the redoubtable *Emden*.

The suggestion that this military zone be converted into a University 'centre' has been advocated here in the belief that no area more suitable to the needs and circumstances of the University of Madras is available, and there is no necessity to emphasise that the acceptance of this particular scheme is not the only—though it might conceivably be the best—means of enabling a residential University to grow and function in Madras. Emphasis, however, cannot be laid too strongly on the necessity of providing a suitable Campus if Madras is really to have a residential University.

year. Continuity of tradition is broken and constancy of affection belittled. But I hope the students will bear with me when I say that the ten months, that they have been here, have not been altogether uneventful in their academic career and I am sure—I speak this from my own personal experience—that when they grow from more to more in their professional career, they would look upon this period of training as one of the brightest, if not the brightest, periods of their life. Though the period of training is short, yet you are required here to think, feel, and what is more, practise all the best educational thoughts, feelings and practices that we have inherited from the past. If you forgive my vulgarity, you have been made to recapitulate all the stages through which a soul has to pass from childhood to adolescence, even as the physiologists tell us that the human being recapitulates all the biological stages in the human embryo in the short period of ten months. I hope you have re-lived your childhood and boyhood here. I trust that the abstract principles of education have found a "local habitation and a name" after their having been associated with the apperceptive mass of your own early life. I am sure you could not have helped this process. No man can resist the surging tide of psychological association. No teaching can be real without an appeal to experience.

But while you might have realized the principles of educational theory and practice learnt here in relation to your personal experience, pray do not imagine that you have completed your labours and achieved perfection. If it is not discomfiting to a pupil and rather hazardous for a professor to say the end of a training course, I may say that your training has only just begun. I am afraid that the educational course you have gone through recently by no means exhausts all that is necessary for your professional career—much less does it comprehend all that is connoted by that single indefinable process, education. The direct principles of language teaching, the regional method of geography teaching, the comparative and

chronological methods of history teaching, the heuristic method, the Herbartian steps, the psychological laws of association, attention and interest, the mysteries of the formation of time—these and all the secrets of class discipline and school management in short, in the words of the poet, all the "hints of the proper craft and tricks of the tools' live play"—all these pet verses of ours on which we harp year in and year out with so much mad passion form only a genesis of the Old Testament of education. The New Testament has not been touched at all. The gospel of education will ever be as incomplete and baffling as that of life itself for all education is adjusted to life.

Permit me, therefore, to place some unorthodox ideas that have not yet filtered down into our textbooks. As we have seen in the history of education, no educational system that was devised by any of the most advanced community in any age for itself was perfect. Looking only from the psychological point of view, we saw how the faculty psychology of Aristotle was inadequate for the acquisition of knowledge. Nor did the Platonic theory of the Reminiscence of knowledge afford the right basis for the building of knowledge. The practical Romans solved this problem crudely by not tackling it at all. The early Christian Church that had to reckon with Greco-Roman culture succeeded only when it supplanted the mundane ideals of pagan culture by the ideals of faith and by preparing its followers for the citizenship of "a city not made with hands." The unworldly inhibitive methods of monastic education gave place, on account of the growing philosophic demands of the age, to a perfect system of training that deified the human reason to the utter discredit of the human soul. But human reason, however "seraphic" it may appear for a time, has but "lighted fools the way to dusty death." With the advent of the philosophical and scientific movement, new factors were admitted into the educational process. The human senses came to be the only basis for mental and higher experience. It was at this time that Descartes emphasised the

relationship of the nervous system and brain with the human mind. This led Locke to propose the theory that all knowledge springs from the data supplied by sense-perception and reflection. Not satisfied with this blank basis of the mind, Pestalozzi, the father of the psychological movement in education, groped after a new power of the human mind—he called it *Anschauung*. The mechanical genius of Herbart interpreted this vague power as the quality of the human mind to negotiate with the presentations of Nature and Society. The mystical Froebel, however, was more attracted by its self-activity and self-sufficiency. As we know, the orthodox recognized principles of education base the educational process upon the conscious mental experiences that are the result of observation, attention, interest, and association. But let me assure you that this view has not brought us much nearer to the solution of the right psychological basis of the educational process. The new Psychology tells us that there are more things in heaven and earth than our conscious mind dreams of. If there is one subject that absorbs most the attention of the present-day educationists, it is the subject of *Psychoanalysis* and I hope I shall not be a false prophet when I say that the psycho-analytic method will revolutionise educational theory and practice. Well, *Psychoanalysis* teaches us that a boy who lives, moves and has his being in the class-room, looks at you, apparently listens and attends to your lesson, only misrepresents himself to you. He lives in a world of his own where the teacher can seldom follow him. He has his day-dreams as well as night-dreams, has his secret thoughts and wishes which no human skill or ingenuity can fathom easily. Absorbed in these, he vitiates all your calculations and upsets your expectations. You may present your material in the most scientific manner, show pictures, models and sketches to him, speak distinctly, deliberately and pleasantly, put the wine of new knowledge into old bottles or that of old knowledge in new ones, however bright and active your manner, yet you will cease to arrest his attention. How is

such a case to be dealt with? Not by exercising the time-old power of the school-master, his illogical ferula nor by going "against the simple creed of childhood, delight and liberty," but by recognizing very clearly in the words of Wordsworth that his

Exterior semblance doth belie

His soul's immensity,

The analysis of instincts, the inborn nervousness of children, the interpretation of their dreams, the phenomenon of introversion, extraversion and identification, the phantasy and psycho-pathology of everyday life, the child's unconscious movements, his strange word associations—all these are some of the problems that engage the attention of the educationists of the present time. Without solving these problems you cannot satisfactorily explain the working of the human mind—much less educate it.

The question before us is how far we, Indian school-masters, are anxious to put ourselves in line with this advanced analytical psychology. May I venture to suggest that of all the nations of the world we, Hindus, seem to be perhaps most fortunate in this respect. Inheriting as we do all the best philosophic thought of the Rishis of old, surely we, Hindus, are primarily fit to contribute to the solution of these educational problems. Hindu psychology has been considering these problems from ages. That man is not a mere aggregate of flesh, bone and blood, that the conscious mind that conceives, imagines and judges is not all, that there are states of consciousness from the waking to the nirvanic about which Lord Buddha talked with as much certainty and familiarity as Lord Kelvin did about electricity, that there are *sthula*, *sukshma* and the *karan sharir* in us and that man gathers experiences of lives into them and that all these play their part in the wheel of life and karma—these are thoughts that seem to have bred that proverbial contempt because of their familiarity. But I assure you that the new psychology will be bringing home these truths to us, to borrow a phrase from Emerson, "with an

alienated majesty." Let us, therefore, determine the part that we have to take in the investigation of these new ideas. The Hindu Pundit has been very exclusive hitherto. Taking advantage of our social heredity and the new knowledge that we have acquired from the West let us help in the building up of a true psychological basis of education.

The re-organisation of class teaching appears to me to be next in importance only to psych-analysis. The modern system of teaching is organised according to classes and this has become necessary because of the obvious financial considerations in these days. A Rousseau may select an ideal special tutor for a fortunate Emile who will not only be under the protection of his tutor while he is in single blessedness but who has the singular good fortune of sitting and learning side by side with his partner in life. But in this world schools must exist because it is impossible to have one teacher to one educand. Apart from financial considerations, the division of population will necessitate this arrangement in modern society. The school is really a very ancient institution and no highly organised or civilized community can do without it even in the future.

The existence of schools being established beyond doubt, the question remains how is the school-master to approach his pupils. It is impossible to give individual attention to a single pupil all the time. The pupils have therefore to be grouped into classes and each pupil has to adapt himself as best as he can to this class. The problem before the teacher is to effect such a compromise that he may be able to approach every one of his pupils. One of the plans of approach that existed even in the 19th century and which has not yet died out in some schools is the plan of sending for pupils, one by one, to the master's desk. It is Charles Dickens who has immortalised this picture of the class-room. The frowning master sitting at one end of the class-room with his sceptre on the table, the class sitting behind the desks, sometimes half-concealed (in those days the desk was

not made to fit a boy, the boy had to accommodate himself to the desk) and pupil after pupil coming up to the desk of the teacher, nervously, tremulously conning over his part as best as he could in those circumstances, sometimes fighting shy and going a pace backwards as the teacher frowned through his spectacles. His trial over, heaving a sigh of relief he joined his solicitous companions who were waiting to receive him. This was the plan that existed in Mr. Squeer's or Mr. Creakle's class-room. It had no doubt its advantages inasmuch as it ensured some amount of individual attention to a pupil for some time. But it reduced both the master and the pupil to a machine. The pupil went seldom beyond the part assigned to him, he did not realize the responsibility of learning the whole lesson. The teacher, on the other hand, tested more than he taught and seldom had an opportunity to correlate the answers of his pupils. He very often corrected the same mistakes. There was no liveliness of the give-and-take of conversation. The class was kept under control more on account of the fear of the rod than on account of the intrinsic interest of the subject taught. Lastly, even a Socrates could not in that short period of time allotted to each pupil deal properly with many fallacies and crude notions that it is the great privilege of children to carry in their heads.

We must, therefore, approach the class through the collective spirit. The teacher has to look at the subject taught from the view-point of the requirements of the pupils, divide the subject according to their age and capacities and then devise questions upon it to elicit or impart information. This system you are familiar with. You have been trained under it. Pardon me if I have rigidly enforced it. My professional principles required it. My purpose, however, in reminding you of this system is to warn you against many of its pitfalls.

One of the most serious pitfalls, for instance, is the self-complacency of the teacher who thinks that he has rendered account to every pupil by

simply resorting to collective questioning and answering. Experience tells us, however, that the habit of even distribution of the questions is not general amongst even the most experienced teachers. There is always a temptation to ask bright and intelligent boys to answer. It is in human nature. Man runs naturally to where he gets the greatest response. Notwithstanding your vigilance and fairness there is always a class of boys whom you either forget or cannot mobilise. Well, you have to take special caution against this. Keep the class in perpetual motion. Move it as a compact body. Have a special eye upon these stragglers. Do not allow them to enjoy any peace of mind if they do not contribute to the corporate life of the class. Another common fault is the overdoing of even questioning and answering. This system creates a sort of distance between a pupil and a teacher. The teacher belongs to the questioning side and the pupil to the answering side. Now it is not always good to be putting our pupils in the witness box. You may make him a witness to some of the obscure points in the acquisition of knowledge by examining and cross-examining him. But you cannot stop there—you have to make him a judge about men and things about which he reads. Your questioning will make him curious, resourceful and ready. Readiness is not, however, all in education. Deliberation and, to borrow a Baconian phrase, "exactness and fulness" are equally desirable and these come with Reading and Writing. You must, therefore, engender a habit of consecutive and independent thinking. Let them have their own initiative. Let them read, reflect, write, compose and create.

"It is to create and in creating live
A being more intense."

In fact, the system of teaching that is coming into vogue minimises, if not altogether dispenses with, the importance of the teacher. The modern teacher is expected to be content with annihilating his self like the highest mystic or to transcend the requirements of the class-room and be a "benevo-

lent superintendent" as Froebel put it. This doctrine of pedagogic nihilism or transcendentalism has been expressed of late in many ways. Madam Montessori has preached self-education for the best part of her life. Recently she gave demonstrations in England. Her system deals with Elementary Education with which we are not directly concerned.

I shall, however, crave your indulgence to speak to you of another system which has been devised in connection with secondary education about which Miss Helen Pankhurst has recently been speaking to English audiences.

The Dalton Laboratory Plan (called after the name of the American city where it was first experimented in a public secondary day school) is a scheme of educational organisation "that attempts the solution of school problems by getting at them from the view-point of the learner; by enlisting the genuine co-operation of the learner, thereby changing his mental attitude and increasing his mental activity; by permitting him to look upon his education from the stand-point of a real joy; by enlisting his will in such a fashion that it becomes a faithfully to his tasks" It does not add to or change the curriculum. It demands that first of all, the instructors outline the work of the year so that each pupil may be intelligent about the scope and nature of the work that he as a member of a form is expected to finish. This whole is subdivided into as many parts as there are months in the school year. Its first principle is freedom that goes in the strictly Burckian sense with the consciousness of responsibility. Its second principle is socialisation of work, the teachers sharing the problems of other teachers and the boys working in a team. It does away with the time-table and its inseparable accident, bell-ringing, which comes off not infrequently at the most pathetic part of the lesson, just when the interest is warming up. Those of you who like to keep abreast of the times will do well to read the articles that appeared in the *Times Educational Supplement*.

Another matter in which the modern educationist is breaking new ground is in finding out objective methods of estimating the results of our teaching. Teachers are not always satisfied with all purely subjective standards of valuing their work by their own general impressions. They are resorting to methods by which they may measure the ability of their pupils in Mathematics, Reading, Writing, Drawing and even Composition. Not satisfied with the scientific measurement of classroom products, men like Professors Alfred Binet and Terman have supplied us with the metrical scales of intelligence or intelligence quotients. It is not possible for me to discuss the pros and cons of this question. I shall only refer to two considerations relating to it. From the teacher's point of view, it is not easy to determine these standards in all subjects. Professor John Adams speaking about these says in his book on the New Teaching: "It is not difficult to see how a set of standard tests could be drawn up in such a subject as Arithmetic in its more elementary processes, but when it comes to Hand-writing, and Professor Thorndike presents us with a series of standard specimens by means of which any given piece of hand-writing may be appraised, we have grave doubts. There is first of all the difficulty of determining the standard specimens; and then there is the difficulty of saying to which of these specimens a given sample of hand-writing corresponds." Apart from the inherent difficulties of finding out standards, there is a further fundamental consideration. The science of education cannot be as accurate or certain as other sciences. That two and two make four, that the sum of the angles of a triangle is equal to two right angles, that two atoms of Hydrogen combining with one atom of Oxygen will give us H_2O —all these facts have been, are and shall be true under all conditions. But the human organisms behave differently. The human Will is one of the most baffling factors in the educational process. This fallacy of believing that man always acts from some definite motives is by no means peculiar to educationists. The classical

economists thought that man always buys in the cheapest market and sells in the dearest market. Even a superficial study of economics must convince a man that it is not so. The same is the case with Politics, History, Anthropology, in fact all the sciences that are connected with the study of man as man. It is much more so in the case of education because there are so many factors to be considered in it. Heredity, individuality, environment, temperament and the will to overcome nature all—here are some intricate, baffling factors in the educational process. I venture to say that no machine will be able to measure the amount of intelligence and insight that a man possesses. Heroism, self-consciousness, truthfulness and love "go, grit and gumption" to use a colloquial expression, cannot be handled as you handle fossils, chemicals or galvanometers in your laboratory. All such efforts must be tentative and imperfect. Even if we achieve a little apparent success, let us beware of our inferences.

"We are such stuff as dreams are made of,
And our whole life is rounded with a sleep."

The discussion of some of the general principles of education have made it impossible for me to deal with some very interesting experiments or ideas that are being propagated in connection with some special subjects. I shall, however, refer to two events of last year which, according to me, will open a new chapter in Modern Education. The first of these was the deputation of the League of Nations' Union that waited on the President of the Board of Education in England in June last with reference to the teaching of History in schools. It wanted the President to issue an authoritative pronouncement that in History, the teaching of "patriotism was not enough but must expand beyond the nation and the group of States called an Empire to embrace an even wider human association." The leader of the deputation, Mr. Gocch, said that it would take years before the international mind was formed and school books written on broader and truer lines. But it appeared to be the duty of a far-sighted Government to

take steps in good time to secure that when children now in the schools reached manhood, they should have realized the vital necessity of international co-operation; that they should be armed in advance against the instincts and passions which found expression in war." This question of a bias in History teaching has been discussed by many eminent persons. Professor Gilbert Murray writing in the *Times Educational Supplement* very wisely said: "All the long, heroic, ineffectual, inglorious and damnable tale of international wars and intrigues and oppressions ends in this—a general agreement that it was a false road and must be given up... that war has been tried in the balance and found wanting. This new fact with all its immense consequences in the field of public conduct has not yet found its way into the ordinary text books, and like all new facts, is likely to be ignored by busy teachers unless their attention is specially called to it."

But whether we change our outlook or no, the very conception of History is undergoing changes. History is not considered to be a chronicle of kings' reigns as the Mahomedan Historian conceived nor merely "the soul of a people" continuously embodied in its customs, laws, religion, language, art and institutions. But it is growing to be a record of the development of man—the growth of a common humanity. This conception of History first developed by Kant in the West has recently borne fruit in the works of two great English writers, Mr. H. G. Wells, the author of *The Outline of World History*, and Mr. T. S. Marvin, the author of two admirable books, *The Living Past* and *The Path of Progress*. If this conception of History is going to prevail, you will soon have to educate your pupils for a world-citizenship—for the Parliament of Man and the Federation of the World dreamed of by Tennyson. Another outstanding event of last year was the publication of the report of a large and representative Committee under the chairmanship of the Marquess of Crewe, on the place of the Classics in Education. As you might be knowing, this Com-

mittee was appointed in war-time after the first reverses that the Allies received at the hands of Germany and which were attributed to the want of scientific training in English institutions. Curiously enough, the findings of this Committee once again, and this time with greater authority and emphasis, rehabilitate the place of the Humanities in Education. Thus once more humanism triumphs over realism in the history of Education.

This brief reference to some of the new tendencies in education will be incomplete if no mention is made of the changes that are being made under our very eyes in Indian Education. The witchcraft of the Calcutta University Commission has thrown Indian Schools and Colleges into a cauldron. Whatever may be the intrinsic value of the decoctions prepared by the Commission, one thing is happily certain that they are not going to be regarded as a general recipe for the maladies of which our educational system suffers. The Senates of the various Universities in India have deliberated upon these recommendations and accepted them with certain modifications due to local conditions and traditions. It is too early to estimate the value of these changes. But, with your permission, I shall venture a remark at this stage. Reviewing the report of the University Commission of 1902, the Commission says: "And just as the Commission of 1882 was excluded from considering University problems, so the Commission of 1902 was excluded from directly considering school problems with the result that, equally with its predecessor, it was unable to deal with the problem as a whole." May I be permitted to say in the vein of the Commissioners, that it too, by its references, was not permitted to deal with the problem of Indian Education as a whole. In all those long illuminating chapters and still longer appendices that make such delightful reading too, there is not a single chapter on the place of Elementary Education in our system. In all humility, let me say that the maladies from which the Indian under-graduate suffers cannot be cured by a special transitional

institution. Besides that prevention is better than cure. Improve your Elementary Education and you prevent many intellectual diseases of the under-graduate. And the way to improve the Elementary system is to improve the men who work the system. Too often our elementary teacher is like Goldsmith's traveller—remote, unfructified, forlorn and slow. The way to improve him is to smile at him, admit him in your company, give him his proper place. In his inimitable essay on the Old and the New Schoolmaster, Charles Lamb refers to the 'schoolmaster's restraint of a formal or didactic hypocrisy in company.'—"He comes like Gulliver from amongst his little people. He cannot fit the stature of this understanding to yours. He cannot meet you on the square. He wants a point given him like an indifferent whist-player." Well, if you want to play the educational game, you must give a point to this indifferent whist-player of our educational system. This professional unity more than your Intermediate classes will solve the educational problem as a whole. I hope you will leave no stone unturned to bring about this professional unity.

Lastly, let me touch upon the most modern tendency in Indian Education—the boycott of education. I am not one of those who believe that our educational system is perfect. But I must hasten to tell you that I do not look upon it as a Pandora's box from which all evils have come into the present society. I should therefore be satisfied with less drastic or radical remedies than the remedy of the spinning wheel. If we are to work for democracy in education, you cannot do so only with intellectual education. It can only be done with better academic and corporate life. Education does not consist in imparting or testing information or in turning out wage earning machines. The real test of education is to guide the pupils' egoistic motives to social expression. Speaking at the opening of extended buildings of Edinburgh University Union, Mr. A.J. Balfour, now an Earl, as we read recently said, "A University life which consists only of the relation between the teachers

and the taught, between Professors and students, is but half a University life. The other half consists of the intercourse between students themselves, the day-to-day common life, the day-to-day interchange of ideas, of friendships, of commentary upon men and things, and of the great problems which the opening world naturally suggests to the young." Let us, teachers, give much more opportunities to our pupils for this kind of life. Let there be more clubs, unions, associations, and parliaments and if you do not mind my saying it, playing fields. The battle of Waterloo, it has been often said, was fought and won on the playing fields of Eton and Rugby. The decision of character, that glorious quality of leadership and still more glorious one of following, the spirit of liberalism, sweet reasonableness, resourcefulness, the habit of truthfulness and of working for the whole, it is these that will bring us nearer to the temple of freedom and these are acquired in the society of our equals and superiors. I pray that the batch of teachers who are going out this year will appreciate these ideals of education and propagate them.

The schoolmaster is not privileged to take active part in politics. It has been so in the past, it is so in the present and I hope it will be so in the future. If those also serve who stand and wait those who guide and inspire serve more than that. The Dronacharyas and Ramidasas of old have given us ancient and modern heroes. Let us continue the heritage that has been passed on to us by such mighty spirits of old. Let us live to be worthy of such a scholastic tradition in our country.

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HIGHER ASPECTS OF OBSERVATION.

By Mr. BEPIN B. BANERJI, B.A., B.T.

Director, Dutt High School, Nitrakona,

Mymensingh (Bengal).

IN these days of object-lessons, Nature study and all that, nothing has been probably left of the subject of observation for further discussion. Writers and speakers have treated the subject almost threadbare and the time has, we think, come when it will be not improper to say a few words as to what we should not observe rather than what we should.

The first and the most fundamental principle with which we should begin is that observation of all things is not necessary. It is neither dictated by Nature nor practicable in life. Habit and frequency will throw some actions to the region of sub-consciousness. These actions will then be performed, as it were, automatically, or in other words, without letting the brain into anything like active exercise. The demand made on the attentive "faculty" is suspended so far as these actions are concerned. We do not turn to them; nor is a moment's thought necessary for their regular performance. They assume the nature of what is called reflex or mechanical actions. An instance of this kind of automatic action may be cited from our walking process. What a serious task the child has to make of his attentive faculty when he first learns to walk! Every step calls for the whole field of his attention. His mind is entirely concentrated on the effort he makes to move on his legs. Repeated failures and repeated trials teach him how muscles are to be adjusted, fingers placed, and the movements effected. With the success gradually acquired as a re-

sult of this trying process, the child gradually throws the experience of this painful effort into the region of sub-consciousness and when he grows a little older he completely becomes listless to the process by which walking has been acquired as an art. Do we turn at this stage of our life to, or bother our heads about, the way in which muscles are to be called into play or the angles made by the feet when we walk? We do not think of them, yet we walk all the same. Nature has so provided that the action which demanded the severest attention does not require even the least of it, as soon as habit and frequency have made them our own. The brain is no longer called into active service for their performance, but is relieved of their share of activity—which is then utilised for other purposes. Had not this been the rule, the acquisition of knowledge would have been an impossible task. Had we to turn our attention to walking and dressing, lying down and getting up, then the whole field of attention would have been so seriously occupied as to leave no room for what is called concentration and abstraction on which the possession of knowledge and the merits of a genius are so essentially based. These and other minor actions will ere long take care of themselves, leaving the mind quite free to take in knowledge from the more important and useful sources. And to us it appears that the man who can throw the largest number of his actions into the region of sub-consciousness is the only man who can lay claim to the distinction of greatness or genius. It has been often noted that the men whom we know to be great are very indifferent in their dressing, walking and outward gait. This means nothing but an abstraction from the ordinary affairs, or, what may be called, the externalia of life. The

attentive faculty is thus relieved of much of the burden thrown upon it and directed to the pursuit of the object which the genius has set himself to attain. The whole mind is engrossed with the idea of fulfilling the aim he has placed before himself in life and not even the least part of his attention is expended on dressing and shaving, walking and even eating. He thoroughly identifies himself with the mission of his life and the non-essential elements have absolutely no influence over his attitude and demeanour.

This is the work of Nature. Whether we will or not, certain actions will become automatic. Let us now see whether it is convenient for us to *will* that all things should be observed and studied. There are so many things in this world of ours, not to speak of the myriads of worlds hanging overhead, that the wish to see all and to know all may remain a pious wish and may not be translated into action. It will be repeating the notorious folly of our friend, Mr. Jack, whose vain attempt to follow all trades has branded a stigma on his forehead for all time to come. The human mind is no doubt a kaleidoscopic phenomenon. It has its various departments and aspects. But to train and bring them all to perfection is to court failure. "Life is short, Art is long." In the brief span that is given to us, the development of an all-round humanity appears to be a serious, if not impossible, task. It may be given to a chosen few—if given to any at all—but to expect it from all and sundry is nothing but to cry for the moon. Such many-sided development is not vouchsafed to mortals. Whatever efforts we may make to secure it, they are bound to come to an ignoble end either at the present or in the future.

Besides, had all the "faculties" been susceptible of being cultured to perfection, the

existence of some prominent traits with which men are generally endowed would not have any meaning. The peculiarities of character, call them eccentricities, angularities or whatever you like, are, as it were, the finger posts of the ways through which the individuality or the genius of the man will manifest itself. They are Nature's clear indications of the direction in which the highest development can be secured with the greatest ease. Concentration of attention to these prominent aspects of the human mind facilitates mastery and ensures development. A Franklin or a Stevenson had the scientific mania implanted into their souls and the focussing of all their efforts to the cultivation of this mania made them what they are. The childish hobby of Drawing and the Verse-making developed themselves into the genius of a Raphael and a Pope. It is the whole-hearted devotion to the pursuit of a single object for which they and others have felt a prompting in their boyhood that produced the mature minds of the world. To look for all and to observe all is to court failure. It may end in gaping about but not in observation as it is properly understood.

Thus both Nature and self-exertion point to the fact that observation of all things is not necessary nor desirable. Attention is to be rivetted to the attainment of a single object for which an aptitude is felt. Not only these, many things are to be clearly forgotten. This may sound paradoxical, but a little observation will show that forgetting is a boon in more senses than one. Had the loss of the child been a perpetually remembered fact, life had been intolerable. Nature works out a state of oblivion, so that life may become a thing of joy for ever. Forgetting has another value: it helps to form concepts. To form the idea, say of "man,"

we have to see so many specimens of humanity. But when the concept "man" is once formed, do we remember or call to mind the concrete instances or any of them that helped to form the concepts? Do we remember John, Richard, Singh or Choudhury? The idea "man" has nevertheless been abstracted from them, but none of them comes to our mind when the concept "man" is to be understood.

Let us take another example. Many of us have read the elements of Euclid; but do we now remember the enunciation of this, that or the other problem or theorem? Most of them have clearly gone out of our memory; yet the general conception of space relations have been formed out of these particular or concrete instances.

Thus not only many things are not to be observed, but many observed things are to be forgotten. This will bring into prominent relief the one idea or object that is to be pursued in life. Faraday was a great scientist, because he made not even science, but only a part of it—electricity—the only subject of his life-long study. He cultivated what in philosophical language is called one kind of apperceptive mass. He did not go in for general culture—that is reserved for us—little humbugs and puny weaklings.

Thus by a man of observation we understand a man with a limited range of knowledge. With this limited range he attacks all the available data concerning a point at issue and gathers the relevant ideas into a connected whole and rejects those that are irrelevant. From a tiny little spot in the handkerchief, a clever detective traces a horrible murder, which a man with a wide range of general knowledge fails to detect. The former has cultivated only one department of knowledge

and that to such delicate precision as scarcely to be in the wrong in matters coming within the range of his special knowledge. He concentrates the whole field of his attention to that little spot and the facts connected therewith and weaves out a theory that almost literally coincides with fact.

Another thing that is observed in the art of observation is the suppression of some of the steps in an argument. When I say that I am mortal, I have somewhere in the crevices of my mind the logician's pet syllogism,

All men are mortal;
I am a man;
Therefore, I am mortal.

Again, let us take a little more intricate example. Many of us are no doubt familiar with Archimedes' famous discovery. Archimedes was given the problem of finding out the quantity of real gold in a crown without breaking it. He pondered over the matter for days and days together, and at last while bathing one day in the tank he cried out "Eureka," "Eureka," "I have found it," "I have found it." Between the problem and its solution so many steps were suppressed—a body when immersed in water weighs less than when it is in the air. The diminution of weight is peculiar to each body. Hence the peculiarity attaching to gold is the criterion by which its existence is determined.

The omission of these steps led people to think that Archimedes ran mad. They could not think in the channel in which the great scientist thought and his cry for joy was regarded as the expression of an unsound mind. They could not conceive that the giant mind of Archimedes grasped so many data almost in the twinkling of an eye. They flashed, as it were, before his mental vision and made his whole frame astir with joy celestial. All the

premises were concentrated in his capacious mind, if I am allowed to use such an expression. Instead of this proving the paucity or unsoundness of his intellect, it clearly shows the power of concentration which the Greek philosopher possessed and pitifully exposes the poverty of the brains of his critics. His mind was thoroughly focussed on the solution of the problem he had in hand and the nakedness and the loosening of his garments were far beyond his ken at the time. He observed truly because he could not observe these externals. The faculty of observation was confined to a definite and particular object and not to a world of things and phenomena. Such limitation of the field of observation and the suppression of the data always appear to us to be the sign of a great intellect. Those who have the good fortune of sitting at the feet of eminent Professors of Mathematics or Science will readily verify the truth of this statement. If an experienced Professor of Mathematics omits several steps and comes to the result in a few steps, does it show the pooriness of his intellect or retentive faculty? Many who have listened to the lectures of Sir J. C. Bose—lectures which were not meant to be what is called popular—may have felt the grit of getting him through. Because Sir J. C. Bose has so many data in his mind, that he omitted either consciously or unconsciously some of them so as to be brief; but if such omission makes you and me look agape, does it prove that the distinguished scientist is a big humbug? "Brevity is the soul of wit"—so runs the proverb, and what is this brevity? It is nothing but the omission of some of the premises or data of a discourse or argument.

Again what are misconceptions and misunderstandings of our everyday life due to?

Are they not due to the inability of the persons spoken to, to see the omission of the steps or the data made by the speaker or in other words the tendency of the listener to understand the speaker in his own light? Had the former cultivated the same apperceptive mass, or had possessed the same power of assimilation as the latter, no such things as misunderstandings would have any existence. Both would have understood each other in the same light. The development of the assimilating power being different in different men, the person spoken to may look askance at what the speaker says or takes him in a manner in which the speaker does not intend him to take, and the result is that a cat-out-of-the-bag sort of things follows. The speaker may, for instance, indulge in a harmless talk about murder, but the murderer among his hearers may grow pale. He cannot take the speaker in the simple straightforward way but colours the innocent speech with the hues of his own mind, and shudders and trembles at every word which the speaker utters without the least intention to give offence, or far less, to show his detective skill. "Everything looks yellow to a jaundiced eye." Most of us look upon the world in a light peculiar to ourselves, no matter the degree the eye, the ear or the hand may have been trained.

The faculty of observation concerns itself with the mind and the amount of labour or training that may be expended for the acquisition of a delicacy or precision in the sensory organs as it is so often done under a mistaken notion in the school-room, is scarcely of any avail. We are naturally led to observe things for which we have some interest, and interest is a functional condition of the mind and not of the body. By any attention to the development of

THE INTERMEDIATE COURSES.

AN OPEN LETTER TO THE UNIVERSITY OF MADRAS.

It appears that both the University and the Educational Department of Madras are just now contemplating to take up the question of transferring the Intermediate courses to High Schools. Having watched the progress of education for over three decades as a teacher working in the Department, I feel bound to give publicity to my views on the question in the hope that the authorities would take them for what they are worth and give them such consideration as they think fit in the new light thrown upon the problem.

No doubt the proposal to transfer the Intermediate courses to High Schools was made by the Calcutta University Commissioners and also by the Royal Commissioners on Public Services in India. Their object in proposing the transfer was to see that English instruction is perfected before students leave the High Schools and take up University studies, for which, as matters now stand, students in general are found to be unfit in virtue of their too meagre acquaintance with the English language. Thus the question resolves itself into one of official admission that English instruction in the High Schools is inefficient, that eight years' study has failed to give students the requisite working command over English and that the way to improve it lies in making students study English in High Schools for two more years, i.e., for ten years on the whole. It is thus clear that the secondary course will extend to thirteen years instead of eleven as at present. As regards the collegiate course, "B. A. Course," it is proposed to make it three years; but there is reason to believe that ere long—if not the very next year—the powers that be will see the necessity to enhance the duration of collegiate studies

the physical precision may take away from the concentration or abstraction which is the soul of observation properly so called. We must focus the whole field of our attention to the pursuit of a single object for which we have a deep and abiding interest, and learn to turn our mind away from the commonplace; nay even the general knowledge that may have been received must be forgotten, or in other words, utilised to give strength and force to this one object in life. To observe many things is not to observe a single thing as it should be observed. Not only many things are not to be observed, but many observed things are to be forgotten, so that the whole of the attentive faculty may be confined to the pursuit of one object in life which is dear to our heart. This is the narrow way which leadeth to glory and fame, while a many-sided observation is the broadway that leadeth to destruction and nonentity.

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to four years; this is only a question of time deferred only for a year or two to evade public clamour; and the addition of only one year just now to the Degree course is no more than a palliative and the addition of the fourth year is almost a foregone conclusion. However sooner or later the contemplated change will enhance the general educational course to a period of seventeen years as against fifteen years prescribed at present. Indian students generally begin their education in their fifth year; thus the Degree course takes students to their 22nd year provided there is no break of any kind. If we add two or three more years for post-graduate or professional studies, they will be barred against public service, since all this takes them beyond the 25th year. If students cannot graduate before their 22nd year, it is again a serious obstacle against them in the matter of competing for the Indian Civil Service. If we take note that the age of maturity as well as of family life in India averages below twenty, the duration of the course of general education is already too long; and any further enhancement of it is nothing but a hardship to the school-going population. Again, the school-fee notification is already a bug-bear to the middle classes, not to speak of the poorer ones. All things taken, the proposed enhancement of the Secondary and Collegiate courses is nothing but a serious hardship to students seeking education, and decidedly a death-blow to higher education. It is thus clear that any attempt to prolong the duration of general education is nothing short of a national calamity. Again, it is simply surprising to see eminent educationists hope for the betterment of English instruction by the proposed enhancement. If the methods of teaching are to be the same and the instruction is to proceed on the same lines, how any good can accrue to English instruction by the proposed enhancement remains a mystery.

There are numberless students styled 'First year supplementaries,' 'Second year supplementaries' and so forth, who spend more years in High Schools. Are they found to have made any perceptible improvement in English? Perhaps the Intermediate courses, when transferred to High Schools are meant to be handled in a different way; of course they are being actually conducted in a different fashion even now in all the Intermediate classes; what harm if they remain the same? How the nomenclature, "High School Intermediate courses," can improve matters and what charm there is in that denomination are really inexplicable. Educationists in the country will do well to consider all these points twice, before they precipitate matters towards a hasty and meaningless conclusion.

Formerly the entire Secondary course extended over eight years; and of these six were devoted to English instruction. By the addition of the Infant class during the eighties, the Upper fourth class about 1880 and the Fifth form in 1891, the entire Secondary course was enhanced by three years and now extends to 11 years of which 8 are spent on English instruction as against 6 prior to these enhancements. You are now proposing to enhance the courses by two more years on the ground that the results of English instruction have been deplorable. Suppose a decade hence our students are found in the same miserable plight and that results of English instruction are no more encouraging than now, what are you going to do then? Certainly you will propose a further extension by two or three years. How long, I should like to know, can you proceed at this rate? Perhaps in a century you will probably make general education extend over a period of 30 or 40 years. With due deference to you, I must tell you candidly that this is not the way to grapple with the situation. It is high time for you to look into the qualitative side of English instruction and examine where the

root of the evil lies. Any sane man can see that 8 years of study must prove quite adequate, and even more than enough, to furnish students with a practical working command of any foreign language, provided the methods are truly rational, scientific and efficient. I should, therefore, like to point out to you the urgent necessity there is at present of looking into this matter before thinking of prolonging the duration of English instruction in Secondary Schools any further.

Even in this matter, the learned Commissioners, who are referred to are not silent. The transfer of the Intermediate courses to High Schools is not the only remedy they have proposed. They expressed their dissatisfaction with the present system of English instruction, recognised the failure of the Direct Method and made some suggestions for the improvement of English instruction. As for the enhancement question it can be easily settled by any autocratic machine without so many respectable educationists of the province sitting in consultation. But the other remedy—improving English instruction from the qualitative stand-point—pre-supposes a keen and intelligent insight into teaching methods and conditions, a clear conception of the defects and merits of the rival systems of instruction and a strenuous effort to weed out what are baneful and introduce those which are of a really rational, scientific character. If the *personnel* of the University and the Department can give their thought to this remedy and take steps just to carry out the suggestions of those respectable bodies on this score, there is a certainty that good results will follow.

Having devoted a whole life to this problem, studying the question with some care throughout a teaching career covering over 35 years, observing the defects and merits of rival methods of instruction in teaching foreign languages, and last though not least,

having made some research work in this direction on the constructive side, the present writer may be permitted the liberty of offering the following for your consideration. In connection with the qualitative aspect of English instruction in our schools the following are the main questions at issue.—

1. What principles underlie the present-day system of English instruction in our schools?
2. What is the latest expert opinion on these principles?
3. What have the two bodies of Commissioners said on these principles?
4. What is the present-day faith and practice of the English school with regard to these principles?
5. What is desirable to be done by the University and the Department in the light of the foregoing evidence?

THE UNDERLYING PRINCIPLES.

The Educational Department introduced and adopted the Direct Method about 1906 and prohibited the use of Translation, under English instruction. The Department may point to some clauses in the Inspection Code and Departmental Regulations which seem to allow the use of translation and the experimentation of all well-thought-out methods; but they are proved no more than a dead letter as the Department steadfastly rejects all attempts to introduce systematic translation.

The Department removed translation from all teaching and examinations. They are dealing with translation as though it were a miasma from which the young students should be most tenderly shielded. As for the University they have expunged the test under translation from all University examinations, only in pursuance of the reform of 1906. To be brief the present-day system of English instruction can be characterised as completely pro-Direct-Method and anti-translational.

EXPERT OPINION.

In the *Occasional Reports*, Vol. IV, p. 4, we find the following statement made by Mr. J. N. Frazer and pointing to the faith in the Direct Method in the land of its birth: "Nor is their method adopted everywhere; they have not convinced quite all their opponents."

(2) Dr. Sweet in his book "A Practical Study of Languages" says, "But none of these methods retain their popularity long. They have all failed to keep a permanent hold on the public mind, because they have all failed to perform what they promised. After promising impossibilities they have all turned out to be no better than the older methods."

(3) Otto Seipman denounced the Direct Method saying—

"To have our schools invaded by a method which proceeds on these lines seems to me very serious indeed."

(4) "For College or School work the natural method is a delusion and a snare."—Prof. Edward S. Joynes, University of South Carolina.

(5) Jespersen says—"Translation is indispensable."

(6) "In any case it would be the height of folly to reject this potent instrument, translation, if it can be used; and if any educator does reject it or finds that his modern language teacher is rejecting it, it behoves him to take strict account of the reasons for the course."—Mr. E.H. Babbitt, Columbia University.

(7) "If we spent all our three years on translation and grammar our best pupils would, at the end of that time, be just in proper condition to begin serious work in composition."—Prof. C. H. Grandgent, Harvard University.

(8) "Sight translation should begin at the very outset of the first year's course, and

should always form an important part of the work."—The Committee of Ten, U. S. A.

These are only typical extracts. I should like to say that there is really a mass of expert opinion both against the Direct Method and in favour of translation. For fuller and copious opinions on all the aspects of linguistic instruction, I refer you to the *Indian Education*, Bombay, for March and June, 1914.

Even before 1906 there had been fervid denunciation of the Direct Method; and it was in the face of such reaction that the Direct Method was thrust upon the Indian Schools and translation hunted down by all possible means.

THE PRESENT-DAY FAITH AND PRACTICE IN ENGLAND.

About 1908, the English Schools adopted translation as an alternative method and introduced it into some sections and instituted examination on the alternative basis. After following this policy for about a decade, they made translation compulsory as can be seen from the following extracts from the "Modern Language Teaching," London, for June, 1917:—

"The Cambridge Syndicate in their regulations for 1918 announce the following alternative syllabuses in French in the Senior Local examinations:—

(a) The paper will consist of passages for translation into French.

(b) Candidates will be required to reach a certain standard both in spoken French and in a paper which will consist of passages of French for translation into English.

Pupils may be rejected for weakness in either part of the paper under both (a) and (b)."

I believe these will suffice to show that nowhere in the educational world are the pro-Direct-Method mania and anti-translational

bias as rampant as in the Madras Presidency.

THE COMMISSIONERS' OPINION.

(9) "The Direct Method is a complete failure in Bengal."

"If translation from Bengali into English were substituted for the reverse process, the Matriculation pupil would be fifty per cent. better in half the time."—M. P. West, *vide* Report of the Calcutta University Commissioners, pp. 229-230, Ch. XVII, Part I, Vol. II.

(10) The Honourable Mr. H. Sharp says.—"Nor do I at all believe in the banishment of translation and re-translation. Indeed I set great value on them."

(11) "At present the level of English teaching in High Schools is so low that the majority of students on their arrival at College have a most imperfect comprehension of the lectures. All changes in the direction of substituting a more practical discipline in the use of the English language are to be earnestly welcomed."—Report of the Royal Commissioners on Public Services in India, page 108, Vol. I.

In the light of official authorities like the above, I should like to ask you how the present-day policy of the Indian School, with its pro-Direct-Method mania and anti-translational bias, can be justified. It is a matter for no small regret that those responsible for English instruction in schools should be so woefully indifferent alike to what is passing around and to the interests of students. It is enough fifteen batches of students have been sacrificed at the altar of the fetish of the Direct Method. Pray intercede and stop the havoc. It is also enough that as many batches have been deprived of the benefits of translation. Pray interfere and make adequate arrangements to see that translation is duly restored in schools and worked in all earnestness.

WHAT OUGHT TO BE DONE.

Obviously it is a matter of urgent necessity that the University or the Educational Department or both combined should make adequate arrangements for the restoration of translation and for working it out in all earnestness; should invite, welcome and adopt schemes of instruction based upon systematic translation; and should call upon schools to make experiments with them. If any such schemes are ready on hand—and I believe they are—call for them, judge of them and make such use of them as they think fit. It may be assured, on the strength of the evidence quoted above, that students can have a fair command of the English language in not more than four or five years, if courses in systematic translation are followed; that, by the time students leave the Third Form they will be fit to begin serious work in English with facility; and then the High School itself will form the connecting link between the Middle School and the Collegiate courses. If you are not prepared to do it at once on the word of a solitary teacher you will do well to arrange for a Conference where the subject may be discussed with the aid of such teachers as have made original research work in the direction, taking care to see that those who have committed themselves to the Direct Method or pinned to the present-day faith do not sit in judgment over this question. They may, however, represent their view of the question. If you do this everything fares well.

THE CONSTRUCTIVE SCHEME.

In this connection may be stated one thing more. The mere mention of translation or even its adoption cannot be calculated to be of much practical use in the matter of improving English instruction, if translation is to be used in the same way as it had been used prior to its banishment in 1906, and unless and until some rational scheme of instruction is forthcoming on the basis of translation. The views so far expressed by

experts, official and non-official, are but stray ones pointing to the folly and failure of the Direct Method as well as to the desirability and even urgent necessity of restoring to translation the importance due to it as a method for teaching English; but no organised scheme of instruction has been so far recognised or adopted. Of course when once the anti-translational rigour of the Educational Department relaxes and a more liberal spirit comes into play in regard to translation, there is every possibility for systematic courses to be formulated.

In conclusion, it may be affirmed, on good authority, that, in the matter of transferring the Intermediate courses to High Schools on the score of the imperfect knowledge of students in English, the University should note that eight years is already a sufficiently long period, if not even too long, for furnishing to students a working command of the English language; that efficient instruction can be imparted in five years if only translation is restored to its proper place and correct methods and right systems of instruction are adopted; and that, in consequence, the idea

of transferring the Intermediate courses to High Schools is both absurd and ruinous. The Department should alike feel it a disgrace to ask for any extension of time beyond eight years for furnishing to students a practical working command of English,—just to enable students to understand lectures and books in English and express their ideas correctly and idiomatically in English. The Department must unlearn their bias against translation and invite, welcome and encourage systematic schemes of instruction based upon translation. If they only do this students will be well-up in English even by the time they leave the Third Form so much so that the High School will form the connecting link between the Middle School and the Collegiate courses. Since examinations influence teaching methods to no small extent, the University and the Department will do well to institute tests in translation both ways at all examinations and prescribe compulsory minimum separately under this head, after the model of the Cambridge Senior Locals quoted above.

CH. V. JOGA RAO.

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THE SECONDARY EDUCATION OF OUR DAY.

THE air is thick with talk of reform of our Secondary Education. Everyone feels that something is wrong in it. It is not the sort of education which gives the best result, nay, it is an education which gives us a barren result. But what is wrong in it and where exactly the surgical implement should be applied to cut open and remove the bad matter are variously viewed. Is the affectation merely of the skin or has it gone deeper into the flesh so that it may easily affect the bone and enter the marrow? Is the malady in any one place or has it vitiated the whole? Is it enough to have tinkering or should there be a thorough reform? It appears that a thorough reform is necessary for all are agreed that the spirit of our education is exotic and unfit for the soil of our country and the minds of our children. Our educational institution is a hot-house plant elaborately conceived, kept with great care and at great cost. But for all the effort taken and the vast amount spent the plant has lost its natural freshness, its beauty is crushed by its artificiality, its colour has faded. It has been made to grow by artificial means in a wholly unsuited soil. This Indian air, this Indian soil, the Indian sun and the Indian spirit are as alien to it as it is to them. The result then can easily be judged. It is no cant to say that the Secondary Education is entirely against our grain. It has much in it that has to be purged. There should be a thorough change of spirit. If any wise change is to be done it is not enough that some detail is altered here and some there. We shall then be only sewing a new piece of cloth to an old rag which is not made the better for that and which can never become new on that account. Our education is not an education for India, an

education which can promote Indian spirit and Indian sympathy, an education which has made us love the country the more, for it.

Secondly, our education has been reduced to the level of trade. The spirit of trade has entered it. There is an ambition to deal in several subjects. But unfortunately our ambition is no better than that of a retail dealer. There must be something of every commodity, English, Vernacular Translation and Composition, Elementary Mathematics, Elementary Science, British Empire History, Optional Science, or History, or Mathematics, Optional Sanskrit, Tamil or any other Vernacular. The first three subjects form the group A, the next two belong to B group, the rest are C group subjects. Why are the subjects grouped in this way and what is the meaning of this grouping? The A group subjects are important and everyone should know them. The B group subjects are not important, still they should not be neglected, for they may prove useful. They may sell—the retail dealer's theory. The subjects in the C group are important. They are for specialisation. Our boys have attained to a high standard of general education and they should begin specialising even in the Secondary course!

We shall answer now what results flow from such a grouping and then take up the first point, *viz.*, the absence of a true Indian spirit in our education. As a result of such a grouping many subjects have lost their importance; especially the B group subjects are neglected. It is no use saying that the framers of the scheme had different ideas and expected different results. The position assigned to those subjects cannot but lead to such a result. Regarding the other two groups their importance is much exaggerated, and even there, there are two subjects which can suffer suppression Vernacular Trans-

lation and Composition, and Elementary Mathematics are not so very important as English and the optional subjects. Failure in them does not count much. What a deplorable evaluation this is! It is the case of a bloated stomach which hides the other parts of the body by its largeness. So this division of the subjects and the assignment of places are wholly injurious.

Further, these are the days of correlation, of relating one subject to another. We no more think that knowledge consists of different compartments, that it is divisible. To attempt to divide it into several groups is, therefore, unsound. When such is the case what calamity it is that Science should be split into Elementary Science and Optional Science, and History into B group History and Optional History, and Mathematics into Elementary Mathematics and Optional Mathematics and Vernacular into A Group Vernacular and Optional Vernacular! Have not walls been raised between one subject and another, and one division of one subject and another division of the same? Which boy does not think that Elementary Science or Mathematics has nothing to do with Optional Science or Mathematics? What a cleavage has been made between History in the B group and History in the C group! Why should we mutilate subjects in this manner and label them differently? Why not there be one Science, one History, one Mathematics, etc., as before? We shall not then be cutting the same thing into two and serving them differently. What is the object of such a mutilation? It is to be a safeguard against complete neglect of a subject. A student cannot say that History is his subject and run away with it. He must be made to sip something of Science and Mathematics. So also in the case of a boy who takes Mathematics or Science as his optional subject. He must know something

of History. Hence the B group History. Each bit of a subject has some value. It may sell—again the retailer's theory. But we want only to give bits, we are afraid to give wholes lest indigestion should be caused. We are students of homoeopathy.

But is the object contemplated, *viz.*, that each boy should know something of every subject really achieved? Pitifully no. In a previous paragraph we have stated how some of the subjects suffer as a result of exaggerated values given to others. Which student cares for Elementary Science? We shall take the instance of a History student. If he neglects Elementary Science, as he seldom fails to do, has he learnt any bit of what we have intended for him? The subjects in the B group have suffered unmerited neglect. They have lost their values in the eyes of the boys, and teachers not seldom incline to think so. They are not subjects for the S. S. L. C. examination. Are we not wrong then in thinking that our scheme is being worked out as we desired? It is not anybody's fault. It is our own fault for our scheme is unsound. We have wrongly copied the retailer's theory that each commodity will have sale. It is a tragedy that, while all his commodities do really sell, our commodities which have been multiplied by a well-planned mutilation, and over which we have built our hopes have not found any buyers, nay, the very buyers on whom we had great faith have not turned up but have discarded our commodities. We shall, therefore, leave off this retail dealing. We shall have a few definite commodities and be wholesale dealers in them. We shall have one subject called History another Science, another Mathematics and so on. Let them all have the same values. Let there be no unnecessary, unsound, and unprofitable mutilation.

Hitherto we have considered the scheme of our Secondary Education. We shall now come to a few particular subjects and say what we have regarding them. In speaking about them we shall also deal with the question of the need of a true Indian spirit in the education. In English we have a detailed text and a few non-detailed texts. The detailed text is intended for thorough study. All the idiosyncracies of the language, the grammatical points, the idioms are all to be mastered. In short, its aim is to acquaint the student with the vagaries of the language. The selections are from good and great authors as they should be. But here too is a defect. The selections are chiefly from the 17th and 18th century authors and so our boys are made to learn the English of those centuries and not the virile, living language of the present. Does this not injure the English of our students? If we prescribe to them English of the past with its involved constructions, loose sentences, and incoherent grouping of clauses, what right have we to expect from them correct English? The modern English is direct, forcible, terse, business-like and militates against all involutions. It admits of no idea or thought being slowly unfolded. There is a hurry about expression of thought. This hurry it has taken from the life of the times. No leisurely expansion can be allowed. So what we expect from the students is this sort of English. This is what I mean by the epithet "correct." It is not that the English of the past is incorrect but it does not suit the present, and we unhesitatingly declare that sentences from the authors of the earlier centuries do lack unity of sentence (*i.e.*) unity of thought. While we prescribe such authors, of what use is it to publish reports quoting instances from boys' answer-books of violation of unity of thought and structure? We shall give them

plenty of the living English of the present. But we shall not on that score neglect great authors of the past for they are the classics and we cannot afford to lose them.

We shall come to the non-detailed texts in English. It is almost always the custom to prescribe books which are wholly outlandish. The scenes depicted, the pictures portrayed, the characters, the spirit, are all quite alien and they make no appeal to the Indian mind. Sometimes the books prescribed are such that they belittle their countrymen in the eyes of the children. 'Man-Eaters of Tsavo,' 'Settlers in Canada,' 'Canada to-day and yesterday' are recent examples of books evoking no interest in the boys. No student cares for the matter of these books and only when the matter is of interest to him he reads any book with pleasure. Then alone the purpose in view of non-detailed study in English will be fulfilled; for that purpose is only to give the student a large and broad acquaintance with the language. If the matter of the book is quite foreign to him, if it is something beyond his imagination, and immediate appeal to him, then it is dry as dust. Why should the poor student be forced to swallow this unpalatable food? Why should his spirit be crushed under the heavy load of uninteresting matter? Why not something more appealing to him, more tasteful, something which he can easily sympathise with, something of his own country, of the heroes of the land, be prescribed? Let books treating of Indian life and customs, books which can kindle in his heart love of country and respect for the heroes of the land be prescribed. Why should he feed on foreign stuff since it has no interest for him? Which student of the S. S. L. C. class knows anything about the Ramayana or the Mahabharata? Many could be found among them who cannot say why there was a quarrel between the Pandavas and the Kauravas.

Buddha, Asoka, Chandragupta Vikramaditya, Harsha, Akbar, Sivaji, Rani Mohan Roy are all alien to them. What a deplorable condition this is! But we should thank our stars, and regard it a piece of good luck that the Ramayana and the Mahabharata are prescribed for the S. S. L. C. examination of 1923 and 1924 respectively.

Another great drawback is that undue importance is attached to the History of England in our education. In the bigness of its importance the history of our own country has dwindled into an insignificant smallness. While we should know the whole of the History of England with special study of a certain period we are given only a very small portion of Indian History for study along with the History of England. The surest way to vitalise a nation is to constantly remind it of the great glories belonging to it. It must be bred on its own greatness. The sons of the soil should feel proud of their land, and the heroes of the country. They must remember that they have a distinct life and that they bear a great mission. They have also a part to play in the life of the world as their ancestors have played their part in the world-life in the past. In the light of the past history of their land they must become self-conscious. As long as this self-consciousness is not kindled, as long as things are allowed to exist to obliterate their memory of the past the people become beggarly in spirit and parasitical. A true love of country, a pride in being the child of the land, and of having been born in a nation which could boast of illustrious men, these go to make up true greatness. They make the hearts of the people brave, and are an incentive to further greatness. But when the children are brought up in the consciousness of the degradation of the nation they are sped on in the downhill path of ruin. How long is it possible to feed

a people on the greatness of others? Self-reliance is the key to all success but self-reliance is the off-spring of self-respect and self-respect is born of self-consciousness and unless this self-consciousness is evoked our educational system is a failure. It is necessary that Indian History should receive greater attention, should have greater importance than the History of England. We can even afford to lose the latter if it were only to give Indian History its true position in an educational scheme drawn up for Indian students.

Many a young student in our country remains in blissful ignorance of the great ancestors of his land. When stories about them and their great deeds are told he feels inspired. When the mind is elevated and the heart swells with the pride of belonging to a great nation then the best foundation has been laid for further greatness. There is a constant stir to achieve greatness. This stir is a great propelling force and pushes the individual as well as the nation on. But when the young student is instilled with the idea that glories are elsewhere, heroes are elsewhere, great deeds are elsewhere, then he unconsciously begins to feel that his land is a land of no heroism, no greatness. How can we then expect him to be great? If he is told or made to feel constantly that he is born in a small nation, among little people who could do or achieve nothing great, what greatness can we expect from him? True greatness comes to a nation not merely by increased manufactures or increased trade. A nation may be a great trading nation but it may be small-spirited at the same time. It is only when the individuals feel great that the nation feels great. It is only when the nation feels great that true greatness is born. So to set right our education there must be a thorough change of spirit. It should be a truly Indian education, an education for the benefit of the people, for the uplift of the country, an education that could make the people self-conscious, self-respecting and self-reliant.

V. VIRARAGHAVA Aiyengar.

TYPES OF LESSONS IN ENGLISH FOR THE TRANSITION STAGE

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IN my previous article on the Teaching of English in the Lower Classes, [*vide Educational Review*, Nov., 1922] I had occasion to mention the threefold purposes which a text-book ought to serve and observed the different types of lessons that it should needs contain. Herein I propose to sketch briefly some lessons of the following type for the Transition stage, i.e., the stage next to that of the conversation wherein the instruction proceeds mainly through the medium of a text-book.

TYPES OF LESSONS.

- I. An outdoor lesson—Excursion to the river bank.
- II. A dialogue — Buying vegetables in the market.
- III. Conversation based on pictures. } Jack and the Beau-stalk.
- IV. Short stories.
- V. Nursery Rhymes.
- VI. Specimens of easy letter-writing.
- VII. Sentence construction.

I. AN OUTDOOR LESSON.
[NOTE:—The children sit under a shady tree forming a circle. Near the tree could be found an old dilapidated building, some cows and sheep grazing, some people walking on a road near-by, a river at a distance that could be seen from under the tree, etc. A cloudy day may be chosen for the purpose of this lesson. Three or more excursions will be necessary to finish this lesson. The new words and expressions intended to be introduced are put in italics and the method as to

how they are to be explained is put in brackets.]

(a) THE TREE

1. Where are we sitting?
We are sitting on the ground.
2. What is that? (Pointing to the tree).
That is a tree.
3. Where are we sitting?
We are sitting near the tree;
We are sitting under the tree;
We are sitting in the *shade* under the tree. (Use vernacular).
We are sitting under the *shade* of the tree.
4. This is the *stem* of the tree. What is it? (Point). It is the *stem* of the tree.
5. We do not see the root. The *root* is under the ground. (Point to a root of a plant).
Do you (or can you) see the root?
Where is the root? (Use 'can' if the children know its usage. Simultaneous answers like 'We do not see the root', etc., may be encouraged).
6. Show me a *branch*. (Point to one near to hand). This is a branch. These are branches.
7. What colour are the leaves? (or what is the colour of the leaves?)
The leaves are green (or the colour of the leaves is green).
8. Do you see the flowers?
Yes, sir, we see the flowers.
These are the flowers. (Pick up some from the ground).
The flowers are red.
The flowers are *high up* in the tree, (Raise the hand fully and look up at the top of the tree).

(b) THE WEATHER.

9. Do you see the sky?
I do not see the sky.
10. Why?
Because the branches are hiding the sky.
11. Go there and look up. Do you see the sun?
No, sir, I do not see the sun.
12. Is the sun shining to-day?
No, sir, it is not shining to-day.
13. Why?
Because the clouds are hiding the sun.
(Show. Vernacular if necessary).
14. Is it hot to-day?
No, sir, it is not hot to-day.
It is a cold day.
15. (Slight drizzling). Do you see the rain falling?
Yes, sir, I see the rain falling (or it is raining).
16. Is it raining on the house?
Yes, sir, it is raining on the house. (On the tree, on the ground, on my cap etc).
It is raining everywhere. (Show by moving the hands round).
17. Hold out your hands. What are you doing?
We are holding out our hands.
18. Is it raining on your hands?
Yes, sir, it is raining on our hands.
19. Show me your hand. This is a rain drop. These are rain drops. [C/. water-drops]. Show me the rain drops.
These are the rain drops.
20. Do you all see the rain drops on the leaves?
Yes, sir, we all see the rain drops on the leaves: we see the rain drops also on the grass.

21. Where does the rain come from?
The rain comes from the clouds.

(c) ANIMALS.

22. Look at the cows there. What are they?
They are cows.
23. What are they doing?
They are eating grass.
They are grazing.
24. Where is the grass?
The grass is on the ground.
25. What is the colour of the grass?
The grass is green.
26. What is the colour of that ground?
That ground is green.
That is a meadow (vernacular).
The cows are grazing on the meadow.
27. Where are the cows grazing?
They are grazing on the meadow.
What are the sheep doing?
They are also grazing on the meadow.
28. Is it raining on the cows and sheep?
Yes, sir, it is raining on the cows and sheep.
- [NOTE:—Also questions may be framed so as to elicit the following particulars:—
The calf is standing near the cow.
The cow is its mother.
The cow gives milk to the calf.
The cow gives us milk.
The milk is sweet.
The calf follows its mother.
The cow is lying on the ground.
It is shaking its mouth and tail.]

(d) BIRDS.

29. Keep silent. Look up, boys! Do you hear the noise?
Yes, sir, we hear the noise.

30. Who is making noise there?
The crow is making noise there.
31. Where is it sitting?
It is sitting on the branch of the tree.
32. What is its colour?
Its colour is black.
33. How does it cry?
It cries out "caw, caw."
34. (Flying). What is the crow doing now?
It is flying now.
35. Where is it flying?
It is flying to that tree.
[NOTE:—The following may also be taught:—
Where does it sleep?
When does it sleep?
When does it wake up?
Where is its house?
What do you call its house?
With what does it build its nest?
With what does it bring the twigs?
Where does it build its nest?
It is a clever bird.]

(e) ROADSIDE.

36. What do you see on the road, there?
I see some men and women on the road.
37. What has the old man in his hand?
He has an umbrella in his hand.
38. Why does he take an umbrella?
He takes an umbrella, because there is rain.
39. Is it raining on the road?
Yes, sir, it is raining on the road and everywhere.
40. Show me your umbrellas.
Why do you bring your umbrellas to-day?
41. Go there and hold your umbrella above your head. Does the rain fall on your head?

No, sir, the rain does not fall on my head.

42. What are the men doing?
They are holding their umbrellas above their heads.
43. Does the rain fall on their heads?
No, sir. Why?
Because they are holding their umbrellas above their heads.

(f) RIVERSIDE.

44. Stand up, boys! Do you see the river there?
Yes, sir, we see the river there.
45. Is there water in the river?
Yes, sir, there is water in the river.
46. Do you see the water from here?
Yes, sir, we see the water from here.
47. What else do you see in the river?
I see a bridge and a big tree.
I see some men.
Some men are walking on the bridge.
Some men are washing clothes.
They are washing clothes.
48. What do we call those men?
We call those men Washermen.
49. Where are they standing?
They are standing in the river.
50. Where are we standing?
We are standing under the shade of the tree.

(g) HIDE-AND-SEEK—A GAME.

51. Srinivasan, go near the tree and hide yourself.
Do you see him, Gopal?
No, sir, I do not see him.
Srinivasan, hide yourself in that small house.
Do you all see him?
No, sir, we do not see him.

Where is he?
He is in the house.
What is he doing there?
He is hiding in the house.

52. Rajam, go and find him.
Have you found him?
Yes, sir, I have found him.
53. They run: [Catch him, Rajam.]
Rajam runs after Srinivasan to catch him.
Rajam has caught Srinivasan.
54. Do you play this game in the street?
Yes, sir, we play this game in the street.
55. What do you call this game in Tamil?
We call this game *ஹைட்-அண்ட்-ஸீக்*.
56. We call this game 'Hide-and-seek.'
Srinivasan hides. Rajam seeks him.
He goes into the house and finds him. Who hides? Who seeks Srinivasan?
57. [The bell rings.]
Do you hear the bell?
What is the time?
Good afternoon, boys.
Good afternoon, sir.
Go home and play this game 'Hide-and-seek.'

II. A DIALOGUE :—BUYING VEGETABLES IN THE MARKET.

[NOTE :— A display of some of the important local vegetables in the class, a knowledge of their names in English previous to the conversation, actual buying and selling with these vegetables by using actual or token coins and a balance, would create much enthusiasm in children.]

1. Where do you buy rice?
I buy rice in the stores (or bazaar.)

Where do you buy plantain fruit?
I buy them in the bazaar.
Where do you buy leaves?
I buy them in the market (e. word of common usage).
Where do you buy all these? (showing the different vegetables).
I buy all these in the market.

2. Name them.
These are brinjals.
These are drumsticks.
These are potatoes.
These are onions.
All these are *vegetables*. (vernacular).
We buy them in the vegetable market.
3. What do you take with you to the market?
I take a bag with me to the market (also basket or towel).
4. Who sells plantain leaves in the market?
Some women sell plantain leaves in the market.
5. How many leaves does she give you for an anna?
She gives me five for an anna.
[This is to be drilled in the course of the lesson.]
Sometimes she gives six for an anna.
6. They sell plantain leaves at two pies each.
They sell plantain leaves at two annas a dozen.
They sell at one rupee a hundred.
or
The plantain leaves cost one rupee a hundred.
They cost two annas a dozen.
They cost two pies each.
7. Are the leaves long and broad?
Yes, sir, they are long and broad.

Some are *short and narrow* (Show by contrast).

8. What is the cost of brinjals?
They cost four annas a viss. (Teacher to supply).
9. How much of brinjals do you buy?
(Also introduce *want* in place of buy).
I buy ten palams of brinjals.
10. How much does it cost?
It costs one anna.
[NOTE :—The teacher can choose any one of the following types :—
Brinjals cost four annas a viss.
The cost of brinjals is four annas a viss.
The price of brinjals is four annas a viss.
The cost of one viss of brinjals is four annas.
The price of one viss of brinjals is four annas.]
11. Do you buy drumsticks, sir?
Yes, I buy drumsticks.
No, I do not buy them.
I do not eat them. I do not like them.
I like them *very much*. (Show by actions).
It has a good taste and smell.
12. How much do drumsticks cost, please?
They cost two annas a dozen.
Give me six, please.
Here are they; you may take them, sir.
How much do these six cost?
These six cost one anna.
13. Do you want *anything* else sir? (Vernacular).

14. In the next stall, they sell them at three pies each.
They are *cheap* here.
They are *dear* there. (Cheap and dear to be introduced by showing by contrast).
15. Do you want plantains, sir?
Yes, I want some of them. But you sell them *very dear*.
How much do they cost?
They cost six pies each.
Oh! So dear! Six pies is too much.
16. Why do you sell them so dear?
They come from Erode, sir. We do not get them here in the villages. We have to pay the railway charges and get them. So they sell dear, sir.
17. Give me two, please.
You may *choose* them. (Show by action).
18. How much must I pay for these?
You must pay one anna, sir.
19. See here, sir, these are *tender* mangoes. (Vernacular).
I shall give them cheap. You may take them at two annas a measure.
Give me half a measure, please.
20. Where do you put these vegetables?
I put them in the bag here.
21. Do you carry the bag?
Yes, I carry the bag.
No, I do not carry the bag.
Here is the servant-maid. She carries the bag home.
22. To whom does she give the bag?
She gives the bag to my mother.
23. What does your mother do with them?
She cooks them.
24. Does she cook them well?
Yes, she cooks them well.

III. CONVERSATION BASED ON PICTURE :

JACK AND THE BEAN-STALK.

[Picture for Reference : A. L. Fairy Tale, Picture, No. 58 — Jack and the Bean-stalk.]

[Draw attention to the three parts in the picture and tell the children that they are going to learn a story from the picture.]

1. Look at the picture.

[Let the children tell what all they see in the picture as a whole : then go in detail by taking the first part of the picture].

I see a boy in the picture.

I see some trees, a road, a cow, and an old man in the picture.

2. Where is the boy standing?

He is standing on the road.

3. What is he holding in his left hand?

He is holding a cow in his left hand.

He is holding the cow by a string.
(Show one).

4. Who is standing in front of him?
(Show).

An old man is standing in front of him.

Come near and show me the old man.

He is the old man.

5. Look at his left hand. What has he in his left hand?

He has a stick in his left hand.

Also the question "What is he holding in his left hand?" may be put and the required answer elicited.

6. Come near and see what he has in his right hand.

He has some *beans* in his right hand.
(Show).

7. What are they doing?

They are talking to each other (Demonstrate).

[The teacher tells the following story].

This boy's name is Jack. Jack has a mother. They have no money. They are poor. They have only a cow. One day his mother said to him, "Jack! take this cow, go to the market, sell away this cow, and bring me some money." Now Jack goes to the market. On his way he meets an old man.

Old man : Good morning, my boy! where are you going?

Jack : Good morning, sir! I am going to the market.

Old man : Why are you going to the market?

Jack : I am going to the market to sell this cow.

Old man : What do you want for the cow?

Jack : I want some money, sir.

Old man : Here are some beans. I will give you the beans. Will you sell away your cow for these beans?

Jack : Yes, sir, I will take the beans and give you the cow.

[After direct conversation similar to the above between two boys in the class, introduce the past tense of the verbs and tell the story again. The conversation would be something similar to the following.]

8. What did Jack's mother say to him?

Jack's mother said to him, "Jack! Take this cow, go to the market, sell this cow and bring me some money."

9. Where did Jack go?

Jack went to the market.

10. Whom did he meet on his way?

He met an old man on his way.

11. What had the old man in his right hand?

He had some beans in his right hand.

12. What did the old man say to Jack?

The old man said to him, "Here are some beans. Will you sell away your cow for these beans?"

13. Did Jack say, "yes?" (Use also "consent").

Yes, Jack said "yes". (Jack consented to give away his cow for the beans).

14. Did he sell the cow for any money?

No, he did not sell the cow for any money. He sold the cow for the beans.

15. What did he bring home to his mother?

He brought some beans to his mother.

16. Was she glad?

No, she was not glad. She was very angry.

[Story continued]. She threw away the beans in the garden. That night there was a heavy rain. The next morning Jack saw a big *bean plant* in the garden. (Better *Beanstalk*. They will then understand how the title 'Jack and the Beanstalk' fits the story well.)

[Part II in the picture].

17. What do you see in this part of the picture?

I see Jack.

Where is Jack?

He is on the tree. (He is going up the tree. He is climbing up the tree.)

I see a house. There I see that. It is in the corner of the picture. (Demonstrate).

That house belongs to a *Rakshasa*. (Introduce the word "Giant" by saying a second

time thus : This is a *Rakshasa's* house. This is a giant's house.

[Such of the details in the story as Jack asking permission of his mother to go up the tree, Jack meeting the fairy, details regarding his second and third adventures, have been purposely left out to make the story appear shorter.]

What does he see from the top of the tree?

He sees a giant's house from the top of the tree.

What do you see near the door of the house?

I see a *trumpet* (Point to the trumpet in the picture. Draw one on the black-board).

What do you do with the trumpet?

I *blow* with the trumpet (Teacher gives out this new expression. Let them try to reproduce the sound of the trumpet).

The teacher tells the second part of the story thus:—

Jack went to the giant's house. The giant was not inside the house. His wife was inside the house. Jack *knocked at* the door. (Illustrate). The giant's wife came and opened the door.

Jack asked her, "Please give me some food. I am very *hungry*." (Explain by lifting one hand towards the mouth and the other hand pointing to the stomach.)

But she said, "Do not come in. A giant lives in this house. He will eat you up. Run away."

Jack again asked her, "I am very *hungry*. Please give me some food."

Jack went into the house and the giant's wife gave him some food. He ate it.

Very soon the giant came and knocked at the door very fast.

The giant's wife and Jack were afraid.

Jack hid himself in the *barn* and saw everything *through* a hole in the barn. ('Vernacular.' Illustrate.)

The giant's wife opened the door. The giant came in and sat on his big chair. He called his wife and said, "Bring me my money bag." She brought the bag and placed it on the table. The giant counted all the money. He became tired and so he fell asleep. Jack came out softly, took the money bag, ran down the tree and reached his house. He gave the money bag to his mother and she was glad. They became rich.

Questions :

18. Where did Jack go ?
19. Whose house did he see from the tree ?
20. What did he see near the door ?
21. Who opened the door ?
22. What did she say to Jack ?
23. What did Jack ask her ?
24. Did she give him food ?
25. Who came then ?
26. What did he say to his wife ?
27. Where did Jack hide himself ?
28. What *happened* afterwards ? (Vernacular).
29. How did Jack see everything from inside the barn ?
30. What did he do then ?

[Part III in the picture].

31. Who is this ?
This is the giant.
32. What is he doing ?
He is lying on the ground.
33. What else do you see in the picture ?
I see Jack. He has an axe. I see a house. I see a hen.

34. Whose house is that ?

That is Jack's house.

[Story continued].

A second day Jack went to the giant's house and brought that hen. That hen laid golden eggs.

A third time he went to his house and took away a fiddle. The fiddle began to talk. It called out to the giant, "Master ! Master ! Wake up !" The giant woke up. He saw Jack running away with his fiddle. He ran after Jack. Both of them ran. But Jack ran down the tree and reached his house. The giant came down the tree. But Jack saw the giant, brought a big axe from his house and cut the tree. The giant fell with his head down and died. Jack became rich.

NOTE 1 :— The children may be supplied with cyclostyled or typed sheets of this story written in simple sentences, which would form the subject-matter for extra reading.

2. During the course of the lesson the teacher could write in tabular form the present and past forms of the verbs that occur in the story thus : (The children copy them in their note-books).

Present tense	Past tense
Do	Did
Meet	Met
Sell	Sold
Throw	Threw
Blow	Blew

IV. SHORT STORIES.

[These familiar stories may be told to them with the aid of suitable pictures drawn on big sheets of paper or on the black-board. The explanation of some of the difficult expressions may be conveyed to children as shown underneath. The narration of a

known story in a foreign language gives a stimulus to children in trying their best to reproduce the story in simple sentences as far as possible.]

(a) THE CROW AND THE PITCHER.

There was once a crow. One day it felt very thirsty. So it went in search of water. It searched everywhere, but it could not find it. At last it came to a house. There it saw a pot in the front-yard of the house. It flew near the pot and looked into it. It found some water at the bottom of the pot. It felt very glad. But it could not reach the bottom of the pot. It tried many times but failed in all its attempts. In a corner of the yard it saw some pieces of stone. It flew to the pieces, brought one piece after another and filled the pot. Then it saw water rising to the top of the pot. It drank water heartily and quenched its thirst.

1. Thirsty. 2. Quench one's thirst. 3. Heartily. By lifting the thumb towards his mouth, the teacher can say, "Please get me some water. I feel thirsty." And after drinking it he can say, "Enough : thank you. I have quenched my thirst." (Give the meaning of heartily).

4. In search of—Refer to lesson 1. Rajam goes in search of Srinivasan, or translate.

5. Front-yard—Vernacular equivalent.

6. Top, bottom, corner, pieces :—Demonstrate.

7. Try, attempts—Try to lift a heavy weight as often as possible and lastly say "I try to lift this. It is very heavy. You better try, Rajam." He too tries and fails. Now say "Rajam tried to lift the stone. He too failed." Translate attempts.

(b) THE FOX AND THE GRAPES.

There was once a fox in a forest. One day it felt very hungry. So it went in

search of food. At last it came to a vineyard. There it saw some bunches of grapes. It wanted to eat them. But they were at the top. It jumped and jumped and jumped. But it could not reach them. It felt very sad. But what could it do ? At last it said, "I do not want them. These are sour grapes !" And so saying, it went on its way.

Hungry—Refer to the story of Jack and the Beanstalk.

In search of—As in the previous story.

Vineyard—Translate.

Jump—Demonstrate in class.

Bunches of grapes—Show in the picture.

Sour grapes—*Of* sour limes.

These are sour grapes—Children may also be told in Tamil how the phrase 'sour grapes' is idiomatically used if one cannot obtain what one wants even after repeated attempts.

V. NURSERY RHYMES.

1. Hey ! diddle, diddle, the cat and the fiddle

The cow jumped over the moon
The dog laughed to see such sport
While the dish ran away with the spoon.

2. Two legs sat on three legs

With one leg in his lap.

In comes four legs

And runs away with one leg.

Up jumps two legs

Catches up three legs

And throws it after four legs

And makes him bring back one leg.

3. As I was going along, along,

A-singing a comical song, song, song,

And the road that I went was long, long,

And the song that I sang was long, long,

And so I went singing along.

4. Little Miss Muffet sat on a tufett
Eating curds and whey;
There came a big spider
And sat down beside her
And frightened Miss Muffet away.

5. Humpty Dumpty sat on a wall
Humpty Dumpty had a fall.
All the king's horses and all the king's
men
Cannot put Humpty Dumpty together
again.

NOTE I:—Apt illustrations regarding these
Nursery Rhymes may be found in many an
English picture book, which may be shown
to children. Reference may be made to: (i)
All the Best Nursery stories and Rhymes, (ii)
Little Mother Goose.

2. The main idea in these rhymes may be
given out in small English sentences or in the
vernacular if necessary and then they may
be written on the black-board and read.
They may also be copied and committed to
memory.

3. English ideas may suitably be com-
pared to corresponding Indian ideas and
expressions as for instance, we take Humpty
Dumpty: In Tamil we say *umathi idumathi*. If
we take Christmas pie, we may say that it is
a special cake prepared in English homes for
their special feast on Christmas Day in the
Christmas season. An Indian analogy to this
will be any special cakes we prepare on the
Sri Jayanthi day and offer to Sri Krishna
and then eat.

4. Simultaneous repetition of these
Rhymes by the teacher and children would be
found very interesting and rouse great enthu-
siasm in children in attempting to memorise
them.

VI. SPECIMENS OF EASY LETTER-WRITING.

NOTE:—A reading and understanding
of some letters of the following type should

precede any explanation as to how to
write letters. The children could see the
whole form of the letter in detail and the
different expressions used as dear, obedient,
affectionate, etc.; when to use these expres-
sions can be explained in the vernacular.

I

(From a boy to his teacher asking for leave).
Bazaar Road,
Saidapet,
16-11-22.

To

The Class Teacher,
V Class,
Teachers' College,
Saidapet.

Dear Sir,

I have to take my mother to the Railway
station at two o'clock this afternoon.

Please grant me leave for this afternoon,
sir.

Your most obedient pupil,
DANAPALAN.

II

(From a parent to the teacher.)

Kavarai Street,
Saidapet,
1-9-22.

To

The Class Teacher,
V Class,
Teachers' College,
Saidapet.

Dear Sir,

I am taking my son Ch. Krishnaswamy
Chetty of your class to his village to attend
his uncle's marriage. Please grant him leave
for the whole of next week.

Yours truly,
PAPIAH CHETTY.

III

(From a boy to his class-mate)

17, Brahmin Street,
Saidapet,
19-10-22.

My dear Radhakrishnan,

To-day is a holiday. Would you like to
play foot-ball this evening? Or, shall we take
a walk to the Gaiindy Race-course? We shall
meet at the school gate at 5 o'clock.

Your affectionate friend,

NARASIMHAM.

ADDRESS.

To

A. Radakrishna Chetty,
45, Kavarai Street,
Saidapet.

IV

(From a boy to his father who is a long way
off.)

Teachers' College,
Saidapet,
16-12-22.

My dear Father,

I am doing well. I got the following
marks in my December Examination:—

English 85 out of 100

Arithmetic 45 „

Tamil 64 „

My teacher says, "You must work hard
and try to get more marks next time." I am
reading well.

Is mother doing well? Also Balam.

Your affectionate son,

NARAYANASWAMY.

ADDRESS.

To

Ekambara Iyer, Esq.,
Postal Auditor,
Nagpur.

VII. SENTENCE CONSTRUCTION.

NOTE:—The object of these exercises is to
test the children's capacity to form correct
sentences. This test should be resorted to
only at the end of the school course.

A. Fill up the blanks in:—

1. —has a book.
2. We have two—.
3. The cow eats—.
4. I have one—and four—.
5. A—has four legs.
6. I write—the black-board.
7. The pencil is—my pocket.
8. I look—the picture.
9. This book is green, but that book is
—.
10. Give me some—.
11. Gopal—on the bench.
12. Where—the two pencils?

B. Correct the following sentences:—

1. You has a book.
2. Here are two orange.
3. Rama have two pencils.
4. This is white?
5. How many pencils you have?
6. He sitting on the chair.
7. Have you a pencil?
Yes, sir, I am a pencil.
8. What does he do?
He does sit on the chair.
9. There is not only one pencil, but there
is two pencils.
10. This is the Gopal's book.

EDUCATIONAL TOPICS.

England's New Education Minister.

Mr. Fisher's successor as President of the Board of Education is Mr. E. F. L. Wood, the eldest son of Lord Halifax, about whom and whose prospects of work the following note is published in *The Journal of Education* :-

"Under present political and financial conditions, it would be foolish to suppose that the rate of educational progress of the last six years will be maintained. But we may at least expect that the new ground which has been so hardly won will be consolidated and strengthened to withstand the attacks of reactionaries. As a war-veteran, and a cavalry officer to boot, Mr. Wood will be familiar with the process known in the army as "mopping up." Every previous period of active educational legislation has been followed by necessary work of this nature. The problem of the single-school area, salaries, pensions, and tenure of teachers, the development of our University system, are a few only of the questions which will offer scope for useful and unostentatious work. It will be agreed also that the relations between the central and local authorities must be placed on a firmer basis of co-operation and mutual understanding. Although "tranquillity" may be the political *mot d'ordre*, the new Minister of Education will, we hope, interpret his instructions from the Government in a liberal sense."

English University Elections to Parliament.

The following summary* of the returns of members to the new Parliament elected by the University constituencies will prove interesting:—

"No catastrophic changes of representation have to be recorded. At Oxford, Lord Hugh Cecil and Sir Charles Oman are again returned. The

* From *The Journal of Education and the School World* for December, 1922.

third candidate, Prof. Gilbert Murray, did well, securing second place on first preferences, under the proportional representation system. He was defeated by the transferred votes. At Cambridge, under the same system of voting, Mr. Butler, standing as an Independent, friendly to the position of women in the University, was able to secure election as colleague to Mr. Rawlinson. Sir Sydney Russell-Wells (Conservative) was elected at London by a handsome majority, his poll exceeding the combined polls of his two opponents, Prof. Pollard (Liberal) and Mr. H. G. Wells (Labour). No change of representation occurred for the combined English Universities, Sir Martin Conway and Mr. Fisher being again returned, but Prof. John Strong, supported largely by teachers, put up a very good fight, and at one stage of the counting appeared to have a good chance of election. In this constituency Manchester University provides much the largest contingent of voters. For Wales Mr. T. A. Lewis was returned by a small majority. It is now possible to see the effect of the revised system of University representation introduced in 1918. Whereas under the old dispensation, all the representatives were Conservatives, there are now two members, Mr. Fisher and Mr. Butler, of the opposite party. The Labour Party appears to have made no progress, Mr. Wells's poll at London being distinctly less than Prof. Sidney Webb's in 1918; but it must be remembered that in 1918 there was no Liberal candidate. The representatives for the English and Welsh Universities, now numbering eight, should form a formidable element in the House of Commons with its reduced membership (due to the establishment of the Irish Free State) and the small Government majority."

The Tamil Gurukula Vidyalaya.

This institution was recently started under the directorship of Mr. V. V. S. Iyer at Kallidai-kurichi.

"A perusal of the prospectus shows that the institution is intended to work out some of the high

* Hindi Prachar in the Madras Presidency.

It is encouraging to note from the report of the progress of Hindi Prachar in the Madras Presidency that people in South India are evincing an increasing interest in the study and spread of the national language. The report shows that on the whole there are at present in the Andhra, Tamil and Kerala Provinces about 40 centres of study and 3,000 students under the Pracharaks, besides those who study the language by themselves with an initial or occasional help from the teachers. The work, it will be remembered, owed its origin to the efforts of Mahatma Gandhi at the eighth annual session of the Hindi Sahitya Sammelan at Indore in 1918 and the creditable progress achieved in the course of less than five years shows the strength of the earnestness and enthusiasm with which the Pracharaks have been working for their cause. As the report makes it amply clear at the outset the cause is not tied up with any particular party or political creed but is entirely carried on by an independent institution which is eager to have the co-operation of all sections of the public in the promotion of a common national task.

Six Tests of Education.

The President of the Columbia University puts forward six tests by means of which one may determine whether one is benefiting by a University training and what the University is doing.

Ask yourselves: Am I gaining in correctness and precision in the use of the mother-tongue? Am I gaining in those refined and gentle manners which are the expression of fixed habits of thought and conduct? Am I gaining in the power and habit of reflection? Am I gaining in sound standards of feeling and appreciation? Am I gaining in the power of growth? Am I gaining in the power to do efficiently?"

The Teaching of History in Schools.

Mr. Cloudesley Brereton in a paper that he read before the Third International Congress on Moral Education held at Geneva in August last, warns against the tendency to make history teaching too diffuse, by stress of its organic connection with geography, economics or sociology. The present-day pupil has his historical sense often cultivated by the compilation of time-charts and by a wide extension of independent reading.

"The present-day teacher of History may well feel a glow of satisfaction when he compares these multifarious and many-sided developments of his subjects with the pemmican-like history of the past

* Taken from the *Collegian* for November 1922.

often studied in a single text-book that bristled with dates and genealogical tables, and in which battles and sieges occupied often a disproportionate amount of space. But any excessive complacency on his part is likely, I think, to evaporate in view of two of the gravest possible problems—one national and the other international which are every day coming clearer into sight. Broadly speaking the outlook of our historians in domestic matters has been mainly aristocratic and middle-class, and in international matters nationalistic and even chauvinist. This is no special English phenomenon, it is common more or less to all other nations. And the reasons are simple. Hitherto the only articulate classes have been the aristocracy and the bourgeoisie, while the ever-increasing growth of national sentiment to which the religious Reformation of the sixteenth century by its destruction of the central ideal of Christendom gave an immense impetus, has made the historians in all countries the exponents of the national point of view rather than of the European, and still less of the Universal.

In view of the two above-mentioned dangers it seems, in the writer's opinion, to be only a matter of time as to when the masses through their new leaders will demand a certain re-writing of national history, including a re-teaching of history, as well as a re-statement of the international aspect of foreign questions.

'I think we must begin by modifying our general attitude towards history and instead of explicitly or implicitly regarding it in the main as a sort of static and stratified relation of past events in which the temporary success of those who made it is looked on as the sole criterion of the rights and wrongs of the questions at issue. We should rather point out that it is a record of a series of incessant struggles between various parties representing various principles, each of whom had at least some right on its side, and indicate to our pupils that if *victrix causa deis placuit* there was as often as not a Cato on the beaten side, and that further, not infrequently a cause which has been

decided and beaten in one century, has been subsequently triumphant; in a word that great issues never die, though from age to age they need re-statement, since History is really past Politics, whose main problems are still with us to-day.

But this does not mean we should represent History, as generally written, to be a conventional fiction, much less, as some one has said, as an organized lie, but rather as truth up-to-date, but truth capable of perpetual revision and re-statement, as indeed our own English Law is, in which decisions stand, until they are reversed by subsequent decisions embodying more fully the spirit of the age. We shall thus avoid the Charybdis of dogmatism and the Scylla of scepticism, while cultivating as far as possible the judgment of our pupils, which, as Montaigne long ago pointed out, is the chief value of historical study.

It should therefore be our duty to set before our pupils as impartially as possible the rights and wrongs of each side, and leave them free to manifest their preferences. Such preferences are possible even with the younger pupils in such apparently broad issues as the struggle between King Charles and his Parliament, while a deeper study of the same struggle will have all the advantage of revealing to them its terrible complexity and may end by making their choice as difficult and dolorous as that of a Falkland.

The same procedure should also be applicable for the international problem. In place of the spirit of "my country, right or wrong," pupils should be taught that at times their country may make mistakes and sin against its neighbours.

'And here again we can begin even with the younger pupils. Thus when discussing the Hundred Years' War with France we should not only state the claims of Edward the Third, but also give the French point of view, and say a word or two on the terrible set-back inflicted thereby on Western European civilization.

It has long been held by the teachers of modern languages that one of their chief duties, and cer-

tainly their highest, is to inculcate in their pupils a knowledge and a respect of the people whose language they are studying, that they should regard themselves in fact as the *proximes* and unpaid Consuls of those peoples—in a way as a sort of *diplomatic seclaire*. Has not the time arrived when our historians might well copy their example of abandoning their position of national apologists, a *outrance*, which can only lead in the long-run to the accumulating of national misunderstandings and hatreds, adopt the nobler task of "re-righting" history with a view of explaining the nations to one another? National our schools must remain, but they need not act as breeding-places of future wars. America has given us here a lead and a lesson, first by revising its anti-English text-books after the Cuban War, and again after the Great War.

But it may be asked, from what history are our pupils to study international events, at least those in an advanced course? Surely the most satisfactory method would be to study a foreign work alongside of one of our own countrymen, for there is no satisfactory international history that I know of. Perhaps the League of Nations might undertake its compilation. But I fear we shall have to wait for a World University such as Benchura, Branford has outlined in his masterly book "Janus and Vesta" before we shall get a really satisfactory World History.

The Boy-Scout.

Dr. Br. jendranath Seal, Vice-Chancellor of the Mysore University, is quoted in the first number, which reached us with the birth of the New Year, of *Welfare*, a new monthly started by the well-known editor of *The Modern Review* with the help of a colleague-editor and which is comprehensively designed to be a journal of national weal and efficiency.

Dr. Seal in elaborating the underlying ideas of the Scout movement says as follows:

XXIX—6

'The Boy-Scout meets a prime educational want. Consider the city life and civilisation of to-day. That civilisation has cut us off from the soil, from woodcraft and handicraft. It has bereft us of the primal folk's 'instinct' and 'mother-wit', the instinctive knowledge of plants and their food-value, of the stars and the clouds as they come and go, of the winds and the points of the compass. We have forgotten how to make a fire or follow a trail, how to heal a wound or cure an ailment. Civilised man cannot at need perform some of the simplest acts of self-preservation. He cannot cook his own food, at a pinch, or handle the simplest and most useful tools, though man began as a tool-using animal. The Boy-Scout will remove this crying shame of a parasitical civilisation.'

He explains how the movement has revived the inspiring power of vows and initiations.

'But greater than all other losses, on the moral and spiritual side, has been the loss, to modern civilisation, of the inspiring power of vows and initiations, of *Silas and Vratas*. On such voluntary pledges and initiations was based the great Brotherhoods, the Leagues and Orders in ancient as well as in medieval times. The Great Religions, Eastern or Western, all utilised to the full this great prime mover of the world of man, witness the Five *Silas* and the Ten *Silas* in the Jaina and Buddhist Codes, or the Cœthasian and Franciscan vows. And weak frail creatures, the weakest in will, whose first great need is implicit obedience to authority as an external aid or prop, have been inspired to heights of martyrdom and of spiritual passion in all History by the power of initiation.'

And he shows how the movement had its counterpart in ancient Indian life.

'The Brahmtcharya of Ancient India and Basilio of D. I. Nippon show the same 'power of initiation' at work in the field of secular education. And the Scout Law and the Scout Oaths are late versions of the Ten *Silas* in a twentieth-

afford to go to Madras. They approached, and justly, that matters would become better if it were the Madras colleges now to be affiliated distinguished from others by being made constituent colleges, and were all the privileges of a residential and teaching University to be extended to the students who go to Madras. These very phrases, of course, made one hesitate: "the privileges of a residential and teaching University"—ought these to be denied to students that certain colleges may be considered? We believe that this temporary denial would be right. It is to be remembered, worst of all, madras colleges have done for students in the past, and what would be they even to do in the future, how steadily they have progressed in self-help. If, frantically at any rate the development of the State Capital College and the B. P. G. College, which that the creation of a University there would be a self-sufficiency other than financial. And if not so, if Madras students would suffer greatly by the delay. The affiliation system in India, but is not to be despised, and the Madras University has brought it well-nigh to perfection. Further, in Madras the virtues of both the "boarding" and the "residential" elements in the institutions are already present in considerable degree. A student of the

Christian College who lives in the hostel near by or a student of the Presidency College who lives in the neighbouring Victoria Hostel has very little to gain by the change. This change is good, is inevitable, but the need for it is not acute; and delay would mean the saving of great and serviceable institutions outside the city.

Two admissions, however, must be made. First, presuming that four residential and teaching Universities be started simultaneously (as was recommended by the Senate two years ago), that if Madras City is likely to possess a certain superior prestige, the madras Universities can never have the same number of first-rate students as will choose the metropolitan University. Second, there is a large number of madras colleges in places which cannot conceivably become University centres, and they must remain affiliated colleges till the end of time—or cease to be colleges at all. These disabilities will always remain. But these admissions do not really affect the argument. Those madras colleges which ought eventually to become Universities will be injured, their development retarded, their good work nullified, their budding Universities delayed, by the proposed measure, and the gain to the Presidency is not commensurate with the loss.

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Reviews and Notices.

"VANITY FAIR," BY THACKERAY, PUBLISHED BY MACMILLAN, WITH INTRODUCTION AND NOTES, BY MICHAEL MACMILLAN.

This is one of the best annotated editions of 'Vanity Fair' that we have yet seen and one that makes the text more easy to understand. We recommend it to all those—and they are many—who have not yet read the book, there is a treat in store for them.

"CHILD TRAINING THROUGH KINDERGARTEN METHODS," BY MR. LONGLEY, PUBLISHED BY THE CHRISTIAN LITERATURE SOCIETY FOR INDIA. Price 5 as.

It is always a pleasure to see a new book in Kindergarten, especially one which is written for Indian Schools. The book contains some useful chapters: Benefits of Kindergarten, Qualifications of Teachers, Methods in Teaching, The Use of Stories and Songs, are perhaps among the most useful and interesting. But the whole book is written in simple English and would make an interesting addition to any school library. We thoroughly recommend it.

"HYMNS FROM THE RIG VEDA," BY A. A. MACDONELL.—THE HERITAGE OF INDIA SERIES—(ASSOCIATION PRESS, CALCUTTA).

This is a delightful little book, nicely got up as are all the books belonging to this series. The book is cheap and within the reach of all and no citizen of India should be without it if he is a cultured modern Indian. We would also recommend it to Europeans in India as well as elsewhere.

AN EASTERN LIBRARY II—SRIKANTA BY SARAT-CHANDRA CHATTERJI—TRANSLATED BY K. C. SEN AND THEODOSIA THOMPSON—WITH AN INTRODUCTION BY E. J. THOMPSON. (OXFORD UNIVERSITY PRESS, 1922). Pp. xi & 175. Price Rs. 2.

The rich output of Bengali literature since the days of Bankim Chandra Chatterji has been increasingly made familiar to the outside world and to the other parts of India by translators and appreciators of whom may be mentioned prominently J. D. Anderson, W. W. Pearson, Lal Behari Day and E. J. Thompson. The Eastern Library, the first two of which series has been recently published by the Oxford University Press,

has, in the words of the talented Mrs. Margaret Cousins, "brought enrichment to our knowledge of the daily general life of modern Bengal." And the book under review is "like a window through which we look into one phase of Eastern civilisation and the pictures attract and repel us by turns."

Sarat Chandra Chatterji, the author, very early took to writing short stories, and as the introduction says, he is perhaps the only fortunate writer who has not had to struggle and has also had the inestimable advantage of viewing his land and people from outside. "Srikanta is his most ambitious book, in style and scope. It is understood to be largely autobiographical. Like most autobiographical novels it is rather a string of episodes than a connected story." Again we are told that Rabindranath Tagore's *Gora* (now being translated in instalments in *The Modern Review*) is the connecting link between Bankim Chandra Chatterji and the author.

This is only the first part of the author's *Srikanta*, the second and third parts having yet to follow. The companion of Srikanta, Indranath, is made a very generous and agreeable fellow with not a speck of insincerity in him whose simple unsophisticated intelligence "by refusing allegiance to what is known as the practical mind, could see unvarnished truth face to face." (p. 36). Antada Didi is a lovable figure suffering for the glory of wildly constancy and love.—"What did she not sacrifice—her caste, her faith, society, honour, her all? She whose seat is as high as that of Sita or Sivriti,—what did her parents and relatives, her friends and foes think her to be to the end of their lives? A faithless wife and an abandoned woman! What hast Thou gained in this, O God, and what has the world gained?"

The Baiji, Peari, is also made a lovable woman; and in her portion of the narrative the problem of society attacked is its unjustifiable attitude towards professional and public women. Incidentally the evils of Kulinism rampant among the Bengali high castes and of the dowry system are also depicted. The writer says that in the caste system social problems do not appear in the mass; they become apparent in isolated cases, in individual cases. As Mrs. Cousins says—"The author uses stinging satire to expose the degrading influence of the dowry system. The story of the heroine's marriage is made a triumph of summarised satire, as is also the description of the life of the Westernised prince, while the lot of the widow is sketched in the saddest tones." The language of the translators is very good and rises to a great height on occasions.

A SECOND COURSE IN ENGINEERING SCIENCE, BY P. J. HALPER AND A. H. STUART (UNIVERSITY TUTORIAL PRESS, 1922.) Price 5s.

This book is a sound introduction to the subject of mechanical engineering. The topics treated include vector diagrams, strength of materials, beams and columns, shear and torsion, sonics, friction and lubrication, work and energy, hydraulics, the mechanics of the aeroplane, the steam engine and the internal combustion engine. The treatment of the topics is very simple, lucid and interesting. The experiments described in the book are largely such as could be performed, with common workshop appliances. Special mention may be made of the account given in the book about the Brinell test and the Shore scleroscope for measuring the hardness of metals, the application of soap films for solving torsion problems, the Lefkhone's engine with the fixed crank shaft and rotating cylinders, the lubrication of machines, and the Izod test for the power of a material to withstand shocks. The chapter on Sonics or transmission of energy by wave motion contains an account of Constantinesco's method of power transmission. The chapter on the aeroplane is particularly interesting, and gives a simple account of the lift and drag, the functions of the parts of an aeroplane, and the conditions for stability. A

large number of practical problems are appended to each chapter. We heartily recommend the book to every junior student of engineering.

CHILD'S RAMAYANAM, IN TAMIL,—BALANANDAM—BY MR. C. S. RAMASAMI IYER, (MADRAS C. COOMARASAMI NAIDU & SONS). Price 4½ as.

This small book of 50 pages forms the first of a series in which the author, who is the experienced Headmaster of the Primary Department of the Kellett High School, Triplicane, proposes to narrate the story of the Ramayana in easy Tamil prose.

In these days, when there is so much cry for moral instruction in schools we can think of no other work which by the mere narration of it, could inculcate in children the principles of obedience to parents, preceptors and elders, brotherly affection, self-sacrifice and many other noble qualities. And this laudable attempt of the author to render the greatest of our classics into easy Tamil prose, to bring it to the doors of young children deserves warm encouragement. The book bears evident traces of the author's experience with children and we strongly recommend its use in the higher classes of Elementary Schools.

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THE VISVABHARATI IDEAL.

BY THE POET RABINDRANATH TAGORE.

A GREAT part of my life had been spent solely in literary work on the banks of the Padma, a branch of the river Ganges, among the village people, and away from the city of Calcutta. But the time came when I grew restless at this confined range of existence, and longed for freedom in the greater world. At last it became clear to me that I should found a school, which should be different from the schools wherein I had been instructed when I was a boy. The school life, which I had experienced in my early days, had been most distasteful to me, and I had played truant from it whenever I was able to do so. My elders, at last, had allowed me to give up school altogether, and I had gone on with my studies at home. Thus my experience had impressed on me the suffering, owing to the repression of personality, the dissociation of life from the subjects of their study, which boys endure from the school system in vogue in our country, and most other countries in the world. Therefore, when the call came, I went from my home on the Ganges to Santiniketan, in order to found there a school in the midst of the Asram itself.

It will be clear from what I have said, that I had never had any technical training as a schoolmaster, and had never passed any examinations. At first I was diffident about myself, and thought that the founding of a school was a task which was beyond my power. Later on I had one or two with me who had received academic training, and they helped me in my work. When the school was started, I think there were only five boys in all; which made it possible for me to come into very close contact with them. I used to be their comrade in their games and their picnics; in the evening I would try to entertain them by reciting the *Mahabharata*

and the *Ramayana*. I used also to invent stories for them, which went on and on, in different chapters, night after night. In this way, gradually, the work of my school grew and the number of boys increased.

This, then, seemed to be my mission, to have a school where I could make children happy and give them as much freedom as I possibly could. I never said to them—"Don't do this," or "Don't do that." I never prevented them climbing trees, or going about where they liked. From the first I trusted them; and they always responded to my trust. Parents used to send to me their most difficult children, who were supposed to be incorrigible. When the children found themselves in an atmosphere of freedom and trust, they never gave me any trouble. The boys were encouraged to manage their own affairs and to elect their own judge, if any punishment was to be given. I never punished them myself.

So things went on, until, from having merely five boys to teach, the school had grown into a big school, with about two hundred boys—all of them in residence.

Then, after many years of this school work, a new restlessness of spirit came over me. It seemed to me as if I myself had further need to expand my own life and to find my own freedom in a larger world of men and things. It happened at this very time that I had an illness, and my doctors advised me to undertake a sea voyage to the West, as soon as I was well enough to travel. I decided to go to England. When I was convalescent in India, before starting on my voyage, and resting near the river Padma, I had been forbidden by the doctors to do any more original writing for a time; and so I had amused myself by trying to translate some of my poems into English. I thought very little indeed of these translations at that time; for I had a complete diffidence about my powers

of writing English, which I have not yet been able completely to overcome.

When I arrived in London, I found the people of the West further away from me than ever. I was solitary in the midst of the great crowd; and I did not know how to break through the barriers of my isolation from my fellow-men. The people all round me in London were so close to me and yet so distant from me. At last I called to mind an English acquaintance of my own, whom I had met at the house of my nephew, Abanindranath Tagore, in Calcutta. He was William Rothenstein, the artist. I looked his name up in the telephone book of the hotel, and begged him to rescue me from my isolation, and to open the door of the West to me. Soon after this, one day, in the course of conversation, Mr. Rothenstein asked me if I had any translations of my poems with me. I handed over to him the manuscript which I had prepared during my days of convalescence. He took away the poems, which were for the most part taken from my Bengali poems called *Gitanjali*, and brought them back on the next day, with great enthusiasm, saying that he had been very much impressed with them indeed. He said to me: "You may, perhaps, doubt my opinion as an artist; but if you will allow me, I will get them copied and show them to two of my friends who can judge much better than I."

He had two copies prepared, and sent one to Mr. W. B. Yates, the Irish poet, and the other to the Rev. A. Stopford Brooke. The result was that these translations from *Gitanjali* were published and accepted, not only in England but on the continent of Europe and in America. Thus, by means of my poems, I was able to win my way to the heart of the West, and I have felt ever since that I have been accepted by them.

Something further happened at this time. I had found a few English friends who were

ready to help me and to share in my work at Santiniketan. This brought a new element to the school itself. When these other scholars, teachers and friends came back from the West with me, and helped me in my work, its spirit became widened. This new fact also gave me the thought that Santiniketan must open its doors. It must no longer be confined merely to a school which should be more free and happy than other schools. It must represent further and wider ideals, embracing humanity itself.

I had, all along, experienced the want of an institution in India, which would be a true centre for all the different Eastern cultures, concentrating in one spot the varied ideals of art and civilization which have been contributed to the world by the various countries of Asia. There were the ideals of India herself; there were those which represented the Far East, and those which represented Islam. Europe was already one. In the European countries the diverse intellectual and spiritual ideas of the West are concentrated in every University. For this reason, the students who go to Europe from Asia come into touch with the great European mind from the very first. They have no difficulty in discovering the mind of Europe, because it is there before them as a unity.

But such a concentration cannot be had in our Indian Universities or in the Universities of the Far East. For the mind of Asia is not yet focussed. It has not been brought to a centre. It cannot be said to be one, in the same way that the mind of Europe can be called one. Hence there arises a great weakness in the presentation of the learning of the East.

The difficulty is that our education is principally foreign and European. Our schools and colleges have made it their special object to give lessons through the medium of English and from an English standpoint. If we wish

to study, in a scientific manner, the mind of Asia as a whole, there is no place in India where we may study it; we have to go to Europe, particularly to Germany or France, where scholars, because of the atmosphere of freedom and a wide human interest in which they live, have gained a more critical and comprehensive view of the East than we have done in India itself. We have lost, in India, the creative mind; we have been satisfied with second-hand knowledge and inferior imitative work.

What we need so much, at some centre in the East, is that there should be a seat of learning, in which the teachers and students should study together all that is to be learnt about the different cultures of Asia. India is the true home for such a centre, because very nearly all the cultures of Asia either sprang originally from India, or came into India from the outside in the course of her long history. The idea of founding such a centre of culture had come some time ago into my mind.

When I went to Europe and America a second time, in the year 1920-21, I had the opportunity of coming once more very close to the heart of the West. I found that, by my writings, I had gained a welcome among the peoples of Europe such as I had never dared to hope or to expect. It made me realize that a great responsibility was laid upon me to seek to bring about a true meeting of the East and the West, beyond the boundaries of politics and race and creed. I was convinced that my own institution, at Santiniketan, must now open wide its gates. It must offer to those who might come from the West that generous hospitality which India had traditionally afforded to those who have visited her shores. Thus, gradually, this idea of founding a centre of Indian culture, with which I started, was enlarged. The fuller idea of Visvabharati now included the

thought of a complete meeting of East and West in a common fellowship of learning and a common spiritual striving for the unity of the human race. The stress was now to be laid on the ideal of humanity itself.

I had the opportunity, during my tour in Europe and America, of meeting many Western students and scholars. They showed a great amount of enthusiasm when I told them of my object of establishing an institution in India for working together in a common pursuit of knowledge, where lovers of truth and of men can meet from all parts of the world. I asked Professor Sylvain Levi, of Sorbonne and Paris Universities, if he could come out in order to help me to inaugurate this new type of institution, which I had named Visvabharati. At first he said he was unable to come, because he had an invitation from Harvard University, in America. But a day or two later he came to me again, expressing his intention of cancelling his engagement, and joining us in Santiniketan. The months which he spent with us have been an inspiration to all our students and teachers.

Other eminent scholars have now offered to come and join us. Dr. Winternitz, of Prague University, Czechoslovakia, has already arrived. I met him also on my Western tour, and he very readily accepted my invitation, obtaining leave from his own Government for one year in order to take up his work among us. Especially he intends to teach our students how to undertake research work, in ancient Indian literature, on modern scientific lines. We have already on our staff a French teacher from Switzerland, M. Benoit, who has joined us this year and has offered his services voluntarily. We have a lady from Vienna University, Dr. Miss Kramrsich, who has made a profound study of Eastern Art. She has given lectures before the University of Calcutta, and at other places, but

her home is with us at Santiniketan. A French lady who is an artist of no mean reputation is about to come to us and join us in our work. Many others, among whom are European scholars of distinction, have promised their services if room can be found for them.

But the conception which I have sketched out is not merely one-sided. I do not wish it to be understood that Western scholars come over here to us only to teach our students what they themselves know. They come also to learn from us, and they are greatly helped and encouraged in their own studies when they find themselves closely in touch with our own students and teachers. For example, I have been told by Dr. Sylvain Levi himself, that he has been greatly helped by some of the teachers who were at Santiniketan when he came among us.

Therefore, I am perfectly certain that when these great scholars from the West come more and more into intimate contact with our own people, who are working at their own subjects in the same field, they will understand the work which has already been accomplished in India itself and is likely to be accomplished in the future. A mutual sympathy and generous co-operation will be established, which will be lasting.

I have spoken, hitherto, about teachers coming from the West, but we have the promise that students also will come and will learn from us what we in turn have to teach. They will live on terms of perfect equality with our own students, and will share a common life with them.

With this object in view, and in order to realize, at one centre of culture, the spiritual unity of mankind, I have founded our Visvabharati. The burden of such an undertaking is far too great for me to bear alone. But I have felt that unless a nucleus is formed and a start actually made, it would not be possible for me to go to my people and ask for their

help. The school itself at Santiniketan has been a heavy burden for me to bear all these years. Now that this extra burden is added, the responsibility has become much too great for any single individual. Therefore, I have handed over my institution to the public, and have entrusted it into their hands. It has been registered under the Act, and has now a definite constitution of its own.

I feel, when I look to the future, that our Visvabharati at Santiniketan may become one of the intellectual gateways to India, which may connect our country intellectually and spiritually with the world outside. There is not in India, at the present time, a single place where people from other parts of the world can come, and find out at first-hand what the Eastern mind is, and what part India has played in the history of the civilization of mankind. For certain reasons, due mainly to historical conditions of internal weakness and conquest by foreign powers, India has become segregated, not only geographically but in mind and spirit also. This intellectual segregation has been doing immense injury, because our students have had very little educational training in their own culture, and therefore they still lack initiative and originality of mind. We have had very few men of the highest intellectual rank in India during the days of modern English education. The result of the education has been so inadequate all round, that it is clear there has been something wrong. It has not inspired any courage of thought. We have been intellectually timid and unadventurous. Our students have been carefully hoarding up all that has been given to them through foreign hands. They have been content that others from outside should do their thinking for them.

I am certain that this is not due to any inherent defect in our nature. It is rather because the knowledge we receive consists of

information to be crammed and memorised, rather than the knowledge which brings inspiration with it. I remember the indifference with which I did my lessons at school in my boyhood, owing to my repugnance at the lessons taught, and then the enthusiasm which followed, when I came upon the Vaishnava lyrical literature of Bengal, published for the first time when I was young. I had the leisure to study deeply, in my own way, all that could be learnt from this source. I am quite sure that this knowledge, which I obtained by myself and not at second-hand, has been of inestimable value to me.

Somehow, fortunately, for me, one of my elder brothers had a strong belief that a boy should not receive his early education through a foreign medium. On that account, I did not begin learning English at all until I was well on in years and had had a thorough grounding in Bengali literature. My own early education was given to me through the vernacular medium only. Thus, before I studied English I had the opportunity to learn and to appreciate some of the best Bengali books. I know well, therefore, from an intimate personal experience, what this has meant for me in my own upbringing and for the growth of my own mind.

What we need most of all, for the unimpeded growth of our own intellectual life in this country, is that our students should be fully familiar with their own languages and cultures; then, along with this, they should assimilate the best culture of the West. They should have the opportunity to form their own judgment, through the medium of their own vernaculars and their own cultures. Then, and then alone, can they fully profit by learning all that the West has to teach.

All this will explain to you the reason I had in starting this University, where the East and West should meet together on equal

terms. It has been possible already to gather there some Sanskrit scholars from India itself, and some Buddhist monks from Ceylon. We have also with us, in residence, some of our very best young artists, who belong to the new Art movement recently started in Bengal. They are accomplishing wonders in transforming the art of Bengal into something truly indigenous and noble in its simplicity. The days of mere European imitation have passed away for ever from the Art of Bengal. We have some teachers of Indian Music, who are proficient in the music of their own country. Before long, I hope, we shall be able to have some teachers of European music also. Through their help, we shall be able to have a comparative study of Music, both Eastern and Western.

Only lately we have started an agricultural department in connection with our Visvabharati. This has been possible for us, because a young Englishman of great ability has volunteered to take up this work in conjunction with our own staff. He is a graduate of Cambridge University, who took his agricultural training at Cornell University in America; and he has recently come among us and started this work. Along with it, we hope to carry forward our social service work and also our co-operative endeavours. An American lady has volunteered, and has come out to join this agricultural and village work. We have our own trained Indian social and village workers also. I feel sure that, with the full co-operation of Eastern and Western teachers and scholars and voluntary workers, we shall gradually be able to develop the whole of our institution at Santiniketan into a truly living University, with ample room on all sides for expansion and freedom of growth built up on true foundations and in harmony with the spirit of the future.

One thing I must let my audience know that they are not to expect in this institution

the ordinary routine methods of class teaching which are the regular features of the Universities we know. The most important factor in Visvabharati is the scholars, who are expected to carry on their own work of study with the help and facility given to them in the shape of a good library, ample leisure and the prospect of mutual co-operation among themselves. If students come who have had a sound training, who have a mature mind, and an earnest desire to learn, it will be their duty to group round the scholar whom they choose for their teacher, and accept help from him where help is needed. Those who still require an artificial method of feeding in their lessons, who need constant watching and goading from their teachers, will find themselves out of place in Visvabharati.

There was a time when we *did* possess in India a great University, which was both truly popular in its origin and also offered facilities to students of all the different countries around. Nalanda University, as far as we can trace from historical records, was started and maintained by the people of India. Both material and moral resources were derived from all parts of the land; Nalanda, therefore, became a part of the national life of that period of Indian history. We can trace its remains in the ruins of to-day and can tell something of its greatness.

We need some such institution in our own days, which will vitally energize the minds of the students of this land and give them a strong character of their own; which will make them, as it were, rooted and grounded in the soil of India itself. When that energetic and creative mind is established, it will then be easy for us to assimilate, in a true spirit, and without any harmful effect, a foreign culture in addition to our own.

This, then, is the programme of Visvabharati. It has two aspects. On the one hand, the East has to know its own mind in

the same way that the West, owing to its concentration of culture and its use of the vernaculars, has learnt to know its own mind. At Visvabharati there is to be the same concentration of Eastern culture, at one centre, that already exists in the West with regard to European culture. Only in the strength of a unity of her intellectual and spiritual experience can the East meet the West on equal terms. Secondly, we seek at Visvabharati to have a living relationship established between the Eastern and Western peoples. We seek to have that relationship at a centre where the mind is vigorous and active. Such a free and living relationship, if it is established, will do the greatest good, not only to India but to the West also. It will enable the West to respect the East, and the East to respect the West.

Having this two-fold ideal ever present in my own mind, I have come out of my retirement once again, and put on one side for the time being my literary work, in order to stand at the door of my own countrymen and other sympathizers, and ask them to help me in building up this work in a spirit of mutual fellowship and good-will between the East and the West. I feel very deeply indeed, that this is a great age in which we are called upon to do our appointed task. It is an age when, through rapid geographical communication between the different parts of the world, the human races have all come close to one another. It is a great fact, this new closeness of communication. It is a physical fact which ought to have some counterpart in the world of ideas. The responsibility is ours, in this modern age, to translate this new physical fact into some great spiritual truth. It appears to me to be the mission of India to show the way forward on a new adventure of faith in this direction.

For it is historically true, that from the very beginning of Indian civilization the one

great problem which India has had to face has been the race problem. This race problem—the contact of different races in a single confined area—has now become the world problem. For the world is now comparatively confined, in its geographical area, owing to the speed of modern travel. The contact of human races, has become world-wide. The problem involved can be seen to-day on an extended scale in Africa and America, as well as in Asia and Europe. I feel that it is the function of India, owing to her experience of this racial problem within her own area, to begin this wider work of racial reconciliation throughout the world.

If you analyse the past history of India, you find one remarkable thing. The names of the successful fighters and conquerors have all been forgotten, because they did not help to solve the racial and religious problem—problem of unity—which was so specially India's own problem to unravel. There have been kings and emperors, for instance, who fought against Buddhism and re-established Hinduism in India; but their names have been absolutely forgotten even by Hindu India itself. Our people have no respect for those who fought in order to persecute, or overcome by force, religious or races which they thought to be alien to their own. But, on the other hand, such names as those of Kabir and Nanak are ever remembered by a grateful posterity. There is a long series of saints, who came into prominence during the great conflict between the religious ideas of Hinduism and Islam in Northern India. It was their noble mission to reconcile and harmonise religious truth by reaching out to a higher spiritual ideal.

You have also to keep in mind that most of these saints have come from the lowest classes of the Indian community. One of them was a Muhammadan weaver, some were cobblers, some were outcastes. These saints

are still held in highest reverence because they helped, in their lifetime, to harmonise the differences of religion and race.

India, therefore, has all along had to try to solve her own racial and religious problems, which have divided her, again and again, and still divide her. This is what makes me hopeful that possibly the soil of India is the place for the beginning of the solution of the new world-problems of our own age, and that an experiment, such as ours at Santiniketan, may be successful. For such an institution as Visvabharati will be like a wireless telegraphic station, which will catch the messages as they pass to and fro, from West to East and from East to West, and will deliver them to mankind.

When I was in Europe I met with individuals everywhere who were glowing with the enthusiasm of the new hope of unity and brotherhood which was dawning after the War, the hope of a humanity which should no longer be divided into a thousand conflicting races and creeds, but, amid all outward differences, should be intimately one. I know there are numbers of individuals who have passed the stage of narrow nationalisms and narrow conflicting creeds, men who are out to build a new shelter for mankind, because the shelter which had been built in the past can no longer contain all the races and religions of mankind. Such men are seeking to join hands in building up a common civilization, wherein every true individuality will be fully recognized, while at the same time the fundamental unity of man is acknowledged.

It is my firm trust and hope that Santiniketan will draw around it such individuals, who believe in the great ideals of the brotherhood of man and the unity of the human race. I shall be thankful if this comes to pass, and Visvabharati becomes a home of learning not merely for India, but for all the countries of the world.—*The Young Men of India.*

THE OSMANIA UNIVERSITY.

THE Osmania University has come into existence in response to a wide-spread demand in the Nizam's Dominions for a type of higher education calculated to satisfy the intellectual and cultural aspirations of the people and having its foundations deep in their national consciousness. For over half a century higher education in the State was controlled by the Madras University; but the connection proved so unfruitful that enlightened public opinion in the State became averse to its continuation and proposals were mooted from time to time either to affiliate educational institutions in the State to another University or better still to have an entirely self-contained system of higher education. These proposals continued to be discussed for a long time without taking a definite shape until the accession of the present ruler of the State, whose reign has been the starting point of an era of unprecedented educational progress. Early in his reign an Educational Adviser was appointed to report on the improvements to be effected in the educational organization of the State and on his advice the whole system of Primary and Secondary education was over-hauled, the number of schools was largely increased and all institutions were provided with better teachers and equipment. The question of higher education was then taken up and early in 1917 Mr. A. Hydari, Secretary to His Exalted Highness' Government in the Education Department, submitted a memorandum to His Exalted Highness in which after surveying the existing educational conditions and discussing the disadvantages of imparting knowledge through the medium of a foreign language he recommended that considering the peculiar needs and conditions of the State :—

"We require a new University free from the evils inherent in the present system and calculated to undo its deplorable effects. The University so founded shall be based on the fundamental principles of education, and shall take into consideration the peculiar needs of the people and their national characteristics. It shall preserve all that is best in the present and ancient systems of education. It should be both an examining and teaching body and in addition to this undertake to compile and translate books, using the Urdu language both for the imparting of knowledge and the training of the intellect."

In the course of this memorandum, Mr. Hydari pointed out the inherent defects of the present system of education through the medium of a foreign language, such as the undue and unwarranted strain on the students' memory, the time wasted in mastering the intricacies of a foreign language at the sacrifice of the subject-matter taught, the stifling of originality and the inability of the graduates to impart knowledge to their fellow-countrymen in their mother-tongue and the unbridgeable gulf thus created between the educated classes and the mass of the general public. He also referred to the two possible objections that might be urged against the selection of Urdu as the medium of instruction in the proposed University, firstly that the majority of the people spoke other languages and secondly the absence of good books in Urdu. As to the first it was pointed out that although it was true that those whose mother-tongue is Urdu are in a minority, yet Urdu is the cultural and official language of the State and of polite society, and is generally spoken by those classes from which students proceeding to a College course are drawn. Mr. Hydari met the second objection by stating that if a Bureau of Compilation and Translation were attached to the University, books required

or College classes could be produced in a short time. His opinion has proved to be well-founded as the Bureau of Translation has, during the five years of its existence, produced almost all the books required as text-books for the Intermediate and the B. A. classes. The capacity of Urdu as the vehicle for expressing scientific ideas is generally recognised. The well-known historian, Mr. Vincent A. Smith, bears testimony to this fact in the last chapter of his *History of India*. While welcoming the inauguration of the Osmania University, he says :—

"The Urdu language which resembles English in simplicity and flexibility of its syntax and in the extraordinary wealth of its vocabulary drawn from Western Hindi, Sanskrit, Persian, Arabic, English and other sources should be capable of expressing ideas on any subject, literary, philosophical and scientific."

His Exalted Highness whose deep and abiding interest in the advancement of education is well-known was graciously pleased to approve of the proposal and has ever since shown the greatest interest in the progress of the movement, which but for his princely generosity and sympathetic guidance could not have made any headway. The words of His Gracious *Firman* are well-worth reproduction :—

"I am pleased to express my approval of the views set forth in the *Arzdasht* and the memorandum submitted therewith, regarding the inauguration of a University in the State, in which the knowledge and culture of ancient and modern times may be blended so harmoniously as to remove the defects created by the present system of education and full advantage may be taken of all that is best in the ancient and modern systems of physical, intellectual, and spiritual culture. In addition to its primary object to diffuse knowledge, it should aim at the moral training of the students and give an impetus to research in all scientific subjects. The fundamental principle in the working of the

University should be that Urdu should form the medium of higher education but that a knowledge of English as a language should at the same time be deemed compulsory for all students. With this object in view I am pleased to order that steps be taken for the inauguration, on the lines laid down in the *Arzdasht*, of a University for the Dominions, to be called the Osmania University of Hyderabad in commemoration of my accession to the throne."

In pursuance of the august commands of His Exalted Highness the Educational Department at once proceeded with the preliminary spadework necessary for the launching of this great project. Representative Committees were formed to consider courses of studies for the Faculties of Arts and Theology of the proposed University, and the Draft Curricula prepared by these Committees were circulated widely in educational circles in England and in India with the result that the promoters of the University had the satisfaction of seeing that their conclusions were more or less approved of by eminent educational authorities.

The main features of these curricula are that in the Matriculation, the number of Examination subjects has been reduced by accepting certificates from school authorities in some subjects. In the Intermediate Examination, a greater latitude has been given in the selection of subjects than in other Indian Universities, whilst at the same time the subjects have been so grouped as to enable a student to take up more or less cognate and allied subjects. This division of subjects into distinctive groups makes intensive study in the B. A. classes possible, since, besides English and Theology which are compulsory, a student can take up only one particular subject in which he can specialise and later carry on research work. It may also be noted

that Theology or Ethics is compulsory throughout the College course.

The standard of compulsory English is nearly the same as in other Universities, which enables the *alumni* of the Osmania University to keep in touch with the currents of thought in the English-speaking world and prevents them from being confined to the publications of the University. They are also encouraged by the staff to consult English books on the various subjects from which questions are set to them to criticise and to explain. English is taught only as a language, so that the students may be able to speak and write it with ease and accuracy and to appreciate all that is best in Modern English Literature.

The first constructive work of the University was the establishment of a Bureau of Translation with a staff of eight qualified translators under the direction of a noted scholar and writer. The achievements of this Bureau are beyond all praise, considering the immense difficulties in the way, specially in the coining of scientific terms for which expert committees are constantly at work and have devised a terminology for a number of sciences. The Bureau was in the beginning a temporary institution; but in view of its importance to the work of the University, His Exalted Highness has been pleased to extend its term of life for ten years. The work attempted by the Bureau embraces the whole range of University studies including History (Eastern and Western, Ancient and Modern), Philosophy, Economics, Mathematics (Pure and Applied), Physics, Chemistry and Law. The inauguration of the faculties of Education, Engineering, and Medicine will necessitate the translation of books on these subjects for which provision is already

being made. The books translated by the Bureau were printed at the Government Central Press where a special staff was retained for University work; but as it was unfortunately situated at a considerable distance from the University buildings, it has now been transferred to the Bureau.

Under the Charter, the constitution of the University, which has been framed to suit local conditions of official and public life, differs in some respects from that of the other Indian Universities. Academic and administrative functions are vested in distinct bodies specially constituted for these purposes. With this object the Faculties have been so constituted as to perform academic functions, which in many Indian Universities are performed by the Syndicate. The number of fellows appointed to the Faculties is restricted, so that all members of the Senate do not necessarily belong to one or other of the Faculties, which consist mainly of the Professorial Staff, who have a preponderating voice in academic matters. The Syndicate is on the other hand a business and not an academic Committee of the Senate. The Executive Government of the University including the general supervision and control of the Colleges is vested in the Council, which is the highest governing body of the University and practically performs most of the functions of Government in British Indian Universities.

The great impression made on the public mind by the inauguration of the University can well be judged by the fact that at the very first Matriculation Examination held in 1918, 382 candidates were enrolled and in three years this number has risen to 523 in 1922. The Department of Education is doing its best to enhance the efficiency of the

schools recognised by the University for the Matriculation Examination and to raise Middle Schools to the status of High Schools. If financial conditions permit, every District will have a High School affiliated to the University at its head-quarters, and it is possible that some other towns too will be similarly provided with schools of that standard.

The Osmania University College, which is at present the only constituent college of the University, was opened in August 1919. The enrolment in the various classes has been most encouraging and the college has now nearly 500 students on its rolls. The first Intermediate Examination was held in April 1921, for which 119 candidates were enrolled and 91 passed out of the 116 that appeared. Out of those actually examined 97 were from the College of whom 85 passed. In the last examination held in April 1922, 110 college candidates appeared and 65 were successful. As there is more than one paper in every subject it has been found possible to have external examiners in all subjects. The external examiners who have sent in their reports are all satisfied that the students seem to have assimilated what they have been taught and show freshness and sound originality of thought.

A staff of three Professors and ten Assistant Professors was originally sanctioned to meet the requirements of an Intermediate College, but in view of the opening of the B. A. classes in July, 1921, a number of new appointments have been created and the sanctioned staff now consists of the following:—

One Principal	...	Rs. 1,250—50—1,500
15 Professors	...	" 500—50—1,000
18 Assistant Professors	...	" 350—25—600
6 Assistant Professors	...	" 250—15—400
2 Demonstrators	...	" 250—15—400

The College is at present housed in four large and commodious buildings situated in a healthy quarter of the City; but the authorities are not satisfied with the present conditions under which there is little scope for expansion. An extensive plot of land about 1,400 acres in area has been approved of by His Exalted Highness for the University buildings. His Exalted Highness' Government are prepared to make the buildings worthy of the name of its illustrious founder, and for this purpose a sum of nearly Rs. one crore is proposed to be spent.

The University has started with provision for instruction in Theology, Arts, and Sciences, but to furnish opportunities for professional training to its graduates and under-graduates representative committees have been appointed to consider what steps should be taken to inaugurate Faculties of Education, Medicine and Engineering. Law classes will be opened in July 1923, and a sum of Rs. two lacs has been provided for in this year's budget for the Engineering and Medical Faculties. The question of the higher education of women is also receiving attention and a scheme for the opening of Intermediate classes in the Nampalli Government Zenana High School is under the consideration of the University Council.

The Educational Review.

We are glad to be able to publish elsewhere in this number an account of the inception and progress of the Osmania University, Hyderabad. The Nizam's Dominions seem so much out of the way of the current of things in the country and owing to the absence of good newspapers in the territories, there is such an absence of publicity in matters relating to the State, that the outside world does not obtain much information about the progress of events in Hyderabad. We are glad that this account will enable the public to judge the progress there has been in the Osmania University. It is obvious that money and effort are not being spared to any extent in the cause of the University and though only a very brief period has elapsed since its formation, it has passed the stage of being only an experiment. In making Urdu the medium of instruction in all non-language subjects and in certain other features, the position of the University is unique and its further progress will be watched with considerable interest.

The proposals for effecting retrenchment of public expenditure in Bengal are so drastic that they are sure to satisfy anybody's zeal for economy. The Department of Education has unfortunately come in for very serious proposals for reduction at the hands of the Committee,

but we are glad to see they all relate mostly to educational administration and not to the actual work of education itself. The Committee recommends that Sub-Inspectors and Assistant Sub-Inspectors to inspect Elementary Schools are to be abolished; but that District and Sub-divisional Inspectors should be retained. We regret to note that it is proposed to abolish all Training Schools for the training of elementary teachers, and Training Colleges are also to follow the same fate. We are afraid this recommendation is retrograde especially as the Committee does not explain how the work of training teachers is to be carried on in the future. We do not however disagree with the other proposals of the Committee; the handing over of all educational institutions except Girls' High Schools and the Presidency College, Calcutta; the reduction of I. E. S. appointments at the latter; the abolition of Additional Inspectors, Special Inspectors for Mohamedan Education and the Assistant Director for Mohamedan Education. It is also proposed that the Director of Public Instruction should be Secretary to Government. There is no reason why it should not be so and why there should not be an end to the present anomalous system of the proposals of an educational expert like the Director being subjected to review by laymen at the Educational Secretariat. In view of some of the extravagance visible in the organisation of the Dacca University, especially in comparison with Calcutta, the Committee's decision to reduce the annual grant by one lakh

will not probably be regretted. As the Calcutta University does not receive any consolidated Government grant, the Committee did not make any specific recommendation about that University and we hope it will not be prevented from getting the Government grant so badly necessary for its existence, not to speak of progress.

The Native States of Rajputana constitute a vast expanse of territory with very little educational progress. They have been yoked to the University of Allahabad and the few colleges situated in them have been leading an existence not at all conducive to any special progress. We are therefore glad that there is a proposal to consolidate their resources and organise a University at some suitable centre. A small committee of official and non-official members of Ajmer-Merwara have been considering the best method of giving effect to the idea. Correspondence has already begun with the Government of India and an influential deputation is intending touring through the States of Rajputana to secure the help of the ruling princes. We wish the movement all success and hope that the University will be an accomplished fact in the course of the next two or three years.

Education in the West is being made as thorough as possible and it is surprising to see the numerous directions in which educational work is making itself felt. One of the latest ex-

periments in England is a proposal to start a college for actors and award diplomas for acting, as set forth in the following scheme:—

With the object in view that its diploma, or a diploma approximating to its minimum standard of attainment, shall be necessary to future entrants to the theatrical profession, a scheme has been started for the institution of a Central College of Theatrics. The draft scheme has been approved by the Council of the Actors' Association, and is now being developed into a constitution.

The scope of the proposed curriculum is very wide, and the Actors' Association are of opinion that the establishment of such a school will be welcomed by "the theatrical managements and by the general public who will undoubtedly benefit by the increased efficiency of the English stage."

It is suggested that the name of the school should be "The College of Actors," with power to grant diplomas as Licentiates, Associates, Members, and Fellows. Existing actors and actresses are to be admitted to its examinations at a nominal fee, and no reflection is to be made on those who may not seek examination. It is proposed that the Actors' Association should inaugurate a system of apprenticeship whereby new actors and actresses can qualify as Licentiates after examination without passing through the College.

The principal objects of the College are:—

To study and teach the technique of the arts and crafts of theatre and kinema.

To establish a minimum standard of acting, and to grant diplomas after examination by experts appointed by the Actors' Association.

To help to keep pure the English language and its use in speech.

Eventually to form a controlled portal of entry to the stage.

To provide special short courses in the various aspects of their art for existing actors and actresses.

To provide a source of income for the Actors' Association, to be used in the interests of members who may be in need of help.

To provide a centre for entertaining and exchanging ideas with foreign artists, and to be a focal point to which all interested in the development of the British stage shall be attracted.

To raise the status of actors.

It was a matter for surprise in some quarters that the Vice-Chancellor of the University of Madras, the

The Madras University Bill.

Hon'ble Sir K. Srinivasa Iyengar, had not spoken against the Madras University Bill, in spite of the fact that University interests were so badly threatened and the Senate itself had been treated in the most discourteous manner possible. We are glad to note that he has however broken the spell of silence and presiding over the anniversary of the Sri Minakshi College the other day, he spoke frankly against some of the main provisions of the Bill in spite of his being a member of the Government. He asked very properly if democratization had not proceeded too far in the consideration of the Bill and we hope the criticism will receive due weight in the Legislative Council when the Bill is taken up for final consideration and disposal, though as we have complained on more than one occasion, the present constitution of the Legislative Council is such that no exercise of reason is possible on the part of the bulk of the members who are servile followers of the Ministry in power. One of the most valuable and suggestive criticisms of the Madras University Bill we have noticed is the recent memo-

randum of the Madras Teachers' Guild on the subject. The Guild is right in protesting against the proposal to make the Minister for Education *ex-officio* pro-Chancellor and to enlarge the Syndicate by making it more democratic still. It is proper again that it should protest most emphatically against the giving of representation to local bodies on the Senate. "In view of the fact," says the Guild with great truth, "that out of 39 Arts Colleges in the Madras Presidency there is one and only one college under the management of a local body and no other local body has any hand whatever in the management of any of the affiliated colleges, no useful purpose can be served by allowing each district to send two representatives to the Senate through the District Boards and Municipalities."

There are many aspects of Indian student-life in Britain to which attention is not always drawn. An interesting memorandum has however been just published by the present and past wardens of the Y. M. C. A. Hostel for Indian students in Edinburgh which deserves wide attention. Indian students would often seem to be in financial difficulties for want of timely remittances from home or because of extravagance on the part of the students themselves or for other reasons. That is a state of affairs which cannot be contemplated at all with any equanimity by those who have the interests of the Indian student community in Great Britain at heart.

Apart from the inconvenience caused by having to remain in such a needy state, the moral risk involved in such a position is very great indeed and we hope the subject will receive the anxious consideration of parents sending their sons to England or contemplating doing so in the near future. The statement is as follows:—

'Experience in the Y. M. C. A. Indian Hostel, Edinburgh, with constant reference to the similar but larger Y. M. C. A. Hostel in London, to the Indian Government Hostel at Cromwell Road, and to the Distressed Students' Committee of the India Office, has revealed a serious state of affairs, which tends to become worse rather than better. While there will always be, one supposes, a certain number of Indian students in this country, who, like other young men, get into difficulties through their own extravagance, these are not the main causes of the prevailing confusion. A very considerable number are in chronic financial difficulties through the non-arrival of sufficient remittances from home, in many cases where the fathers are men of such position that there is no question of ability to pay. The result is a distress which affects wide circles of people who are called on to assist. In the case of Hostels it is represented by considerable over-drafts, and a very large amount of time spent in unnecessary book-keeping, in writing, and even cabling to the relatives, and in correspondence with the other bodies concerned. We know of over £700 loaned privately in Edinburgh in two years, the bulk of it to men of good family, and not yet repaid. It seems to take anything from two to twelve months to recover money so lent, from parents of standing in India.

In the London Y. M. C. A. Hostel and Club the same difficulty is felt, and there is a constant arranging of advance from personal friends, and from fellow-students, to meet cases of need as they arise. Of a total of £2,000 known to be advanced

chiefly by the wealthier London students, some £400 is still uncovered after twelve months. The Government Hostel at Cromwell Road is similarly unable to overcome the difficulty. The Distressed Students Committee of the High Commissioner's Office has exhausted all its funds, and its Chairman has, we believe, resigned. The total amount of indebtedness, public and private, incurred by Indian students must be a very considerable sum.

It is obvious that the difficulty requires wholesale treatment, for evidently the kind of arrangements that have been made of necessity, lend themselves too easily to exploitation by the unscrupulous. On the other hand, it is felt that parents in India cannot be aware of the present state of affairs; or they would seek to remedy it. It is with these chiefly in view that this memorandum has been written. It is based on a personal knowledge of over 100 cases.'

In the course of his Presidential Address at the last Science Congress held at Lucknow, Sir M.

Science Congress, Lucknow. Visveswarayya drew attention to the need for centralising scientific

and other intellectual activities in India in the matter of publication and research. Co-operation in such matters will probably add to the prestige of work by Indians in the world of Science and undoubtedly render possible considerable economy of effort. Instead of the large number of scientific associations, now scattered all over the country, a central organisation, with an organ for publishing the work of scholars should be of considerable service to the cause of progress. We are glad to note that this idea has already been taken up with enthusiasm in certain quarters and some educationists met at Lucknow after the

Congress and appointed a Committee to work for the idea of inter-University co-operation in India. We hope that an attempt will soon be made to convene a Conference of Indian Universities to consider many questions of common interest.

Shakespeare makes Hamlet say that once he thought it "baseness to write fair" and he "laboured much how to forget that learning." We are not sure if some of that attitude does not survive to-day. But there can be no doubt about the fact that there is decreasing attention paid to handwriting in our schools and colleges. Time was when school-masters took pride in seeing that their pupils wrote a beautiful hand. There is probably less of that enthusiasm to-day, the exacting demands of modern education being partly responsible for the state of affairs. *The London Times* has thought it necessary, very rightly, to protest against this decay in the art of writing and we hope that the members of the teaching profession will give this problem their best attention. As good handwriting is not only a beautiful accomplishment but also a virtue implying consideration for others and facilitating the work of the world. It is interesting to note that there are also other suggestions accounting for the decay of writing, such as the use of the fountain pen. *The Times* writes:—

'If it were possible to believe, as was suggested in a letter we published on Saturday, 7th October, that the decay of modern penmanship is mainly attributable to the substitution of fountain pens for steel nibs, there would be little reason for distress. A fiat of the education authorities might create a counter-revolution and an unfortunate ten-

dency be reversed, in schools at least, by a flourish of the Governmental pen. But, though it may be true that the use of fountain-pens is in some measure destructive of a nice balance between the up stroke and the down, these things are, as it were, but the syntax and grammar of handwriting, and their perfection no more assures its excellence than does accuracy in the use of nominative and accusative assure good prose. Whoever visits the manuscript cases in the British Museum will perceive that handwriting, though since about the time of the Reformation it has lost much of its earlier claim to the dignity of an art, can yet be no mechanical exercise learned from teaching alone. Whether it is beautiful or ugly, clear or difficult to read, seems to depend upon the pleasure that writers have had in it for its own sake. Gray enjoyed making that exquisite fair copy of his *Elegy* as much as Cowper enjoyed seeing the neat stanzas of "John Gilpin" take form on his paper. Gilbert White's description of the sedgewarbler presented to us in its original form, was clearly a work of love, which was felt at the time of its composition to be worthy of care. But Dickens was hard-pressed, and Scott, presumably for the same reason, though neat, is not easily legible. The labour of penmanship stood between their invention and a clamorous public. They had no time for those subtleties of self-satisfaction which made it possible for Gibbon, despite his great output, to write, as he did, in his *Autobiographical Memoirs*, the story of the first idea of "The Decline and Fall"—to write it on vast sheets of paper in a hand more easily read than print. To-day the act of writing is seldom regarded as an independent pleasure. If pleasure in it could be restored, pride, and perhaps excellence, would return. Not only fountain-pens, however, but all the circumstances of our time are against such a revival—a desire for speed that has killed the leisurely magic of black ink and white crispness; an abundance of cheap paper that does not invite the labour of adornment; above all, the typewriter, which promises always to absolve us from the faults of our penmanship and, by making all men equal before the world, deprive us of our merits. Handwriting was once an art, and though it may now be perishing, greater things than

fountain-pens have contributed to its decay. But perhaps the fountain-pen, a curiously impersonal instrument, may be taken as a symbol of them all. When we have learned to dislike its necessity, we shall have time for the missals.'

The abnormal financial conditions prevailing in the country to-day have rendered economy and retrenchment of public expenditure inevitable. Retrenchment Committees have started work in various Universities and we are afraid there will not only be no expansion in the immediate future, there will also have to be a retrogression in several directions. We hope however, that considerable caution and wisdom will be exercised in educational retrenchment. As Mr. Fisher was anxious to point out on more than one occasion to the House of Commons in England, expenditure on education is in the nature of an economic investment for the nation, as it is calculated to increase the efficiency of the individual and thus add materially to the wealth of the nation. There is therefore no department of national expenditure in the cutting down of which there should be so much hesitation as in that of education. If there is to be any retrenchment at all it must be in the direction of educational administration, buildings, etc., but certainly not in the direction of reducing educational facilities to any extent. It would be a serious national blunder on such occasions if retrenchment ended in depriving even a single student of the benefits of education which he might have got in ordinary circumstances.

Signs are not wanting that the introduction of too much of the popular element in the popular element into some of the newly-constituted or reconstituted Universities in India, has begun to produce results of doubtful value to education. Opening the first meeting of the Court of the newly-constituted University of Allahabad, Sir de la Fosse made some valuable remarks on the need for safeguarding academic institutions from too much of popular attention of a kind which is becoming increasingly evident, thoughtless criticism and want of sympathy with the true academic spirit. Sir de la Fosse said:

'From the nature of the several proposals which have been sent in by members of the Court for consideration of the Court to-day I gather that not a few of you have not completely realised the responsibility and powers which have been invested in this supreme authority of the University. I therefore propose to say a few words to you about the position of the Court in the constitution of this University. Since you represent every important element of public opinion it is inevitable that you should be rather a large body. It is obvious that bodies of such character cannot be expected to meet frequently. Nor is it intended that they should concern themselves with the minute details of the University administration. The Court is a deliberative and not an executive assembly. Its chief business is to watch over the policy of the University and to keep it in touch with outside opinion. For this purpose you are vested with important legislative functions. But, while you have the power to accept or reject proposals for legislation sent in to you, you have not the power to amend or pass them in an amended form on your own motion. To-day you will be called upon to consider a number of proposals

sent in to you for the making of new statutes. While it is your right to see that the statutes which you make conform to general lines of policy you will be well advised to pay due weight to the opinion of expert bodies in regard to matters of purely academic nature in so far as they do not trench upon the field of policy. Your powers and duties are somewhat greater than those which the Calcutta University Commission recommended should be bestowed upon the Court. Under Section 19 of the Act of 1921 you are constituted the supreme governing body of the University. And you have the right to review the acts of the Executive and Academic Councils but here again there is an important reservation. You are not entitled to review those acts in so far as these bodies are acting in accordance with the powers and duties conferred upon them by the Act, statutes and ordinances. You have notwithstanding very wide discretion and on the forbearance with which you exercise these powers will largely depend the smooth and satisfactory working of this University.

* * * * *

Members of the Court, this may be the last occasion, as it is also the first occasion on which I

have the honour to be present here. I am inevitably reaching the conclusion of my Indian career. I am not one that would desire to pass beyond the goal of general ordinance where all should pause as is most meet and proper. The last nine months have been an up-hill struggle with a heavy load and the burden must soon be passed on to younger and stronger shoulders than my own. But the reputation of the Allahabad University has become very dear to me and in retirement I shall wish to think that the University which I have served so long is thriving and prospering in your hands and fulfilling its great destiny. The foundations, I verily believe, are now well and truly laid, it rests with you to see that no external pressure is brought to bear upon your work that will impair the edifice you built. In your hands are the liberties of this University and the future of succeeding generations. Let there be no encroachment upon your privileges and if you have occasions to criticise your *alma mater* let your criticisms be well-informed and let them be made where they can be best answered by your colleagues, face to face with them in the University itself.

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**PATNA UNIVERSITY
'ANNUAL CONVOCATION.****VICE-CHANCELLOR'S SPEECH.**

ON behalf of the learned body which I have the honour to represent on this occasion, it is my pleasant duty to offer a cordial welcome to Your Excellency as our Chancellor, and at the same time to express a confident hope that throughout your term of office the University will receive the sympathy and influential support of which it stands much in need. The extent of the alteration in the conditions under which the State Universities of India have to carry on their work, owing to the constitutional reforms, is gradually being recognised. Though the report of the Calcutta University Commission was drawn up with the impending changes in view, and though it contains advice of the highest value, based on indisputable authority and experience, regarding the best methods of reconstituting these Universities in conformity with the new conditions, the Commission naturally could not anticipate every difficulty which might subsequently occur particularly as regards

finance. Nevertheless, the sudden withdrawal of the generous and enlightened support of the Government of India to the Provincial Universities has come as an unpleasant shock, and to none has this been more unwelcome than to Patna University, owing to the expectations which had been raised and the special circumstances under which it came into being.

Though no longer the most junior Provincial University in India, this University has scarcely completed the fifth year of its existence. It may not have been realised that this Convocation is the first at which Degrees have been conferred on any students who have passed a Matriculation Examination held under its direction, and whose subsequent work at college has been entirely guided by its own Regulations. Two more years must yet pass before the separation from Calcutta University can be regarded as complete, because it will not be until then that any students can present themselves for their Degrees who have followed both in school and college the full course of study which this University has prescribed.

Brief though its independent existence has been, this University has already either introduced or recommended several innovations which have attracted general interest. One of these at least has been followed to some extent by other Provincial Universities. Two years ago a resolution was carried in the Senate in favour of the abolition of the minimum age limit for the Matriculation Examination, which was fixed at 15 or even higher in all Indian Universities on the recommendation of the Indian Universities Commission of 1902. Until after the annual examination of 1921, when the change in the Regulation was sanctioned by Government, no candidate under the age of 15 could appear at our Matriculation Examination. So far the effect of the change has not been very startling, as only 32 candidates under fifteen, of whom 25 were successful, have appeared out of 4003 who have since been examined; but the proportion of juvenile candidates is showing distinct signs of increase as matters adjust themselves in the schools. The record at present rests with a boy of 12½ who passed the examination held last February in the First Division as a private candidate. It may perhaps interest some future Vice-Chancellor to see if this boy will succeed in obtaining our chief degrees M.A. and B.L. at an age scarcely higher than that of the average under-graduate who enters Oxford or Cambridge.

I am glad to report that although the number of the vacancies amongst our *ex-officio* and ordinary Fellows which have occurred since last Convocation is unusually large, so that a ballot had only to be held in one of the elective constituencies created by the Act, the cause is in no case due to death. It is chiefly due to the effect of a new Regulation passed by the Senate twelve months

ago and subsequently sanctioned by Government, under which Fellows, who, for one reason or another, have ceased to represent the constituencies from which they were originally elected, vacate their office. By retirement from India we have lost two of our most senior Fellows, Sir Haviland LeMesurier and the Rev. G. J. Dunn, whose work on behalf of education in this Province will be gratefully remembered. The keen interest which Sir Haviland took in the affairs of this University, and the fact that he presided over last Convocation as Acting Governor of the Province, will be fresh in the memory of all present.

By an amendment of the University Act, the Ministers of Education and Local Self-Government together with one Member of the Executive Council have become *ex-officio* Fellows of the University in place of the three Members of the Executive Council.

At the second of the annual elections, which was held last September, 12 Fellows were elected to fill existing vacancies, and 3 ordinary Fellows were subsequently nominated by His Excellency the Chancellor. The proportion of those who are new to the University, namely 11 out of 15, is considerably larger than in the previous year.

At the end of this month, the term of office of all ordinary members of the first Syndicate elected in accordance with the Regulations in November 1919, who have not subsequently been re-elected, comes to an end. Six of the fourteen original members thus retire, but five have just been re-elected, and the Syndicate will contain 11 out of 18 members who have had experience of the affairs of this University for 3 years or more, so that there is every reason to hope for continuity in administration. The work which the Syndicate performs on behalf of the Univer-

sity is arduous, and takes up much of the time of busy men; and I would like to take this opportunity of acknowledging the value of the services which its members have willingly rendered under somewhat unfavourable conditions.

In my last address to Convocation I mentioned that the Senate was about to consider the recommendations of a Special Committee regarding the system of supplementary examinations. After the brief experience of 1921 it was generally recognised that some improvements were urgently necessary before these examinations could be regarded as established on any sound financial or educational basis. The Senate have accepted the Committee's proposals, which were to hold these examinations in future in June before the commencement of the annual college session, and to charge a special fee in order to compensate the University for its financial loss, and I think that while it is still too early to say that every difficulty has been surmounted all concerned will agree that the arrangements as now modified are a very distinct improvement.

In instituting supplementary examinations we had no Indian experience to guide us, and one result which was quite unexpected is that so far they have not proved equally attractive to unsuccessful students at all stages; thus, out of every 100 students who failed at the annual examinations held last February, 85 reappeared at the supplementary examination for a Pass degree held in June, and 70 at the corresponding Intermediate examination, but only 30 at the Supplementary Matriculation Examination. On the experience of a single year it would be unsafe to assume that this is likely to be a permanent feature of the system, and I need only point out here that

our estimates of the financial position, were unfavourably affected.

In other respects the effects of the system have proved very much what was expected. On the whole, the results of annual examinations were considerably better than those of the later series, as is only natural. Under this system there is bound to be a considerable increase in the proportion of candidates who pass the University tests in each year. The actual effect in 1922 has been to increase the proportion of successful candidates at Matriculation from 51 to 57½%, at the Intermediate stage from 50 to 60%, and at the Degree stage from 62 to 78½%. The most striking feature of the examination held this year, in fact, has been the high proportion of students who have passed the B.A. Examination. The ratio at the annual examination alone was 65½, the highest yet reached in this University, and it was increased by the supplementary examination to just over 80%.

I have mentioned these figures chiefly because they appear to disprove conclusively the complaint that is still made against this University from time to time with somewhat monotonous regularity that its standards are too high for a youth of average intelligence educated in our high schools or colleges to reach; and to show that there is no real justification for proposals to reduce these standards. To my mind the chief advantage of our supplementary examinations is that they can be regarded as a reasonable method of dealing with the difficult problems concerned with candidates whose work falls slightly below the border-line. They give all such a fair opportunity to effect the improvement required without loss of a year in their career, and they remove or, at any rate, weaken the temptation to excuse deficiencies

in unorthodox ways,—ways which not only lower and falsify the published standards of a University but sooner or later destroy public confidence in the value of the qualifications which it confers.

In August 1920, when the Senate commenced its consideration of the Report of the Calcutta University Commission, it was decided to adopt one of the Commission's most important recommendations, namely, that the length of Honours Degree courses should be extended to three years, but the Senate did not see its way to accept the corresponding proposal as regards increase in the length of Pass courses. Several problems have arisen in attempting to carry out this Resolution of the Senate, and they have proved unexpectedly difficult, as I indicated last March, but draft Regulations on the subject, revised in accordance with the opinion of the Faculties concerned, have at last been laid before the Senate. Though they will not be discussed until after this meeting of Convocation, a brief account of the position may be useful in view of the importance and difficulty of the subject.

When framing the draft Regulations for the opinion of the Faculties, the special drafting Committee appointed by the Syndicate decided to follow as far as possible the proposal made by the Patna University Committee of 1913, as well as those of the Central Provinces Committee two years later which closely resembled them, but went further by including precisely the same difference between the length of the Honours and Pass courses. The Committee accordingly suggested that the work of Honours students should consist of a much more thorough course in a single branch of study, combined with one subsidiary subject more or less closely related thereto, instead of two pass

subjects as at present. The danger of premature specialization, referred to by the Calcutta University Commission, was not overlooked, but the Committee considered that this could be guarded against when the courses of study were revised. Another new feature was introduced in providing that at the Honours stage some training in the methods of research should be given as a necessary preliminary to the actual prosecution of research at a later stage. Two choices were given to students who after obtaining Honours desired to qualify for a higher degree. They could either take a special course for the Master's Degree extending over one year, as the Commission recommended and the Senate had also approved which would carry their training in research still further; or they could obtain their higher degree in the manner still left open to Pass students, by attending the present ordinary course for two years along with them.

The Faculty of Science have agreed with those proposals without any substantial modification, but the Faculty of Arts have recommended several important alterations. While retaining the general system of one principal and one subsidiary subject, they would allow complete freedom of choice in the latter, and they would attach much less importance to training in research methods, making this entirely optional. They evidently consider that an attempt should be made to assimilate the course of study of Honours students in their third year to the present work of fifth year students. Pass students, in their opinion, should be required to qualify at a previous examination at the end of their fifth year which would be regarded as equivalent to the Honours Degree, after which both classes of students would work together and appear at the same final examination.

The proposals have been criticised on the grounds of their increased cost. While it would undoubtedly be difficult or impossible for colleges admitted in only one or two Honours subjects to retain their admission without considerable extra expenses in highly qualified staff and equipment, it is interesting to note that there need be no increase of cost either in a central Teaching University or in a large college with a full range of admission in Honours and Higher Degree subjects. As regards the importance of training in methods of research opinions must naturally differ, for while such training is essential for the advanced study of science, it is not so obviously necessary in literary subjects and it must also be acknowledged that in certain branches of the latter that could be mentioned, it would be hard to provide training of this kind with our present resources. But so far as I can gather neither of the proposals accepted by the Faculties is warmly supported in any quarter, and there seems to be a general impression amongst the teaching staff that the Senate's resolution of August 1920, which represents a compromise between the existing system and the Calcutta University Commission's recommendations, is unworkable in practice. Even those who are most strongly in favour of improving the present Honours courses fear that the addition of an extra year to them alone would unduly increase the relative attractiveness and safety of a Pass Degree.

One of the most important facts which I had to report at the last Convocation was the large decline between 1920 and 1921 in the number of students attending colleges and high schools, which amounted to over 22 per cent. in both cases. Though the causes which led to this have largely disappeared, the recovery is not as yet very marked. The number of

under-graduates in the colleges at the end of August was 2343, compared with 2252 a year ago or an increase of only 4 per cent., and the recovery in the schools as a whole is not more than 2 or 3 per cent. As regards the schools, the University on the financial side at least, is more immediately interested in the numbers in the highest class, in which there has been actually a further decrease. It is probable, however, that a larger proportion will appear at the Matriculation Examination of 1923 than was the case this year.

Nevertheless, it seems certain that the number of candidates at our examinations in 1923 will again be abnormally low, in comparison with earlier figures, and that no substantial relief to the financial difficulties of the University on this account can be expected at present.

When I spoke last March, those embarrassments had become acute, and I am glad to report that they have been considerably relieved. In the first place, the Senate, by a practically unanimous vote at the March meeting, sanctioned the proposed levy of a special fee for the supplementary examinations. This has increased our income during 1922 by nearly Rs. 8,000. Secondly, the Syndicate last April applied to Government for a special grant to reduce the deficit, which had reached the inconveniently large figure of Rs. 25,000 at the beginning of the year. This application was approved by Government and recommended to the Legislative Council, which sanctioned a grant of Rs. 22,000 at its August session.

Had it not been for these two measures, our deficit at the end of this year would have risen to about Rs. 41,000, and a crisis would have been reached about April or May next, when the University would have been unable to continue its work, or at any rate to pay

for it. This danger has been averted, but the financial position is still by no means satisfactory. Since 1918, the University has incurred a loss in each year of its existence the average amount being over Rs. 10,000 annually. The deficit shown in the Budget estimates is expected to be about Rs. 11,000, and a further loss of about Rs. 7,000 is anticipated in 1923. Though a small recovery from the figures of the present year is anticipated, fee receipts are expected to be less even than in 1919, though two sets of examinations will be held instead of one. Expenditure has been reduced very considerably, and is now down as low as the level of 1919, but this has been rendered possible only by the exercise of strict economy in all directions, notable amongst which is the curtailment or abandonment of expenditure on University Readers and facilities for research, the main interests of a modern University.

It appeared therefore inevitable to the Syndicate, who have endeavoured to present the facts as clearly as possible to the Senate and to Government that some permanent increase of income must be secured before the University can continue even on the very modest line on which it was inaugurated. I am glad to say that the Senate has just approved proposals laid before it to increase the fees payable by Law, Higher Degree and Honours Degree candidates, with only one modification as regards the latter. This will increase the income of the University next year by about Rs. 4,000, and I trust that the Senate's action will strengthen the grounds on which the Syndicate have based an application to Government for an increase in the recurring grant for establishment, from Rs. 20,000 to Rs. 30,000 per annum.

I venture to think that the combined effect

of these two proposals, if sanctioned by Government, would be not only to restore confidence in future of the University itself, but also enable it to become of gradually increasing assistance to the cause of higher education in the Province as its general position improves.

It is true that the contribution of Government towards the University and collegiate education as a whole is relatively larger than it is in any other Province in India, but there is, I think, a strong case for an increase in the grant made to the University itself. Salaries and wages have increased so much since 1917 that the grant which Government considered sufficient for establishment then is by no means adequate now. Secondly, it does not seem to be generally realised that the net cost of the University to provincial revenues at present, after including my own services, is less than Rs. 30,000 per annum. And it may further be pointed out that the Patna University Act itself implies that our administrative expenses are bound to be relatively large. The Act provides for a considerable representation on the Senate of educational and other interests outside Patna itself. I believe that this is generally recognised to be one of its best features, but its effect is to increase the charges for travelling allowance very considerably. On the average, the University has had to pay over Rs. 19,000 annually on this account, or more than one-eighth of its ordinary income. A reference to the accounts of Calcutta University will show that, last year, its total charges for travelling allowance, including inspection of colleges were less than Rs. 10,000; and that for this purpose a recurring grant of Rs. 5,000 was received from Government.

There is a third possible source of income very important though almost non-existent at

present which must have suggested itself to members of Convocation. I regret that I cannot announce on this occasion the receipt of any new endowment or donation for the benefit of the University itself. In the Provincial Universities of Great Britain, which the Calcutta University Commission has recommended as a model for Indian State Universities, receipts from endowments created by generous benefactors form nearly a quarter of their ordinary annual income. I trust that the statement of the real financial difficulties of our University at the present time, which I have placed before Convocation, will induce its well-wishers to emulate this noble example, and to supply funds for want of which its proper development is rendered impossible.

The experience which this University is now undergoing, in being compelled to enforce economies owing to the sudden contraction of its resources, is unfortunately by no means unique, and provided that the treatment is not continued too long, its effects may even prove to be salutary. Circumstances such as these, however, provide critics with ample opportunities, and the University has not escaped. It is interesting to note how much of their criticism refers to one particular branch of University's work, namely, its control over secondary education as exercised by its Matriculation and Intermediate courses and examinations, because this was considered by the Calcutta University Commission to be a burden from which all Indian Universities should be almost entirely relieved. While it does not appear necessary to take a gloomy view of the work which the University has been doing in this direction, it would be unfortunate if these matters were allowed to divert attention from the work which lies or should lie within its

own proper sphere. In the memorable address which the Metropolitan delivered at last Convocation he referred to thoroughness of knowledge and the desire for its advancement as the true objectives of a University. It is, I am afraid, only in the former of these directions that substantial signs of progress will at present be found here.

The number of students who are reading for Honours Degrees is steadily increasing. There are now 135 such students in Patna College alone, compared with 95 a year ago, and the total number has risen from 159 to 222. An Honours class in Philosophy has been started at Patna College, and the G. B. B. College at Muzaffarpur has been admitted to the Honours standard in History. Similarly, the number of students reading for the M. A. or M. Sc. Degree at Patna College continues to increase, there being now 76 Fifth Year and 50 Sixth Year students, compared with 62 and 37 respectively a year ago. In addition the Ravenshaw College at Cuttack has been admitted to the M. A. standard in English since July, and 9 students have joined the class. It is noteworthy that English is by far the most attractive subject of study both in the Honours and Higher Degree classes, and that even the relative proportion of students taking English is increasing.

The M. Sc. Examination has been held this year for the first time. Four candidates have passed, two in Mathematics, and one in Physics and Chemistry, respectively. 24 candidates have passed the M. A. Examination. During the previous three years only two students have been placed in the First Class by the Examiner. This year there are four, and two out of the three University medals and prizes to the value of Rs. 200 which have been earned have been presented

to-day. We owe these to the generous offer of Government to defray the cost of such awards until 1924 in the expectation that in the meanwhile the liberality of private donors will be forthcoming to provide for subsequent years. I would draw special attention to this condition because the University itself is not likely to be in a position to continue the awards from its own resources. No such endowment has yet been received, though one of equal amount for Sanskrit at the B. A. Examination was announced at the last Convocation.

As was then feared, the very limited assistance to true post-graduate work has had to be further curtailed. The number of University Readers for 1922-23 was reduced from five to four and in view of the deficit the three Readers appointed on the recommendation of the Senate last March have generously consented to forego their small remuneration. In making a grant of Rs. 600 for this object Government have given notice that no future grants of this nature will be made, as it is considered that Readerships should be financed from the University's own funds or from endowments such as the Bancili Readership in Indian Economics. In consequence, no Reader except the Bancili Reader will be appointed for 1923-24 unless an additional endowment is received.

Unless some arrangements can be made to publish the courses of lectures which our Readers have already delivered, these must inevitably lose much of the value. They are intended for permanent record, and the Readers naturally desire that their work should be made known to fellow-scholars elsewhere. By distribution of a series of such lectures to Universities and other learned institutions in India, Europe and America, etc. the University stands to gain not only

in reputation but also by receiving corresponding publications in exchange. A beginning has been made during the present year by the distribution of the lectures of Prof. Sarkar on Moghul Administration and Rai Bahadur Sarat Chandra Ray on the Principles and Methods of Physical Anthropology, which were published at the expense of Government. Though this form of assistance has also been withdrawn, we have managed to arrange for the distribution of two other courses, namely Prof. Hamilton's Bancili Lectures on Indian Fiscal Problem which will be published by the Oxford University Press, and Prof. Harrison's Lecture on Recent Investigations concerning the Constitution of Matter. The latter is being published by the University, and as it is likely to be required by advanced students of Physics, will be placed on sale in our newly-created Publications Department, which I may mention here, is expected to show a profit of over Rs. 8,000 next year by the sale of University Selections.

The University Library which was started in 1919 with the help of a Government grant of Rs. 6,000 is languishing for want of funds as the sum of Rs. 1,500 annually is the utmost that can be allowed from our own resources under present conditions and no Government grant has been given since 1920. It now contains about 4300 volumes amongst which a complete set of the Geographical Journal, which was purchased during the year, from Mr. Syed Ali Ahmad Ezvi's donation, may be specially mentioned. Some very scarce publications of first rate importance for the historical study of Indian Economics and other valuable old books for the use of research students in that subject have also been obtained during the year with the help of the Bancili donation.

During the last five years the University has been permitted to use a wing of the High

Court building as its temporary office, but meetings of the Faculties and the Senate have had to be held in places nearly five miles apart, in the Hall of New College and the Conference Room of the Secretariat respectively. As members of these bodies are aware, we are already indebted to Your Excellency's Government for permission to occupy the larger and more conveniently situated offices vacated by the Board of Revenue in which our recent meetings have been held. I hope that the change will prove to be advantageous in other ways, notably in bringing the office and library two miles closer to the colleges and in providing some assistance to the colleges in the work of conducting examinations.

THE CHANCELLOR'S ADDRESS.

Mr. Vice-Chancellor, Fellows of the Patna University, Ladies and Gentlemen :

I have to thank you, Sir, sincerely for the welcome extended to me on this, my first appearance in the role of Chancellor, and I hope that during my term we may achieve the satisfactory solution of various outstanding problems concerning the future of the University, and that this youthful institution may advance surely and smoothly on the road of progress towards its full development. In so far as any assistance I can give that will conduce towards this end, it will ever be freely at your disposal.

An interesting feature of this Convocation to which allusion has been made is that it is the first occasion on which some students have completed our own full course from Matriculation to Degree.

A special responsibility rests with those who become members of the University in these its early days. They have firmly to establish and maintain the traditions and

usages which will give the University its distinctive hall-mark. The high ideals of University life are in essentials, doubtless one and the same, wherever the actual foundation may be, and I could not improve upon the full and eloquent exposition of those which the Metropolitan gave in last year's Convocation. But in striving to attain those ideals, variations as between different Universities inevitably develop. There are great Universities, for instance, in Great Britain, France, Germany and America, but such have their own special characteristics, more markedly as between different countries, but also as between different institutions in the same country.

This, of course, is equally, even if not more true of India, but although the interpretation may vary, the governing standard is constant and we look to our students to see to it that the Patna University shall stand for all that is best in the widest sense. Neither does their responsibility end with the receipt of their Degrees; if they have benefited by their training here, the results should be manifest throughout their subsequent careers, influencing the vast majority whom we cannot directly reach. In wishing them, therefore, every success in the future, I am confident they will ever remember the high charge entrusted to them.

However, although, as a University, we may be growing up, we are still most undoubtedly very young, and even our short existence has been a little chequered. As a baby it may almost be said that we were left on the door-step by our, at that time, wealthy parents, and though they have subsequently pleaded poverty as absolving them from their obligations, it does not make the position of the provincial guardian any easier to be deprived even of a decent maintenance.

allowance. It is for this reason that the important issues of where the Central University is to be situated, and how it is to be constituted, still remains undecided. It is difficult to see how the provincial revenues can possibly finance the ambitious scheme once contemplated, and the problem is what to substitute for it. The Vice-Chancellor has for some time been working on a possible alternative proposal, which, it may be while not giving us all we would like, will constitute a material advance on anything which at present exists. I hope we shall be able soon to consult opinion upon this most urgent matter. Until it is settled all progress is gravely hampered, and a state of uncertainty continues which is most detrimental to satisfactory work.

This is a question which really affects our very existence, or at least our growth to anything like full stature, but in addition we have had difficulty even in meeting our current living expenses. In this, at least, though the fact is unfortunate, we are not peculiar among similar bodies. The Vice-Chancellor has given an interesting summary of the position and of the steps which have been taken to meet it, and there are only three points which I would like to emphasise. Firstly, in so far as the reckless madness of Non-co-operation has brought about a sad decline in the number of our students, it is to be hoped that that cause of a reduction in our income is only temporary and will pass. At least those responsible for putting it in operation would seem disposed, with somewhat callous cynicism, to admit after having impaired the careers of so many boys, that perhaps after all, it was not a very sound line to have taken. We should not, therefore, make hurried changes in the belief that the abnormal conditions of the last year or two

will be permanent. Secondly, it is very satisfactory to find that the University authorities have not shrunk from meeting the situation both by feasible retrenchments and by the admittedly unpopular measure of raising fees. They are greatly indebted to Mr. Jackson for his efforts to exhibit the finances in a clear and intelligible light and to deal with them in a business-like manner. Thirdly, looking to the important issue at stake, and even bearing in mind the pressing claims of primary education and the narrowness of the provincial revenues, I do not think that it can rightly be said that the net figure of Rs. 30,000 quoted by the Vice-Chancellor as the present annual cost of the University to provincial revenues is excessive.

Both these problems—how and where we are to develop and how we are to maintain ourselves during the process—are serious and vital, but like any lusty infant we also have our teething troubles, and the Vice-Chancellor has touched upon some of them. The age of Matriculation tooth seems to have come through, and it only remains to be seen that it grows straight, but those which appertain to the length of the Honours and Pass courses, Supplementary examinations, the control of Secondary Education, including Intermediate classes, and even perhaps the best system of government for the University are giving more trouble, and causing various aches and pains. Some of these are still under the consideration of the Senate, and I can only hope that the outcome of their deliberations may be wise and beneficial. I do not propose to discuss now the various considerations involved; I doubt if I am fully qualified to do so, and for that reason I may be permitted to advise the non-professional element in the Senate, which is rightly represented there in considerable strength, to give

due weight to the advice of those who have made Education their life-study, and who are our acknowledged consultants.

Hitherto I have dwelt mainly on our difficulties and upon the various serious problems that confront us. At this stage this is almost inevitable, but let not the difficulties unduly discourage us. No big achievement is won easily, and given resolute courage and enthusiasm, difficulties can be surmounted. Let us cherish the ideal that has been set before us. We want to have a first class University, typical of all that is meant thereby. We do not want a cheap imitation—a University in name only, a shoddy factory of indifferent Degrees. I have seen suggestions that are being commended to your attention, which seem to me to be tending towards the downward path; towards lowering standard and in the sacred name of retrenchment, economising at the sacrifice of quality. Against this I would most earnestly warn you. It is not pleasant to hear that we are being forced to curtail expenditure on University Readers, while the Library is languishing

for want of funds. That is going backwards while we wish to go forward to better and better things. If our aims are high our efforts must be proportionate. We have done much already, and let it not be thought for a moment that I wish to under-rate past achievement. We have transformed the outside colleges at Cuttack, Bhagalpur and Muzaffarpur, and have enlisted the assistance of generous benefactors like the Maharaja of Mayurbhanj (with his munificent promise of rupees one lakh for electric plant in the Ravenshaw College), the Raja Bahadur of Baneili, the Raja of Kanika, not to mention the donors of small but none the less welcome endowments, donations and prizes. But we want to do more; the field is wide and so far we have only covered a corner of it. But nothing will do more to enlist the sympathy and help of the liberal-minded public, than the bringing home to them of the high purpose that this University seeks to achieve, and the steady and persistent maintenance of the ideals with which we started, and with which undimmed let us pursue the journey to the finish.

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ALLOW me at the very outset to offer my most cordial thanks for the very high honour you have seen fit to bestow upon me by asking me to preside over the Convocation of the National Muslim University at Aligarh. I am indeed using no mere language of conventional humility when I say that the greatness of the honour has well-nigh made me nervous, for I do not know what I have done to deserve the infliction of this dizzy eminence. And I confess that it was with a feeling of surprise that I received your invitation, for I could scarcely conceive why myself, a student of Science, a Bengalee, a non-Muslim and a non-political man, should have been singled out to preside at such an important function of an Islamic University, situated in Upper India and owing its birth to the fervour of political excitement. Perhaps I was wrong; it was none of these, but my humble services to the cause of education in our country that led you, as educationists whose supreme task is to mould the youth of the nation and train it for national service, to thrust this great honour upon me—for, in education lies the salvation of India.

In any case this invitation so unexpectedly made, was itself something of an eye-opener to me. I confess, and I trust my friends here will not take it amiss, that I am not much in love with sectarian and denominational institutions, and I always tremble with fear lest they degenerate into narrow and bigoted things, as is their general tendency. So this invitation to a non-Muslim gave me all the more pleasure on this account that it showed unmistakably the liberal and catholic spirit that is working in the organizers of this University—a spirit that was indeed only to be expected from the brilliant auspices under which this institution made its start—a spirit that was only worthy of its high-souled sponsors, Mahatma Gandhi and Maulana

* By Dr. Sir Prafulla Chandra Ray, of the University College of Science, Calcutta.

Mohamed Ali, to whom we all bow down in reverence. I can here only express my keenest regret, which I trust is felt by all those assembled here, that they are not here to grace this occasion by their noble and inspiring presence. We would have all been so much stronger and braver if they could have been here. Absent or present, may their spirit however always guide this University! The catholicity of outlook, the single-minded devotion to truth, the depth of enlightened patriotism that ever inspired these heroes of Indian nationalism—may they always illumine the path of our future progress! May this institution never sink down to the narrow groove of sectarian exclusiveness and communal chauvinism, nor settle down to the stagnant rut of religious bigotry and ignorant fanaticism!

It is this hope, this faith that is in me, in the noble, the broad, the liberal spirit of your workers that has encouraged me to accept your invitation in spite of my distance and unfamiliarity. It is in the trust that I shall be looked upon as a brother among brothers that I have dared to respond to your call. And I am sure, my friends, you will not mind if I take this opportunity to indulge in some heart-to-heart talks with my comrades here on our present duties and responsibilities.

Aligarh : A Name to Conjure with.

Aligarh is a name to conjure with from the restful days of Sir Syed Ahmed Khan of hallowed memory in the early eighties of the last century down to these present stirring times of a nationwide resurgence; it has always stood for a centre, a living and inspiring centre of Islamic learning and culture. Aligarh has set its impress on the best minds of more than two generations of our Muslim countrymen; and we, comparative outsiders as we are, have always associated Aligarh with a broad, modern, intellectual outlook free from bigoted obscurantism; with a healthy, active, corporate University life not choked up and stifled by the dull drab drudgery of mechanical routine and parrot-like examinations; and above all with a deep

and enlightened civic sense and patriotism that makes real, sturdy, live men of affairs "and not mere cloistered recluses." We have always looked upon it as a nursery which rears up men and not service-hunting clerks. And therefore, this new endeavour, this new National University set up in what has come to be almost an Islamic pithasthan, has a stupendous task before it—it has to live up to the heights of the traditions of Aligarh, and further to strive to establish new records. This is a task, which by its very magnitude and glory, ought to rouse our bravest instincts and to nerve us to our loftiest efforts.

"Let there be Light."

Freedom first, freedom second, freedom always—a noble sentiment nobly expressed by one of the makers of modern India, Sir Asutosh Mukherjee—should ever be the watchword of a University. And this freedom we need not mean in a restricted academic sense as implying merely administrative autonomy in the management of a University—it should be given the most generous interpretation. It should stand pre-eminently for the freedom of the mind—the liberty of thought, the manumission of reason, the emancipation of the intellect—the most glorious achievement and the most difficult, throughout the annals of human civilization. Authorities, precedents, dogmas—all must stand the test, the search-light of the intellect, cold and unimpassioned; and if found wanting, if found defective, if found absurd, they must go and be relegated to the lumber heap. Let there be light—is the cry of the human mind that has gone up for ages, though so often repressed and stifled; and the cry must be satisfied if there is to be light. It is in this instinct for light, for truth, for reality that man shows himself most God-like. And in this diffusion of light the East has a proud part to play. "Ex Oriente Lux" is a great saying, and the Orient must justify it.

As a life-long student of Science it is this aspect of a University, this mission of a teaching institution that makes its greatest appeal to me. Pre-

judice, bigotry and unreason have been the greatest enemies to human progress throughout the entire course of man's history; and the baneful and soul-killing effects of authorities and dogmas have been most terrible in stunting the growth of the human mind. And I take it that the greatest, the worthiest and the most permanent contribution of Science to the cause of civilisation has been its revolt against authority, its pursuit of truth and its appeal to reason. And speaking to you here this afternoon as a man of Science I would appeal to you ever to keep this flag of truth, this banner of freedom, unfurled.

Intellectual Traditions of Islam.

Though I am uttering what may sound like a note of warning, yet the fact is that these remarks are meant as nothing but friendly counsel and I am far from being nervous about the matter. On the contrary, I am more than confident that this respect for truth, for pure learning, and for freedom of thought will pre-eminently characterise this University, as it has ever characterised the progress of Islam in the past. I know the traditions, I mean the intellectual traditions of Islam; I remember the magnificent contributions made by Islamic peoples to the cause of science and literature and philosophy and arts; I recall the part that they have played in keeping up the torch of truth burning with undimmed lustre during the dark dismal period of the Middle Ages, when Christendom was content to exhaust its energies over barren Aristotelian logomachies and interminable theological wrangles about the Mother of God and the Son of God; the visions of Baghdad and Cairo, of Cordova and Granada, float before my imagination with all their ineffable aroma and age old splendour. Though not a Muslim myself, my Asiatic heart expands with pride and joy when I think of the conquests in the fields of culture and knowledge achieved by Islam. My friends, I trust, will pardon me if in the fulness of my heart I love to linger longingly on this glorious period of Islamic history.

What, I ask, would the world have been, where would modern civilisation have been, if when the classic world of Europe had been submerged by the invasion of the Barbarians into an abyss of unspeakable darkness, of unrelieved gloom, Islam had not stepped into the breach and nursed with the most sedulous care the germs of classic knowledge and reared them to fruition and bloom in the life-giving atmosphere of truth and freedom? All the knowledge of the East, of Egypt, of Greece, was carefully preserved; and not merely preserved, but refined and improved and generalised by Islamic scholars and scientists and philosophers in the Middle Ages. One can scarcely read the eloquent pages of Gibbon and Sedillot and Lane-Poole and Draper and Syed Amir Ali and other historians of that period without being struck with admiration and astonishment at the boldness of the speculations, the originality of the researches, and the variety of the subjects studied. I hope my friends will allow me to pore a little more in detail over this luminous page of the history of Islam.

The Prophet: An Ardent Enquirer after Truth.

Love of knowledge and reverence for truth forms the very core of Islam; the Prophet himself was an ardent enquirer after Truth. Says Syed Amir Ali:—

"The Arabian Prophet's devotion to knowledge and science distinguishes him from all other Teachers, and brings him into the closest affinity with the modern world of thought. Medina, the seat of the theocratic commonwealth of Islam, had, after the fall of Mecca, become the centre of attraction, not to the hosts of Arabia only, but also to enquirers from abroad. Here flocked the Persian, the Greek, the Syrian, the Irakian and the African of diverse hues and nationalities from the North and the West. Some no doubt came from curiosity, but most came to seek knowledge and to listen to the words of the Prophet of Islam. He preached of the value of knowledge: "Acquire knowledge because he who acquires it in the way

of the Lord performs an act of piety; who speaks of it, praises the Lord; who seeks it, adores God; who dispenses instruction in it, bestows alms; and who imparts it to its fitting objects, performs an act of devotion to God. Knowledge enables its possessors to distinguish what is forbidden from what is not; it lights the way to Heaven, it is our friend in the desert, our society in solitude, our companion when bereft of friends; it guides us to happiness; it sustains us in misery; it is our ornament in the company of friends; it serves as an armour against our enemies. With knowledge, the servant of God rises to the heights of goodness and to a noble position, associates with sovereigns in this world, and attains to the perfection of happiness in the next." He would often say "the ink of the scholar was more holy than the blood of the martyr"; and repeatedly impressed on his disciples the necessity of seeking for knowledge, even unto China. "He who leaves his home in search of knowledge, walks in the path of God. He who travels in search of knowledge to him God shows the way to Paradise." The Koran itself bore testimony to the supreme value of learning and science.

Up to the time of the Islamic dispensation the Arab world, properly so called, restricted within the Peninsula of Arabia and some outlying tracts to the North-West and the North-East, had shown no signs of intellectual growth. Poetry, oratory and judicial astrology formed the favourite objects of pursuit among the pre-Islamic Arabs, science and literature possessed no votaries. The words of the Prophet gave a new impulse to the awakened energies of the race. Even within his life-time was formed the nucleus of an educational institution which in after-years grew into Universities at Baghdad and Salerno, at Cairo and Cordova. Here preached the Master himself on the cultivation of a holy spirit: "One hour's meditation on the work of the Creator in a devout spirit is better than seventy years of prayer." "To listen to the instructions of science and learning for one hour is more meritorious than attending

the funerals of a thousand martyrs—more meritorious than standing up in prayer for a thousand nights." Ali, the son-in-law of the Prophet, lectured on the branches of learning most suited to the wants of the infant commonwealth. Among his recorded sayings are the following:—"Eminence in science is the highest of honours." "He dies not who gives life to learning." "The greatest ornament of a man is erudition." Naturally such sentiments on the part of the Master and the chief of the disciples gave rise to a liberal policy and animated all classes with a desire for learning. In spite of the upheaval of the Arab race under the early Caliphs, literature and arts were by no means neglected in the Metropolis of primitive Islam. Ali and Ibn Albas, his cousin, gave public lectures on poetry, grammar, history and mathematics; others taught the art of recitation or elocution; whilst some gave lessons in calligraphy,—in ancient times an invaluable branch of knowledge.

Such being the example and precept of the Prophet of Islam himself it might naturally be expected that the subsequent development and expansion of Islam would give an immense impetus to the sciences and arts. And that was what really happened. The unexampled intellectual ferment that ensued has been thus graphically described by a Christian writer who can scarcely be accused of partiality to the achievements of Islam.

Augustan Age of Asiatic Learning.

"The Saracens overran the realms of Philosophy and Science as quickly as they had overrun the provinces of the Roman Empire. In less than a century after the death of Mohammed, translations of the chief Greek philosophical authors had been made into Arabic; poems such as the 'Iliad' and the 'Odyssey' being considered to have an irreligious tendency from their mythological allusions, were rendered into Syriac, to gratify the curiosity of the learned. Almansor, during his Caliphate (A. D. 753—775) transferred the seat of Government to Baghdad, which he converted into

a splendid metropolis; he gave much of his time to the study and promotion of astronomy, and established schools of medicine and law. His grandson, Haroon-al-Raschid (A. D. 786) followed his example, and ordered that to every mosque in his dominions a school should be attached. But the Augustan age of Asiatic learning was during the Caliphate of Al-Mamun (A. D. 813—832). He made Baghdad the centre of science, collected great libraries, and surrounded himself with learned men.

Al-Mamun, when he became acquainted with the globular form of the Earth, gave orders to his mathematicians and astronomers to measure a degree of a great circle upon it. On the shores of the Red Sea in the plains of Shinar, by the aid of an astrolabe, the elevation of the Pole above the horizon was determined at two stations on the same meridian, exactly one degree apart. The distance between the two stations was then measured, and found to be two hundred thousand Hashemite cubits; this gave for the entire circumference of the earth about twenty-four thousand of our miles, a determination not far from the truth. But since the spherical form could not be positively asserted from one such measurement, the Caliph caused another to be made near Cufa in Mesopotamia. His astronomers divided themselves into two parties, and, starting from a given point, each party measured an arc of one degree, the one northward, the other southward. It is given the cubit employed was that known as the royal cubit, and the length of a degree was ascertained within one-third of a mile of its true value. From these measures the Caliph concluded that the globular form was established.

The elevated taste thus cultivated continued after the division of the Saracen Empire by internal dissensions into three parts. The Abbasside dynasty in Asia, the Fatimite in Egypt, and the Ommiade in Spain, became rivals not merely in politics, but also in letters and science."

Characteristics of Saracenic Method.

In letters the Saracens embraced every topic that can amuse or edify the mind. In later times it was their boast that they had produced more poets than all other nations combined. In science their great merit consisted in this, that they cultivated it after the manner of the Alexandrian Greeks, not after the manner of the European Greeks. They perceived that it can never be advanced by mere speculation; its only sure progress is by the practical interrogation of nature. The essential characteristics of their method are experiment and observation. Geometry and the Mathematical Sciences they looked upon as instruments of reasoning. In their numerous writings on mechanics, hydrostatics, optics, it is interesting to remark that the solution of a problem is always obtained by performing an experiment, or by an instrumental observation. It was this that made them the masters of chemistry, my favourite science, that led them to the invention of apparatus for distillation, sublimation, fusion, filtration, etc.; that in astronomy caused them to appeal to divided instruments, as quadrants and astrolabes; in chemistry to employ the balance, the theory of which they were perfectly familiar with; to construct tables of specific gravities and astronomical tables, as those of Baghdad, Spain and Samarcand; that produced their great improvements in geometry, trigonometry, the invention of Algebra, and the adoption of the Indian numeration in Arithmetic.

Progress in Letters.

For the establishment and extension of the public libraries, books were sedulously collected. Thus the Caliph Al-Mamun is reported to have brought into Baghdad hundreds of camel-loads of manuscripts. In a treaty he made with the Greek Emperor, Michael III, he stipulated that one of the Constantinople libraries should be given up to him. Among the treasures he thus acquired was the treatise of Ptolemy on the mathematical construction of the heavens. He had it forthwith translated into Arabic, under the title of "Almagest". The collections thus acquired sometimes

became very large; thus the Fatimite Library at Cario contained one-hundred thousand volumes elegantly transcribed and bound. Among these, there were six thousand and five hundred manuscripts on Astronomy and Medicine alone. The rules of this Library permitted the lending out of books to students resident at Cario. The great Library of the Spanish Caliphs eventually numbered six hundred thousand volumes; its catalogue alone occupied forty-four. Besides this, there were seventy public libraries in Andalusia. The collections in the possession of individuals were sometimes very extensive. A private doctor refused the invitation of a Sultan of Bokhara because the carriage of his books would have required four hundred camels.

There was in every great library a department for the copying or manufacture of translations. As to original works, it was the custom of the authorities of colleges to require their professors to prepare treatises on prescribed topics. Every Caliph had his own historian. Books of romances and tales, such as "The Thousand and One Arabian Nights' Entertainments" bear testimony to the creative fancy of the Saracens. Besides this, there were books on all kinds of subjects—history, jurisprudence, politics, philosophy, biographies not only of illustrious men but of celebrated horses and camels. These were issued without any censorship or restraint, though in later times, works on theology required a license for publication. Books of reference abounded in geographical, statistical, historical dictionaries and some abridgments or condensations of them, as the "Encyclopaedic Dictionary of all the Sciences" by Mohamed Abu Abdallah. Much pride was taken in the purity and whiteness of the paper, in the skilful intermixture of variously coloured inks, and in the illumination of titles by gilding and other adornments.

Colleges in the Saracen Empire.

The Saracen Empire was dotted all over with colleges. They were established in Mongolia, Tartary, Persia, Mesopotamia, Syria, Egypt, North

Africa, Morocco, Fez, and Spain. At one extremity of this vast region which far exceeded the Roman Empire in geographical extent, were the College and Astronomical Observatory of Samarcand, at the other, the Giralda in Spain. Gibbon referring to this patronage of learning says: "The same royal prerogative was claimed by the independent Emirs of the province, and their emulation diffused the taste and the rewards of Science from Samarcand and Bokhara to Fez and Cordova. The Vizier of a Sultan consecrated a sum of two hundred thousand pieces of gold to the foundation of a college at Baghdad, which he endowed with an annual revenue of fifteen thousand dinars. The fruits of instruction were communicated, perhaps at different times, to six thousand disciples of every degree from the son of the noble to that of a mechanic as sufficient allowance was provided for the indigent scholars; and the merit or industry of the professors was repaid with adequate stipends. In every city the productions of Arabic literature were copied and collected by the curiosity of the studious and the vanity of the rich." The superintendence of the school was committed with noble liberality sometimes to Nestorians, sometimes to Jews. It mattered not in what country a man was born, nor what were his religious opinions; his attainment in learning was the only thing to be considered. The great Caliph Al-Mamun had declared that "they are the elect of God, his best and most useful servants, whose lives are devoted to the improvement of their rational faculties; that the teachers of wisdom are the true luminaries and legislators of this world, which, without their aid, would again sink into ignorance and barbarism."

After the example of the Medical College of Cairo, other medical colleges required their students to pass a rigid examination. The candidates then received authority to enter on the practice of their profession. The first Medical College established in Europe was that founded by the Saracens at Salerno, in Italy. The first Astronom-

ical Observatory was that erected by them at Seville, in Spain. It was constructed in A. D. 1196 under the superintendence of Abu Musa Jaafar (Geber), Mathematician and Chemist. Its fate was not a little characteristic. After the expulsion of the Moors it was turned into a belfry, the Spaniards not knowing what else to do with it.

It would far transcend our limits to give an adequate statement of the results of this imposing scientific movement. The ancient sciences were greatly extended and new ones were brought into existence. The Indian method of Arithmetic was introduced, a beautiful invention, which expresses all numbers by ten characters, gives them an absolute value and a value by position, and furnishes simple rules for the easy performance of all kinds of calculations. Algebra or Universal Arithmetic—the method of calculating indeterminate quantities or investigating the relations that subsist among quantities of all kinds, whether Arithmetical or Geometrical—was developed from the germ that Diophantus had left. Mohammed Ben Musa furnished the solution of quadratic equations, Omar Ben Ibrahim that of cubic equations. The Saracens also gave Trigonometry its modern form, substituting sines for chords, which had been previously used; they elevated it into a separate science. Musa, above-mentioned, was the author of a treatise on Spherical Trigonometry. Al-Baghdadi left one on land-surveying so excellent that by some it has been declared to be a copy of Euclid's lost work on that subject. In Astronomy they not only made catalogues but maps of the stars visible in their skies, giving to those of the larger magnitudes the Arabic names, they still bear on our celestial globes. They ascertained, as we have seen, the Earth by the measurement of a degree on her surface, determined the obliquity of the ecliptic, published corrected tables of the Sun and Moon, fixed the length of the year, and verified the precession of the Equinoxes. The treatise of Albategnius on "The Science of the Stars" is spoken of by Laplace with respect; he also draws attention to an

important fragment of Junis, the Astronomer of Hakem, the Caliph of Egypt, A. D. 1000, as containing a long series of observations from the time of Almauser, of eclipses, equinoxes, solstices, conjunctions of planets, occultations of stars—observations which have cast much light on the great variations of the system of the world. The Arabian astronomers also devoted themselves to the construction and perfection of astronomical instruments, to the measurement of time by clocks of various kinds, by clepsydras and sun-dials. They were the first to introduce for this purpose the use of the pendulum.

Experimental Sciences.

In the Experimental Sciences, they greatly improved Chemistry; they discovered some of its most important re-agents—Sulphuric Acid, Nitric Acid, Alcohol; and they applied that science to the practice of medicine. In Mechanics they had determined the laws of falling bodies, had ideas, by no means indistinct, of the nature of gravity; they were familiar with the theory of mechanical powers. In Hydrostatics they constructed the first table of specific gravities of bodies, and wrote treatises on the flotation and sinking of bodies in water. In Optics they corrected the Greek misconception, that a ray proceeds from the eye, and touches the object seen, introducing the hypothesis that the ray passes from the object to the eye. They understood the phenomena of the reflection and refraction of light.

Out of the galaxy of reputed names in the history of Islamic authors during this epoch, I may recall only a few of the most outstanding ones: Avicenna, the great physician and philosopher, Averroes of Cordova, the chief commentator of Aristotle, who revolutionised the philosophical thought of the times by his Neo-Platonic teachings. It was his intention to unite the teachings of Aristotle with those of the Koran. To him is also imputed the discovery of spots on the sun. Abu Musa Jaafar (the Geber of Christian writers) was the true father of modern Chemistry, and his

name can only be ranged with those of Priestley and Lavoisier. Abu Odhman wrote on Zoology; Alberuni, on gems—had travelled to India to procure information; Rhazes, Al-Abbas and Al-Beithar, on Botany—the latter had been in all parts of the world for the purpose of obtaining specimens. Al-Gazzali, the philosopher, and Al-Hazen, the Newton of the Arabs, are to be reckoned among the immortals of all time.

I need not dilate any further; perhaps I have already tired out your patience with this enumeration, even yet none too adequate, of the intellectual exploits of Islam; but one can scarcely tear oneself away from the charm and glamour of this glorious picture—indeed it is a picture of which any nation and any race might be proud. We must however not be content with gloating over the past achievements of what our ancestors did, that were mere weakness and mawkish sentimentality. As Emerson says: "Do not believe the past; the old is for slaves." We must emulate their example, we must imbibe that untrammelled pursuit of truth wherever she may be found, that ready and hearty reception of knowledge unmindful of the difference of country and race, that made Islam what it became. And it is because of these high traditions that I feel confident that this new Muslim University at Aligarh will ever emblazon Truth and Freedom on its banner.

Danger of Communal Narrowness.

There is one other danger which very often besets a denominational University, another rock on which such an institution may founder—I mean the danger of communal narrowness and the spirit of exclusiveness to which reference has already been made. On this point too I am not at all inclined to be pessimistic. I do not like to see danger where there is none, and particularly because the great names with which this institution is associated from its very inception—Mahatma Gandhi and Maulana Mohamed Ali—are by themselves sure guarantees that the spirit of Hindu-Muslim brotherhood will ever be the life-breath

of this institution. I am sure that the unworthy feeling of sectarianism will never invade its sacred precincts and even if unawares it crawls in surreptitiously it will be given very short shrift. Still wherever there is a potential source of mischief one can never be too careful. And it is on this account that I want to dwell a little upon this point.

Hindu-Muslim Relations.

India, as she now has come to be, is a composite nationality—outsiders would say that it is only a heterogeneous mass—but that composite structure is unified with the golden thread of a common loyalty to the motherland. And out of this composite mass, neglecting other elements which are of smaller magnitude, the Hindus and the Muslims stand out as by far the most important. If these two elements hold fast together Indian nationality is assured. And there is no reason why they should not hold together.

Muslim Contribution to India.

It has been a most common-place remark, but not the less true because it is common-place that the Hindu and Muslim are the twin child of Mother India. This poetic concept is true to the very letter. Whatever might have been the circumstances of the Muslims coming into India—which is after all now only a matter of ancient history—they are at the present moment as much children of the soil and as much natives of the country as the Hindus. Muslims and Hindus have been living here like brothers for centuries together, their lives, interests, and aspirations have mingled in ways too numerous to mention, and it is too late in the day for Muslims here to pretend that India after all is only their step-mother and that their real interests, their real connection, their real allegiance lie elsewhere. With equal reason may the descendants of William the Conqueror in present-day England transfer their allegiance to France and I say with equal reason may the Hindus as the descendants of the Aryans make a Hijrat to Central Asia. The very idea is ridi-

culous. And it is not the fact that the Muslims have only settled down in India and done nothing else; they have on the contrary, made the richest contributions to the art, the architecture, the music, the literature, the polity of Hindusthan. To the tangled skein of India's culture not a few of the most varied-tinted threads have been woven by the genius of Islam. How much poorer, how much thinner would she look if bereft of the gorgeous robes with which the Muslims have clothed her! I feel it is superfluous to labour the point—one Kutab Minar, one Sikandra, one Taj Mahal, is sufficient to clinch the argument. And this Hindu-Muslim brotherhood is not of yesterday's growth, a mere fusion in the furnace of the common hatred of the foreigner as the European is never tired of glibly pointing out. It is of far longer duration, of much greater permanency, it dates further back even than the Moghuls, it dates even to the Pathan period. The history of the progress of Islam in India is a history of Hindu-Muslim collaboration. Some of the greatest Generals, greatest Financiers, greatest Ministers of the Muslim Kings and Emperors were Hindus. Those were not the days when what was conceded in principle was denied in practice. After a century and a half of British rule in India we were in ecstasies, why, forsooth because a solitary Lord Sinha was installed on the Gadi of an Indian Province; but how many such Sinhas, Man Sinha, Jasovanta Sinha, Jai Sinha, to mention only a few, were trusted with positions far more exalted and far more onerous. The Europeans have got a very nice method of damning the Muslim. They single out the worst and the most bigoted monarchs, a Mohamed Tughlak or an Alauddin Khilji, and then sermonise to the effect that they oppressed the Hindus with inhuman tortures. But that is hardly fair. If we compare the state of toleration in India in Muslim times with the corresponding state of things in contemporary Europe then things will be viewed in their proper perspective. I am not humouring my Muslim audience here, but this is my settled opinion,

and close upon forty years ago, when a student in Edinburgh, in a small brochure on India, this is what I wrote:

Religious Toleration :

The Rule with the Moghuls.

"It is forgotten that at the time when a Queen of England was flinging into flames and hurling into dungeons those of her own subjects who had the misfortune to differ from her on dogmatic niceties, the great Moghul Akbar had proclaimed the principle of universal toleration, had invited the Moulvie, the Pandit, the Rabbi and the Missionary, to his court, and had held philosophical disquisitions with them on the merits of their various religions. It might be said that the case of Akbar is only exceptional and therefore he cannot be cited as a representative Moghul. Nothing would be a greater mistake than this. Religious toleration, backed by a policy dictated no less by generosity than by prudence, was the rule and not the exception with the Moghul Emperors.

Much ink has been spilt in depicting the alleged bigotry and illiberality of the Emperor Aurangzeb towards the Hindus, but even under his reign, says Elphinstone, the historian, "it does not appear that a single Hindu suffered death, imprisonment or tax of property for his religion; or indeed, that any individual was ever questioned for the open exercise of the worship of his father." And history records that among this bigoted Aurangzeb's most trusted Generals were Jasovanta Sinha and Jai Sinha.

It is needless to multiply instances; it is indeed easy to defame the Muslim in the light of twentieth century liberal toleration; but what does contemporary Christian history show? The horrors of the Inquisition, Albigenian massacres, the butchery at Drogheda, perpetrated in cold blood by Oliver Cromwell, apostrophised by John Milton as "Cromwell, thou chief of men." Why, my European friends, strain at the Muslim gnat when you can swallow the Christian camel?

Sher Shah was a Pathan; look at his treatment of the Hindus; his public works department is famous and does not require any further *encomiums* from me; but it may not be so generally known that in the innumerable inns and caravanserais with which he dotted his trans-continental roads, elaborate arrangements were made that the food for Hindus should be served exclusively by Hindus, and that for Muslims by Muslims, so that the religious susceptibilities of no community might be wounded. Of Sher Shah it would be enough to quote the opinion of two English historians: Mr. W. Crookes observes: "Sher Shah was the first who attempted to found an Empire broad-based upon the people's will." And Keene says: "No Government, not even the British, has shown so much wisdom as this Pathan." And as to the noble succession of the Moghul Emperors I think it would suffice to quote Renan's observation while speaking of the age of the Antonines that he scarcely knew if there be any parallel anywhere in the world for a succession of Emperors like Hadrian, Antonius Pius and Marcus Aurelius, whose only aim and endeavour was the welfare of the people, except in India in the succession of Emperors Baber, Humayun, and Akbar. And a nation's grateful homage has affixed the immortal epithet, "The Great" to Akbar's name, as it has done to only one other Indian Emperor, Asoka the Great.

This Hindu-Muslim unity, this fusion in the ideas, the sentiments, the traditions of the two great races of India, has not merely been confined to politics; it has filtered down to the inmost recesses of the social structure, and has led to various social and religious reactions. Guru Nanak, Kabir, Chaitanya—these were all the exponents of a religious movement due to the interaction of the two cultures. Perhaps it may appear strange that a Muslim King of Bengal, Hussein Shah, should be addressed like this: "Be thou immortal, O Lord of the Five Gours," by Vidyapati, the foremost of the Bengalee Vaishnava poets. But

all this was a sign of the times. The democratic spirit of Islam exerted a very healthy influence in breaking down the age-long evils of the Hindu caste system and infusing a catholic and enlightened spirit into the Hindu society itself. And the Vaishnava movement of Bengal was the direct outcome of this renaissance. Even to this day this mutual acceptance is so complete that the Hindus do not feel any hesitation in adopting the holy shrines of Muslims, the Dargas of the Pirs as their own sacred places, and going on pilgrimages there; nor do the Muslims hesitate to take part in the social festivities which are so happy a feature of the Pujas of the Hindus.

India Demands Undivided Allegiance

This camaraderie, this fellow-feeling among the two communities, has been such a marked feature of our social life for so long that they are almost taken for granted, and excite no comment. And it therefore occasions the greatest indignation when we see efforts made by interested persons or sections of people to sow the seeds of disruption and to fan the embers of whatever jealousy may be found anywhere; and particularly when appeals are made to the Muslim community implying that their interests are different, if not positively adverse, to those of the Hindus, that their real allegiance should not be to India at all, and that their duties and obligations are to be regulated by dictates from abroad. I want to be very emphatic on this point. I would say that such an attitude of mind would be treason to our common mother; she is not the step-mother of the Muslims any more than that of the Hindus. She would therefore brook no divided allegiance, and demands full and unstinted and undivided loyalty from her Muslim as from her other children. The welfare of India must be our first concern, our second concern, our last concern. We are Indians first and Hindus and Muslims and Christians and

Sikhs and Parsees afterwards. You may remember the example of the great French statesman, Richelieu, who though wearing the Cardinal's hat ever placed the interests of France above the claims of Rome. That is the only proper attitude to take. I am certainly not impervious to the grandeur of the Pan-Islamic movement as one of the most promising portents of the awakening of Asia, nor to the sublimity of the spiritual call of the Caliph upon the rank and file of the faithful in all parts of the world but these demands must be all viewed in their proper perspective and must not be allowed to drown the clarion call of Mother India herself to her sons for achieving an independent, sovereign, national life. We must not allow our loyalty to the motherland to be swamped by the wave of extra-territorial patriotism. India must not be a spoke in the Caliphate wheel gyrated from Stamboul. The Swaraj of India must be our one all-compelling goal and everything else must be kept in its place.

I am sure, however, that none of our foremost Muslim leaders have fallen into this error. I know that they are as true sons of the motherland as the most patriotic Hindu. I would only ask them to see that the rank and file of the Muslim community be imbued with this brotherly and patriotic feeling. And it is in this mission of love that this National University has a big part to play—it should stand before all India as a model of communal brotherhood and I am sure that such a realisation of their ideals will gladden the heart of its noble founders, with whom Hindu-Muslim unity was almost an article of faith. And I am glad to say that the beginnings have been very good, the steps that this institution has already taken in this direction are very encouraging—it will suffice if I mention that there are already numerous Hindu students on the rolls of this University, and that the professoriate also contains a good sprinkling of Hindu teachers; that special arrangements have been made for the religious instruction of the Hindu pupils, and that it has purely Hindu schools

affiliated to it. May this spirit of brotherhood grow from day to day.

My friends, we are now passing through a great crisis in the affairs of our nation and this critical state of things is repeated on a larger scale in the affairs of the world at large. As Mr. Lloyd George once said, we are marching through the track of centuries in almost as many years. Momentous problems of world-wide significance are awaiting solution. Old empires hallowed with the prescription of ages have tumbled to pieces and out of their ruins new States and Republics are springing up on all sides. The map of the world has to be reconstructed. The repercussion of these stupendous events on the world of thought, on our social and political ideals, has been no less striking. Old ideas on political economy and statecraft are in the melting pot. Most cherished orthodox notions about the duties of parents towards their children, of rulers towards their subjects, of masters towards their servants, of employers towards their employees, have received a rude shock. It would be the merest affectation to deny that in this general topsy-turvydom of thoughts and affairs, we can stand unmoved and remain mere passive spectators. And we have not stood unmoved—the history of India during the past two decades has been a history of a national renaissance in response to the stirring influences of the times. The opening years of the twentieth century saw the conflict of the Boer and the Briton, and the far mightier and far more significant trial of strength between the Occidental Russian and the Oriental Japanese; and the progress and issue of that tremendous conflict were followed and watched with the utmost eagerness and interest by the whole nation, and stirred the depths of the national consciousness in a manner unexampled before. Lord Curzon's ill-fated project of the partition of Bengal coming as it did just in the face of this new awakening fanned the smouldering embers to a blaze, and 1903 was the result. The nation found herself; after the stolid stupor of centuries the

national pulse began to vibrate and the whole system was thrilled. India began to feel ashamed of her servile dependence on her masters, her helpless turning to the West for all light and guidance, her death-like inertia and stagnation and her newly-found self-respect cried out for a change, for an independent outlook, a self-reliant national endeavour. The new India cried out for Swaraj, political, economic, cultural Swaraj. This Swaraj movement has gone on ever since, daily becoming broader and deeper and richer, until at the present moment it has engulfed the entire land. And events have in the meantime moved fast abroad. After the sensational victory of Japan came in close succession the Revolution in China, the Young Turk Movement in Turkey, the Pan Islamic ferment in the entire Middle and Near East, the Turko-Italian War, the Balkan War and finally that catastrophic event of 1914, the Great War, which burst like a thunder clap on an unsuspecting world, and which brought in its train the astounding Bolshevik Revolution in Russia, and other consequences which even now it is impossible to foresee. And India has been shaken to her very foundations by the repercussion of these mighty explosions. Her determination to stand on her own legs, to carve out her own destiny in her own way has grown all the more firm and inflexible. The demand for National Institutions, for education suited to her own genius and traditions, has become more and more insistent. And the future of our nation depends upon how this demand is going to be met. Upon education and upon education of the right sort imparted along right lines depends, as I am never tired of pointing out, the salvation of the nation.

National Education : A Much-Abused Phrase.

"National" education has been a much-abused phrase. The term "national" has been a direful spring of woes unnumbered. It has been sometimes interpreted as standing for a system which

jealously excludes all foreign culture, which rigidly eschews all the elements of civilisation that have been contributed by the West. It has been held to be synonymous with the boycott of Western civilisation. Psychologically speaking such an attitude is not surprising, it is only the other extreme swing of the pendulum after our nineteenth century mentality of absolute surrender to the West. But this will not do. This is as injurious to our national life as the other spineless posture. Our country right or wrong was the watchword of an Englishman when he plunged his country into a war of frightful consequence. Again "Deutschland dueber alles" (Germany above all) which is only a variant of Palmerston's famous expression may be taken as the root cause of the late devastating Armageddon. The word 'national' therefore has got to be used as cautiously as possible. But unfortunately this is not the case. An influential section of the Hindus uses the term as synonymous with a reversion to the good old days of the Vedas or at least of the Ramayana and the Mahabharatha while to the Muslim it recalls to his memory the pristine glories of Islam. Ask any average educated Hindu or Muslim as to what it means by "national" and you will be treated to a jargon of confused ideas. But mediaevalism, this narrow nationalism, this weak hearkening back unto the past will not do—the stream of our national life cannot roll back to its sources. Not in isolation, rigid and exclusive, but in active intercourse with the modern progressive world does our own progress lie. We cannot ignore the fact of the impact of the West upon the East. It will not do ostrich-like to shut our eyes to the fact that for the past few centuries Europe has been progressive while Asia has been stagnant. And there is no humiliation in seeking for truth wherever it may be found. Truth has no boundaries, it is international. And to Islam it is no new revelation, as I have pointed out in great fulness of detail above. In Caliph Mansur's time Indian Pandits were invited to his

court, and he got through their help 'Charaka,' the standard work on Hindu Ayurveda, and also the 'Sidhanta' translated. Even Mahmood of Ghazni, known to the Hindus as a relentless iconoclast, took care to adorn his court with learned men and poets and scholars of all nationalities. Alberuni, Dakiki, Unsari and Firdousi, the prince of poets, shed lustre on Ghazni's court. And this same Alberuni, the 'encyclopaedic scholar', could speak Greek and Sanskrit as fluently as he could his mother-tongue. He studied Sanskrit at Benares, the very citadel of Hindu orthodoxy and in his turn taught Greek mathematics to the Hindus.

This is the right spirit in which education has got to be imparted; the word "national" should only mean that the spirit imbibed, the courses of training gone through in these centres of culture should be such as to instil into the youth of the country a sense of national self-respect, and to inspire them with a passionate desire for national service. Such institutions should further stand on their own legs in the matter of finance and not look to Government aid for the purpose. I do not say that at the present time private resources are sufficient to enable these national schools and Universities to replace official institutions, perhaps it may never be possible, but the more such national institutions are started the better, they will stand before the country as models of independent centres of culture untrammelled by official routine. Variety in this, as in other matter, lends a colour to life. And from this point of view alone, even apart from other considerations, such institutions as the Vishwabharati University at Shantiniketan, Bolpur, the Sabarmati Ashram at Ahmedabad, the Gurukula Academy at Hardwar, the Hindu University at Benares, and this Aligarh University, are capable of doing a world of good. These alone can save us from the sterilising effects of one dead, dull, uniform system of education throughout the length and breadth of India.

Advantages of National Institutions.

The main advantage of our own national institutions is that we can mould them according to our own congenial ideas; we are not hampered by official traditions and by red-tape. Our resources are small, our country is poor, and we must cut our coat according to our cloth. We must not make education too expensive so as to place it beyond the reach of the masses of our people. Yet the idea has gone abroad, and that is the most fashionable idea at present, that to have a University you must have huge sums of money running into lakhs and crores, to be translated into a monstrous pile of palatial buildings and a few endowed chairs bearing princely salaries, and an aristocratic Vice-Chancellor enjoying an honorarium of Rs. 3,000 to 4,000 a month to preside over this imposing structure forgetting that it is the man who counts and the intellectual atmosphere which constitutes a University and not mere bricks and mortar. What matters it that the cost of tuition is prohibitive, that the stately corridors and lecture-halls repose in their silent grandeur, that the occupants of the highly-priced chairs have to waste their eloquence over nearly empty benches? Education is not for the poor—that is the reply.

I am not exaggerating. Hear what that trusted servant of the Government, Sir Sankaran Nair, late Member for Education wrote:

"Fees were raised to a degree which considering the circumstances of the classes that resort to schools were abnormal. When it was objected that the minimum fee would be a great hardship to poor students, the answer was: such students had no business to receive that kind of education. Managers of private schools who remitted fees in whole or in part were penalised by reduced grants-in-aid. These rules had undoubtedly the effect of checking the great expansion of education that would have taken place. This is the real explanation of the very unsatisfactory nature and progress of secondary education; and will never

be remedied till we are prepared either to give education to the boys ourselves or to make sufficient grants to the private schools to enable them to be staffed with competent teachers. We are at present not prepared to do either. English education, according to this policy is to be confined to the well-to-do classes."

This idea that education is not for the poor, that it is only a luxury for the rich, appears to us atrocious—we Orientals cannot stand it—our whole traditions are against it. Our tradition has ever been that the learned are always poor, that the Goddess Saraswati is ever at logger-heads with the Goddess Lakshmi, our tradition is that of the Tapobana, where under the sheltering bough of Nature's forests, the poor, ascetic Brahman with no thought for the morrow imparted his sacred lore to his enquiring disciples. Plain living and high thinking has ever been the Oriental ideal and Islam tells the same tale. When Heraclius, the Byzantine Emperor, sent envoys to Caliph Omar to negotiate a treaty, they could not discover the mighty Caliph, and then found him asleep among the beggars on the steps of the Mosque of Medina. So ideal was their simplicity. Even now at the great University of Cairo, if I am informed aright, some three to four thousand pupils take their lessons from their teachers squatted on the floor covered with mats. This ideal we must uphold; Oxford and Cambridge with their costly appurtenances will not do for us; in the rage for forms and furniture and machinery, we must not lose the substance. We cannot allow our Mother Saraswati to be enmeshed in the toils of wood and brick and mortar and strangled to death.

I would even go further. I would, if I could, revive the Brahmacharya traditions of our ancient schools, that ascetic discipline that laid the foundations of a virile and self-controlled manhood, that enabled the young men in after-life to stand four-square to all the winds that blew.

I would like that the students should discard all luxuries, should clothe themselves in strong home-spun Khaddar, should cook their own food, should sweep their own rooms and clean their own utensils, should wash their own clothes and should keep everything tidy. On this matter, about the supreme necessity of simplicity in life, I am absolutely at one with Mahatma Gandhi, the great apostle of our national renaissance.

Free from the shackles of costly official traditions, therefore, we can work wonders if we only will it. And whether we will or not, we shall have to take up the burden of national education upon ourselves, now that the Government, faced with imminent bankruptcy, is about to throw up the sponge. You have all heard about the recommendations of the Bengal Retrenchment Committee and that may give us a foretaste of the things in store for us. And even as it is now the Government contributes not more than 15 per cent. to the expenses of education in Bengal and not more than a paltry 8 per cent. to the University of Calcutta. And our Governor, His Excellency Lord Lytton, is now lecturing to us on the beauties and virtues of self-reliance. Indeed, Non-Co-operation has found its disciples in strange quarters. But, for nationalists, it is a blessing in disguise if only they have the grit and courage to work out the programme.

The Splendid Future before Us.

Let us therefore seek to impart as good a training to our boys in these national institutions as we can; let us not make it partial or one-sided as has been our bane in the past; let us not give merely a purely theoretic and literary education that has unfitted us for the affairs of the world, and made us so many service-hunters, thus inviting to our schools the appellation of *golum-khanas*; let us, along with the humanistic studies which are by no means to be neglected, arrange for scientific and technical and vocational studies, which will enable our boys to earn an independent livelihood in after-life by engaging in industrial arts; let us attempt to make our training fuller and richer and more fragrant by the encouragement of music, painting, poetry, and the other fine arts—an element in which the

too prosaic modern Indian life has been very deficient; let us promote in our boys a love of manly sports and of adventure, which has made the West what she is, with her aerial achievements, her Polar exploits, her Everest expeditions and which alone is capable of transforming this puny, sickly nation into a nation of brave men, let us work to make them true soldiers in spirit as well as in body so that the cruel taunt so often levelled against us by the British that India wants Swaraj for herself but for self-defence trusts to British bayonets may be falsified for ever. And what a splendid future lies before us if we can combine our gigantic natural resources with a race of men, strong in body, free in mind, and brave in spirit! That lament of Goldsmith: "Man is the only growth that dwindles here," speaking of another land, comes to my mind ever and anon, and fills me sometimes with despair. If only we could make man what he ought to be all our difficulties would vanish.

In this building-up of man, my Muslim friends, I feel that Islam has a great part to play. The message of Islam is democracy, not the pseudo-democracy of the West stultified by distinctions of race and colour and wealth, but the real democracy of spirit. We Hindus in this respect are at an immense disadvantage: our society is cut through and through horizontally and vertically and in all sorts of ways by the labyrinthine barriers of the caste system. Go to a Hindu temple; you will find a regular, an elaborate graduation of distances within which different castes may approach. But when the call of the Muezzin sounds from the top of the minaret summoning the faithful to prayer, the Amir and the Fakir, the Badsbah and the Bhistiwalla, flock together and squat together shoulder to shoulder in the adoration of the Almighty. Islam knows no soul-killing distinctions between man and man and recognises no superior but God Himself and allows man to reach his fullest stature. This message of equality and of fraternity, of democracy and of love is Islam's message. May this democratic spirit filter through all the diverse sects and communities and races and colours of India and fuse her into a united, compact nationality, strong and virile and independent—at once the glory of Asia and the wonder of the world, rejoicing in her own freedom and bringing succour to the weary nations of the earth! *Bande Mataram*.

A NEW STUDY OF THE EMPEROR JAHANGIR.

JAHANGIR, though he was not perhaps among the most worthy or the most lovable of the Great Mughals, is still worthy of remembrance because of his fidelity to Nur Jahan, of his authorship of his *Memoirs* where "he has given us a picture of his father, the great Akbar, which is a bigger plum than anything in Babar's *Memoirs*;" and because of his being indeed a strange mixture of conflicting qualities, a gross callousness, love of sensual ease and great generosity, added on to very good impulses. Jahangir's account of himself has a great charm as it reveals the real man, for—as H. Beveridge, the Translator of the *Memoirs* says—"He lives for us in his *Memoirs* just as James VI—to whom and to the Emperor Claudius he bears a strange and even ludicrous resemblance—lives in the *Fortunes of Nigel* or Claudius in Suetonius and Tacitus."* Again we cannot refrain from quoting what seems to be a very good sketch of this Mughal's temperament and character. "If Babar who was the founder of the Mughal Empire in India, was the Caesar of the East, and if the many-sided Akbar was an epitome of all the great Emperors, including Augustus, Trajan, Hadrian, Marcus Aurelius, Julian and Justinian, Jahangir was certainly of the type of the Emperor Claudius and so bore a close resemblance to our James I. All three were weak men, and under the influence of their favourites, and all three were literary, and at least two of them were fond of dabbling in theology. All three were in their wrong places as rulers. Had James I (and VI of Scotland) been, as he half wished, the Keeper of the Bodleian, and Jahangir been head of a Natural History Museum, they

* *The Tuzuk-i-Jahangiri or Memoirs of Jahangir*, translated by A. Rogers and H. Beveridge. Vol. I, p. xi.)

would have been better and happier men. Jahangir's best points were his love of nature and powers of observation and his desire to do justice" †

Jahangir is on the whole a very fascinating personality. Like all Mughal princes he was very well educated according to the prevailing standards, a facile versifier and penman, who was at home with Hafiz and Sadi and easily jotted down versified chronograms and other rhyming puzzles. His reign indeed saw a continuation of the prosperity and glory of his father; and though he made no additions to the imperial territories and on the contrary lost Kandahar to the Persians, he was very much feared and loved. And as Mr. Beni Prasad aptly remarks in his valuable publication ‡ which forms the subject of our review, his reign was fruitful of peace and prosperity to the Empire; under its auspices industry and commerce progressed; architecture achieved notable triumphs; painting reached its high-water mark; literature flourished as never before; and a host of remarkable Persian and vernacular poets combined to make the period the Augustan age of Mediaeval Indian Literature. While the great Hindi Poet, Tulsi Das—"the tallest tree in the magic garden of mediaeval Hindu poesy"—composed his *Ram Charit Manas* "which forms at once the Homer and the Bible, the Shakespeare and the Milton of the teeming millions of Northern India."

Jahangir's greatest fault indeed was his addiction to drink and alcohol added to a lazy temperament which made him a pliant tool in the hands of favourites. But, as Mr. Beni Prasad cautions us, we must not swallow unquestioningly all the tales given by Hawkins and Roe of his

† *Memoirs*, Vol. II, pp. v and vi.

‡ Allahabad University Studies in History. Vol. I. *The History of Jahangir*—Oxford University Press, 1922. pp. xx + 501.

drinking bouts and excesses. We should judge him from the standpoint of the temper of his circle and his friends; and above all we should remember that though he regarded "a little wine" as "a prudent friend" he discouraged its use as well as smoking among his subjects. A more culpable weakness was his subjection to those round him who loved him, and 'won his' love. In the last days of his father's life he was ruled by his friends of the anti-Khushrau party and was induced by them to revolt. The Nur Jahan Junta, consisting of Itimad-ud-Daulah, her father, Asaf Khan, her brother, Shah Jahan, and a few others ruled the Empire for nearly ten years. Nur Jahan alone controlled the Emperor for five years more; and in the last years of his reign, he had to endure the 'convulsions' in his territories brought about by the quarrels of his favourites and to put up with the ignominy of being for a while captive to one of his own servants, Mahabat Khan. Though all his favourites never departed from his general principles of domestic or foreign policy, their ambitious schemes and struggles "convulsed the Empire." They brought to an untimely grave Prince Khushrau, "one of the most pathetic figures of the age," whom popular imagination invested with all the virtues of a man and a prince. Suspicion attached itself to Prince Khurram, later Shah Jahan, who was the jailor for the time being of the unfortunate prince, and who was then in high favour with the Junta of the Empress. Mr. Beni Prasad, controverting the opinion of Mr. Beveridge plainly states, on the testimony of Khafi Khan, the *Maasir-ul-Qutb-Shahi* and foreign writers like Terry, von Poser, de Laet and della Valle, that Shah Jahan did to death his elder brother at Burhanpur, kept the secret for a while and then announced to the Emperor that he had died of colic (pp. 336 *et seq* *History of Jahangir*). The same prince, after breaking

off with the Junta, openly revolted against the Emperor and sought complete alliance with another arch rebel, Mahabat Khan.

Jahangir had an excellent training under his father's care. It is said that he had read even in youth a great deal of Persian literature and acquired a fair command over Persian expression, learnt Turkish, and had a fair acquaintance with Hindi. Besides developing a somewhat poetic disposition, he paraded his skill in versification, acquired a knack of graphic narration, an accuracy of observation, a love of experiment and displayed a zest for miscellaneous knowledge. "His literary and scientific tastes naturally produced a liking for cultured society which lasted to the close of his life.... He could distinguish at sight the hands of different painters on the same or different canvases or in the same portrait. Under his encouragement Indian painting reached its high-water mark. His delight in beautiful stones, and artistic swords or hilts was exquisite. Equally remarkable was his intense passion for the beauties of nature. He describes the flowers and springs of Kashmir with poetic fervour. He would gaze, rapt with wonder and admiration, at a beautiful rose or tulip, hill or rivulet."

Nor was the Emperor a weakling in physique. From boyhood he evidenced a keen delight in open air exercises, and at the age of fifteen he had become a devotee of the chase. He remained, till almost the last years of his life, an indefatigable hunter; and, like any of the lion-hearted stock of Babar he never quailed before danger or shrank from any perilous enterprise. His naturally splendid and vigorous constitution sustained for long, almost until he was over fifty, all the effects of wine and opium, ease and dissipation. Even when he fell hopelessly ill in 1620, and his physicians gave him up as hopeless, his own

innate virility and the affectionate care of Nur Jahan restored him to fairly good strength. Once, when his father was alive, Jahangir had so far gone down the abyss of drink that as he wrote in his *Memoirs*, "in the crapulous state from the trembling of my hand I could not drink from my own cup, but others had to give it to me to drink." Opium, wine and arrack double-distilled could not but main even the most vigorous constitution; and the last five years of the Emperor's life was a period of complete physical break-down and intense misery.

Mr. Beni Prasad has done a signal service to the cause of Mughal history by cleaning up to a great extent the mist that has up to now shrouded the early life of Nur Jahan. "The thick fog of myth and fable" that has gathered round her birth and youth—that she was exposed by her indigent parents on the day of her birth at Kandahar en route to India; that she was saved by the kindly leader of their caravan; that as a young girl she captured the heart of Prince Salim (Jahangir); that she was married at the particular direction of Akbar and much to the mortification of the love-sick prince to a Persian youth, Shere Afkan; that Jahangir, on his accession to the throne, tried various expedients to get rid of her husband and ultimately had him slain through his agent; and that the high-spirited lady refused to marry the murderer of her husband for four long years and only did so after great hesitation—all this has its bottom knocked out. And Mr. Beni Prasad, judging and building solely from contemporary and reliable testimony, makes the Emperor and Empress appear in a truer and more favourable light. He proves that all the aspects of romance are unsupported by contemporary testimony; Motamad Khan who completed the Emperor's *Memoirs* and wrote the *Iqbal-Nama* makes no mention and does not even drop a hint as to the scandal of Shere Afkan's death and the sub-

sequent marriage of his wife with the Emperor. Kamghar Hussaini, whose work was inspired by Shah Jahan, and Abdul Hamid Lahori, the great authority for that Emperor's reign, were both hostile to Nur Jahan, the formidable rival of their patron. But neither lets fall a hint which would connect her life with scandal. Contemporary European travellers, who would be only too eager to alight upon court scandals of this nature and who describe the worst sort of backstairs gossip of the court, do not insinuate any early love between Nur Jahan and Jahangir, or any share of the second husband in the murder of the first. Everyone of these, like the jovial Sea-Captain Hawkins, who was intimate with the Emperor, the courtly Sir Thomas Roe, his Chaplain Terry, and other acute observers like William Finch and Pietro della Valle, was ignorant of the supposed guilt of Jahangir in the Shere Afkan affair. Later travellers who came after the death of Jahangir, like Peter Mundy and even Francois Bernier, though speaking of Jahangir and Nur Jahan and of the latter's ascendancy, do not at all refer to the Shere Afkan affair. As Mr. Beni Prasad remarks, "it is inconceivable that every one of them would fail to learn of Jahangir's guilt, if he were really guilty, in the Shere Afkan affair." He explains in a neat page or two how a systematic romance began to be created out of the above-mentioned facts and how once Jahangir was charged with coveting the wife of Shere Afkan, it was necessary to assume that he had fallen in love with her during his father's life-time and all the rest of it. It was only two generations after Jahangir that the romance began to grow and the usual embellishments appear. Muhammad Sadiq Taberezi, the first of such embellishers, was followed and improved upon by Khafi Khan, Sujan Rai and others. "The Persian historians relate the story with circumstantial details. The Rajput bards vouch for its

truth. The Italian traveller, Manucci, writing towards the close of the century further embellishes the romance. During the eighteenth century it was transformed almost beyond recognition and related with all the colour and vivacity of a dramatic plot by Dow and others. In the nineteenth century, Elphinstone adopted the version of Khafi Khan and transmitted it to all the subsequent manuals of Indian History which drew largely on him".*

Nur Jahan Begum was thus free of the scandal of having married her first husband's murderer. In fact, even these aforementioned prejudiced writers do not deny her great qualities of head and heart, charity and generosity, "a quick understanding, a piercing intellect, a versatile temper and sound common sense." Khafi Khan quotes examples of her verses in Persian which were deemed limpid and flowing, and which assisted her in capturing the heart of the Emperor. She was the Padishah Begum or the First Lady of the Realm, head of the female society of the capital, leader of fashion, inventing new dresses and decorations, new varieties of brocade and lace, gowns and carpets. She was intensely ambitious and had great diligence and driving power. When in extreme danger of losing her husband and her power to Mahabat Khan, she, without losing presence of mind, organised an opposition to the powerful noble,—cajoling the unwilling, bribing the greedy, strengthening the wavering and holding out promises to all,—fought bravely, clad in armour, seated on an excited elephant, on the waters of a deep rapid stream and being a target to a thick shower of arrows. Through all the period of her ascendancy she retained an intense sobriety, conscious of her own limitations, studying the Emperor's temperament and endeavouring to manage, rather than rule

him. The period of Nur Jahan's ascendancy may be split up into two unequal parts, the first from 1611 to 1622 when Jahangir continued to take a keen interest in the affairs of state and occasionally interposed his own will with vigour and when Nur Jahan with her father and brother worked in close alliance with Shah Jahan; and the second from 1622 to 1627 when the Emperor had become too much of an invalid to assert himself and when Nur Jahan's scarcely-concealed hostility to her step-son provoked much strife and confusion. It was only during the first period that the ascendancy of the Junta maintained the Empire in fairly good peace and prosperity.

Nur Jahan's intrigues for settling the succession to the throne in her own interests form complex reading and produced no good in the end. As early as the revolt of Prince Khushrau, even before the Empress' marriage, Shah Jahan, then known as Prince Khurram, had been marked out to be heir-apparent and successor; in 1612 he was married to the niece of the Empress, the Lady of the Taj; and soon identifying himself with the Nur Jahan Junta, he rose from grade to grade of honour with astonishing rapidity, high above all princes of the Imperial family. He was literally showered with golden opportunities of administrative and military distinction. In 1614 he successfully terminated the long-drawn out Rajput war "which for more than a generation had only symbolised the powerlessness of Mughal arms against Rajput hills and heroes." He soon afterwards distinguished himself in the Deccan war and successively ruled province after province with a high reputation for political sagacity. When Nur Jahan found out that with the prospective accession of Shah Jahan, she should have to retire from public life, she strove to supersede him by a more pliant instru-

* Beni Prasad—History of Jahangir, p. 183.

ment. She adopted the Emperor's youngest son, Shahriyar; and the last seven years of the reign are secretly corroded with the series of attempts made by Nur Jahan to clear the path for her candidate. Shah Jahan's revolt, Mahabat Khan's *coup-de-main* and his "hundred days' reign," Nur Jahan's desperate attempts to stay the hand of the Vizier, Asaf Khan, whom she knew to be a secret adherent of his son-in-law, Shah Jahan—these were of no avail in preventing the accession of the latter. With great good sense Nur Jahan retired into private life, content to accept a pension of two lakhs of rupees from the new Emperor, restricting herself to white cloth, abstaining from parties of pleasure and festivities and living in private and in mourning. She survived her devoted husband for full eighteen years and was buried in a tomb which she had built herself beside that of her husband in Lahore.

On the whole the picture of Jahangir's reign is presented by Mr. Beni Prasad in a very agreeable light—his policy of conciliation of Mewar and Bengal, his passionate love of justice, his religious tolerance being brought out prominently. If he was an eclectic in religion, there were circumstances which inevitably made him so. Meditation on the true God, a reverence for saints, a delight in the society of ascetics and the observation of religious ceremonies were his main religious pre-occupations; and if at any time he was intolerant, he was only so to those popular preachers and fanatics, like the Sikh Guru Arjun Singh, whom he deemed dangerous to society and political stability. The general administration of his reign was conducted on the principles initiated by his great father; and the small blotches on the nation's prosperity-picture noted by European travellers like the customs officials' corruption, the insecurity of the highways in several

parts and the greediness of the provincial officers, could not mar the general healthy tone of the administration. Mr. Beni Prasad promises us subsequent books dealing with the cultural development of the reign which, as already pointed out, was the Augustan age of mediæval Indian literature.

The *Akbar Nama*, of the learned Shaikh Abul Fazl Allami, is the prime authority for the birth, education and early life of the Emperor; while the continuation of the chronicle from the death of Abul Fazl in 1602 to the death of Akbar by Inayat-ullah has served as the main quarry for the building up of the account of the circumstances preceding the Emperor's accession. These are supplemented by the *Wiqaya* or *Haalat-i-Asad Beg* by a servant of Abul Fazl who gives a clear account of the last years of Akbar and by the *Anfaul-Akbar* of Muhammad Amir. Besides the prime authority of Jahangir's *Memoirs* (of which there was current for long a spurious version which was rendered into English by Major Price in 1829) there is the anonymous work known as the *Tarikh-i-Salim Shahi* (translated also by Major Price under the title of *The Memoirs of the Emperor Jahangir*, written by himself and translated from a Persian manuscript) which on some points is fuller than the genuine *Memoirs*. The work as a whole however is a fabrication; but unfortunately it was relied on by Elphinstone and other writers and "has done more than anything else to spread the false view of Jahangir's character still current." (Beni Prasad, p. 455). Motamad Khan, who continued the Emperor's *Memoirs* from the 17th to the 19th years of the reign, wrote the *Iqbal Nama* dealing with the history of the Timurid dynasty down to the accession of Shah Jahan, of which the third part alone dealing with Jahangir is well known and has been translated in parts by Elliot and Dowson and edited as well in *The Bibliotheca Indica*

Series. The author was a trustworthy eye-witness of the events that he describes, though latterly he became a partisan of Shah Jahan and hostile to the Empress. Khwaja Khamgar Ghairat Khan's *Maasir-i-Jahangiri* written in the 3rd year of Shah Jahan's reign (and forming the foundation of Gladwin's *Reign of Jahangir*, published at Calcutta in 1788) supplies a few points contained neither in the *Memoirs* nor in Motamad Khan. *The Pand-Nama-i-Jahangiri* consists of Jahangir's maxims and regulations pertaining to his public and private life and throws good light on his personal character. Contemporary works dealing with particular phases and personages and the standard works bearing on Shah Jahan like Abdul Hamid Lahori's *Badsah-Nama* and Muhammad Salih Kambu's *Amal-i-Salih* are also useful to some extent. Later chroniclers and historians like Khafi Khan and Sujah Rai Khatri who wrote the *Khulasat-ul-Tawarikh* and the invaluable *Maasir-ul-Umara* (a biographical dictionary of Mughal nobles compiled by Shah Nawaz Khan and his son in the latter half of the 18th century) and the laboriously learned work of T. W. Beale, entitled the *Miftahut-Tawarikh* containing the dates of important events

in Muslim history in chronograms may also be remembered. Keshava Das' eulogistic Hindi narrative of Jahangir named *Jahangir Chandrika*, the contemporary bardic literature of Rajputana and the Sikh story of the martyrdom of Guru Arjun have also been made use of by the author. Jesuit testimony which has been so useful in the construction of Dr. Smith's biography of Akbar, and in the publication of which Father Hosten of Darjiling has been so useful; and the narratives of contemporary European travellers and factors from Captain Hawkins to Peter Mundy including Terry, Coryat, Della Valle and de Laet are available to us largely in the publications of the Hakluyt Society and may be supplemented in necessary cases by references to the writings of later travellers like Tavernier, Thevenot and Bernier. There is a comprehensive bibliography given by Mr. Beni Prasad of these and other works contemporary and later, Indian and foreign, at the end of the book which, in the words of the general editor of the series, fully endorsed by us, is "an extremely valuable contribution to the study of a fascinating personality."

C. S. SRINIVASACHARI.

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SHORT NOTES ON THE MATHEMATICS OF MAP PROJECTIONS.

I. INTRODUCTION.

IN the standard work in English on 'Map Projections' by Professor Hinks, M.A., F.R.S., we have a special chapter dealing with 'the simple mathematics of projections.' Here the author clearly states that his aim is not to discuss the general theory of conformal representation of one surface upon another but to confine himself to the theory of particular cases. With this preamble he goes on giving the formula for each projection he takes up and tries to prove its important properties (say equal area; orthomorphism, etc.) For instance (on pp. 88 and 89) in the case of the 'simple conical equal area' (Lambert's fifth) he starts with the expression for the radius of the standard parallel and that for any radius, viz.:

$r_0 = 2 R \tan \frac{1}{2} \chi_0$; $r = 2 R \sec \frac{1}{2} \chi_0 \sin \frac{1}{2} \chi$
and shows in the end that this projection is an 'equal area.' Similarly (on pp. 90 and 91) the expression for r [in the conical equal area with two standard parallels (Alber's)] is given by $r^2 = 2 R^2 k (\sin \phi_1 - \sin \phi) + r_1^2$

$$\text{where } k = \frac{1}{\sin \frac{\phi_1 + \phi_2}{2} \cos \frac{\phi_1 - \phi_2}{2}}$$

$$r_1 = k R \cos \phi_1$$

$$r_2 = k R \cos \phi_2$$

In neither of these two cases, as in many others, there seems to be any clue as to how these particular forms for r in terms of r have been arrived at, there is not even the suggestion that the student, who has the necessary mathematical equipment to understand these chapters, can work out for himself the particular functional relation between r and χ consistent with the properties

which the map should possess — so much so he goes away with the idea that his business is only to verify the results given by the author. Of course for the map-maker, these working formulae and the tables are all that is required but a student of map-projections must know the rationale of the various processes involved and know how to construct the formulae and the tables for himself, so that he can see eye to eye with the original investigator. My aim, therefore, in the following few pages is to start with the fundamental properties to be satisfied by a particular map-projection and heuristically lead the student to the relationship between r and χ . Incidentally this method will have an additional advantage by enabling the student to understand clearly the author's remarks on pp. 15 and 16 about an infinite number of possible equal area projections and to realise for himself that the cases discussed in the book are only a few of these possible ones and are the simplest.

II. NOTATION.

To avoid continual reference to the book, to find out what the various letters used here stand for, let me briefly repeat the notation employed by Prof. Hinks.

R = the radius of the earth expressed in the scale units of the intended map;

ϕ = the geographical or astronomical latitude;

χ = the co-latitude;

λ = the longitude of a point on earth;

$\Delta\lambda$ = the diff. of Long. between two points;

r = the radius of a circular parallel of Lat. ϕ in the case of normal conical projections where the meridians are represented by st. lines and the parallels of Lat. by concentric circles;

ϕ_0, χ_0, r_0 referring to the standard parallels, i. e., one parallel which is shown in true length in the map if the projection has only one standard parallel;

r_1, r_2 } referring to the two standard
 ϕ_1, ϕ_2 } parallels in case the projection
 χ_1, χ_2 } has two such parallels;

θ the angle between two radii representing meridians whose difference of Long. is $\Delta\lambda$;

n the constant of the cone so that the angle, at the pole of projection is $2\pi n$ and corresponds to a difference of Long. 2π ; hence $\theta = n \Delta\lambda$.

III. THE IMPORTANCE OF CONICAL PROJECTIONS.

The whole trouble about 'map projections' arises from the obvious mathematical fact that the surface of a sphere or spheroid is not developable, i. e., a plane surface cannot be fitted to a spherical or spheroidal. Consequently a perfect representation on a plane sheet of the relative positions, sizes and shapes of the various features of our globe is impossible, and our next best will be to find out ways of obtaining as close a representation to the original as possible. As all points on the surface of the earth are conveniently fixed with reference to the meridians of Long. and parallels of Lat., the problem of map projections reduces itself to the transference of the meridian and Lat. circles from the globe to a plane or some simple developable surface. Confining our attention, for the time being, to normal projections, we may think of the tangent plane at the North or South Pole or the cylinder touching the sphere along the equator or any right circular cone passing through a latitude parallel (not necessarily the tangent cone),

Even from *a-priori* considerations it is obvious that a representation on the conical surface will be more approximate than the other two; for the tangent plane has only one point in common with the sphere and the errors are likely to increase rapidly as we go more away from the point of contact; and of the cylinder and the cone, both of which have a whole circle in common with the sphere and in this respect are decidedly better than the plane of contact, the latter is certainly more advantageous than the former, because a cone standing on a latitude parallel can be made to pass as nearly as possible to the spherical surface (for some distance along the generators) by properly adjusting the angle of the cone whereas no such adjustment is possible in the case of a cylinder whose vertical angle is always zero. Again the cylinder and the plane are only particular cases of the cone; if the solid angle of the cone is 2π the cone degenerates into a plane and if the angle is zero we have a cylinder, so that it will suffice, for all practical purposes, to discuss the properties, and functional relations between r and ϕ of conical projections and to point out briefly how the special cases of the cylindrical and zenithal or azimuthal projections may be deduced from the general formulae. Besides, a thorough grasp of the principles involved in the true conical projections will greatly help us when we come to the many modified conical projections such as Bonne's Rectangular Polyconic, ordinary Polyconic, International, etc., which are very common in Atlas maps and Topographical sheets.

IV.

Let us then take the conical projections one after another and try to deduce the

phic projection constructed on the tangent cone at the selected parallel.

These expressions are admirably adapted to logarithmic computations even though they appear to be complicated.

CONICAL ORTHOMORPHIC WITH 2 STANDARD PARALLELS.

If the standard parallels be those of colat. χ_1 and χ_2 , we have as in (4) above

$$n m \tan \left(\frac{1}{2} \chi_1 \right)^n = R \sin \chi_1 \dots \dots \dots (5)$$

$$n m \tan \left(\frac{1}{2} \chi_2 \right)^n = R \sin \chi_2 \dots \dots \dots (6)$$

$$\text{hence } \frac{\tan \left(\frac{1}{2} \chi_1 \right)^n}{\tan \left(\frac{1}{2} \chi_2 \right)^n} = \frac{\sin \chi_1}{\sin \chi_2}$$

taking logarithms of both sides

$$n = \frac{\log \sin \chi_1 - \log \sin \chi_2}{\log \tan \frac{1}{2} \chi_1 - \log \tan \frac{1}{2} \chi_2} \dots \dots \dots (7)$$

This gives us the value of n and from either (5) or (6) we can get the value of m . Thus m and n are uniquely determined with the help of the 2 equatons (5) and (6).

This projection is usually called Lambert's Second or Gaussian.

SIMPLE CONICAL PROJECTION WITH 2 STANDARD PARALLELS AND TRUE MERIDIANS.

(D) With the usual notation we have

$$r_1 \cdot n = R \sin \chi_1$$

$$r_2 \cdot n = R \sin \chi_2$$

and $r_1 - r_2 = R(\chi_1 - \chi_2)$ where χ_1 and χ_2 are expressed in circular measures.

We have in all 3 equations to determine 3 quantities r_1 , r_2 and n and hence the number of solutions is finite.

$$\text{Thus } n R(\chi_1 - \chi_2) = R(\sin \chi_1 - \sin \chi_2)$$

$$\text{or } n = \frac{\sin \chi_1 - \sin \chi_2}{\chi_1 - \chi_2} \\ = \frac{2}{\chi_1 - \chi_2} \cdot \frac{\sin \chi_1 - \sin \chi_2}{2} \cos \frac{\chi_1 + \chi_2}{2} \dots \dots \dots (1)$$

To obtain the general expression for n , because the scale along the meridians is true,

$$r = r_1 - R(\chi_1 - \chi) \\ = \frac{R \sin \chi_1 (\chi_1 - \chi_2)}{\sin \chi_1 - \sin \chi_2} - R(\chi_1 - \chi) \\ = \frac{R \sin \chi_1 (\chi - \chi_2) - \sin \chi_2 (\chi - \chi_1)}{\sin \chi_1 - \sin \chi_2} \dots (2)$$

We get the values of r_1 and r_2 from the 1st two equations or conveniently by the last result by putting $r = \chi_1$ and χ_2 respectively. Conversely the scale along any meridian for the expression given be (2)

$$dr = R d\chi \text{ i.e. true.}$$

CONICAL EQUAL AREA WITH 2 STANDARD PARALLELS.

(E) As usual

$$r_1 \cdot n = R \sin \chi_1 \dots \dots \dots (1)$$

$$r_2 \cdot n = R \sin \chi_2 \dots \dots \dots (2)$$

If the projection is to be equal area as in (B) we get from the differential equation

$$\frac{1}{2} n r^2 = R^2 (A - \cos \chi) \dots \dots \dots (3)$$

We have in all four equations connecting r_1 , r_2 , m and A , viz., (1), (2) and the 2 implied in (3),

$$\text{from (3), } \frac{1}{2} n r_1^2 = R^2 (A - \cos \chi_1)$$

$$\frac{1}{2} n r_2^2 = R^2 (A - \cos \chi_2)$$

$$\therefore \frac{1}{2} n (r_1^2 - r_2^2) = R^2 (\cos \chi_2 - \cos \chi_1) \dots (4)$$

$$\text{from (1) and (2) } n^2 (r_1^2 - r_2^2) = R^2 \\ \times (\sin^2 \chi_1 - \sin^2 \chi_2) \dots \dots \dots (5)$$

$$\text{dividing (5) by (4) } 2n = \cos \chi_2 + \cos \chi_1$$

$$\text{or } n = \frac{\cos \chi_2 + \cos \chi_1}{2} \dots \dots \dots (6)$$

$$\text{Again } \frac{1}{2} n (r_1^2 - r_2^2) = R^2 (\cos \chi_2 - \cos \chi_1)$$

$$\text{or } r^2 = r_1^2 - \frac{2 R^2}{n} (\cos \chi - \cos \chi_1) \dots \dots \dots (7)$$

$$\text{or } r_2^2 = \frac{2 R^2}{n} (\cos \chi - \cos \chi_2)$$

$$\therefore r^2 = \frac{1}{2} (r_1^2 + r_2^2)$$

$$= \frac{R^2}{n} (2 \cos \chi - \cos \chi_1 - \cos \chi_2)$$

$$= \frac{1}{2} (r_1^2 + r_2^2) - 2 R^2 \left(\frac{\cos \chi}{n} - 1 \right)$$

$$\text{or } \frac{1}{2} (r_1^2 + r_2^2) + 2 R^2 \left(1 - \frac{1}{n} \cos \chi \right) \dots \dots (8)$$

which is the general expression for r . And conversely we can show that with this value for r given in (8) the projection is equal area; for

$$\frac{r dr}{d\chi} = \frac{R^2}{n} \sin \chi$$

$$\text{The scale along a meridian} = \frac{dr}{d\chi} = \frac{R \sin \chi}{n r}$$

$$= \frac{R \sin \chi d\chi}{r d\theta}$$

the last being the inverse of the scale along the parallel at that point.

ZENITHAL EQUIDISTANT.

(A₁) This is only a particular case of the simple conical with one standard parallel where n the constant of the cone is equal to unity. The standard parallel of the conical closes up into the centre of the Zenithal projection and the parallel circles are spaced out at their true distances from the centre. If we consider the normal Zenithal equidistant, it is evident that the pole, the point of contact of the tangent plane into which the cone degenerates is the centre from which all the r 's radiate and because $\frac{d\theta}{d\chi} = n = 1$ in this case the difference of longitude of any two places on the globe is not altered by the projection.

$$\text{Also } r_0 = 0; \chi_0 = 0$$

Hence the general expression for $r = R\chi$ if the projection is to be equidistant either independently or from (3) of A. by putting $\chi = 0$ or $\varphi = \frac{\pi}{2}$.

$$\text{The scale along the parallel circle} = \frac{2\pi R \chi}{2\pi R \sin \chi}$$

$$= \frac{\chi}{\sin \chi} \text{ which is always greater than one.}$$

ZENITHAL EQUAL AREA.

(B₁) This is a particular case of the conical equal area with one standard parallel with the same condition as in (A₁): $\chi_0 = 0$, $r_0 = 0$, $n = 1$.

$$\text{From (7) of B we have by putting } \chi_0 = 0$$

$$r = 2 R \sin \frac{1}{2} \chi \dots (1)$$

Independently also we may derive this form for r by starting with the condition for equal area, viz.,

$$\frac{r dr}{R^2 \sin \chi d\chi} = 1 \quad (n \text{ being equal to } 1)$$

$$\text{or integrating } \frac{1}{2} r^2 = -R^2 \cos \chi + AR^2.$$

$$\text{But we know that } r_0 = 0 \text{ for } \chi_0 = 0.$$

$$\text{Hence } A = 1$$

$$\text{Thus } \frac{1}{2} r^2 = R^2 (1 - \cos \chi) \text{ or}$$

$$r = 2 R \sin \frac{1}{2} \chi$$

And conversely with this value for $r = 2 R \sin \frac{1}{2} \chi$, we may prove the area scale is unity.

NOTE:—Even without the application of the calculus this value for r can be derived from the area of a spherical cap of polar radius $\chi = 2\pi R^2 (1 - \cos \chi)$.

This must be equal in the map to πr^2 equating these 2 values $r = 2 R \sin \frac{1}{2} \chi$.

ZENITHAL ORTHOMORPHIC OR STEREOGRAPHIC.

(C₁) This again is a special case of (C) the conical orthomorphoric with one standard parallel, the general expression for $r = m(\tan \frac{1}{2} \chi)^n$ where $m = \frac{R \sin \chi_0}{n(\tan \frac{1}{2} \chi_0)^n}$ vide (C)

$$\text{Here putting } n = 1 \text{ and } \chi_0 = 0$$

$$\text{we have } m = 2 R \cos \frac{1}{2} \chi_0 = 2 R$$

$$\text{and } r = 2 R \tan \frac{1}{2} \chi \dots (1)$$

which is also the expression for r where we project the sphere on the tangent plane at the North Pole, from the South Pole (stereographically as it is called otherwise).

Conversely it is easy to prove from (1) that the scale along the meridian = $\sec^2 \frac{1}{2} \chi$, and that along the parallel of latitude

$$= \frac{2\pi r}{2\pi R \sin \chi} = \frac{2 R \tan \frac{1}{2} \chi}{2 R \sin \frac{\chi}{2} \cos \frac{\chi}{2}}$$

$$= \sec^2 \frac{1}{2} \chi \text{ again,}$$

i.e., the projection is orthomorphoric.

Independently from this property we can deduce the expression for r thus:

$$\frac{dr}{R d\lambda} = \frac{r}{R \sin \lambda} \text{ or } \frac{dr}{r} = \frac{d\lambda}{\sin \lambda}$$

Integrating $\log r = \log \tan \frac{\lambda}{2} + \log A$ where

A is a constant, if $\lambda = \frac{\pi}{2}$ or $r = A \tan \frac{1}{2} \lambda$.

NOTE:—Thus for all values of A the projection is orthomorphic and so $r = 2 R \tan \frac{1}{2} \lambda$ is only a particular example.

$r = A \tan \frac{1}{2} \lambda$ defines a group of projections included under the general name of *Lagrange's Circular Orthomorphic Projection*.

NOTE:—The value of A can be chosen to satisfy any additional condition, say, any parallel of co-lat. λ_0 may be of true length on the map; or the whole area bounded by the circle of radius r may be made equal to the corresponding area on the globe, etc.

This will be certainly a useful projection for representing a complete spherical belt bounded by 2 parallels of latitude not very far from each other. Of course the value of A will be adjusted to the special needs of the case. Similarly the Zenithal equal area projection may be defined by $r = A \sin \frac{\lambda}{2}$. Then the area of any elementary portion on the globe will be represented by a proportional, (instead of equal) area on the map, i.e., any area in the normal projection will be multiplied by $\frac{A^2}{4 R^2}$;

here also the value of A may be chosen to satisfy any specified condition as before.

(D, E and F) discussed form the conical projections have no counterparts in the Zenithal projections for the two standard parallels coalesce into the central point.

For instance take (7) of E.

$$r^2 = r_1^2 - \frac{2 R^2}{n} (\cos \lambda - \cos \lambda_1)$$

when $\lambda_1 = 0$, $r_1 = 0$, $n = 1$.

$$\therefore r^2 = 2 R^2 (1 - \cos \lambda) = 4 R^2 \sin^2 \frac{1}{2} \lambda$$

or $r = 2 R \sin \frac{1}{2} \lambda$: the same as the ex-

pression for the Zenithal equal area corresponding to one standard parallel of the conical.

For (D) as we move away from the pole, the scale of the parallels of Lat. is > 1 and increases continuously and so we cannot find another $\parallel^1$ of true length in the map. The same argument holds good for (F) also.

But if we proceed independently to solve the differential equations for the general circular projections as detailed in the "note" above we can have one other standard parallel in each case. In this case they are not particular cases of the corresponding conical projections.

CYLINDRICAL EQUIDISTANT OR SIMPLE CYLINDRICAL.

(A₂) A special case of (A) where $r_0 = R \tan \lambda_0$;

$$n = \cos \lambda_0 \text{ and } r = R \left\{ \tan \lambda_0 - (\lambda_0 - \lambda) \right\}$$

if $n = 0$, $\lambda_0 = \frac{\pi}{2}$ and the standard parallel be-

comes the equator, r_0 and r are both infinite but

$$r_0 - r = R \left(\frac{\pi}{2} - \lambda \right) \text{ or } R \phi \text{ and is finite. (1)}$$

CYLINDRICAL EQUAL AREA.

(B₂) A special case of (B) where $n = \cos^2 \frac{1}{2} \lambda_0$

$$r_0 = 2 R \tan \frac{1}{2} \lambda_0$$

$$r = 2 R \sin \frac{1}{2} \lambda \sec \frac{1}{2} \lambda_0$$

putting $n = 0$, λ_0 becomes π , i.e., the South Pole becomes the standard parallel and so the projection shuts up into a line along the axis of the cone.

But we have already remarked that in connection with (B) the solution corresponding to $n = \cos^2 \frac{1}{2} \lambda_0$ is only one of the infinite possible solutions and that we can give any arbitrary value to n lying between 0 and 1. Let us then start with $n = \cos \lambda_0$ as in the simple conic with one standard $\parallel^1$.

$$r_0 = R \tan \lambda_0$$

$\frac{1}{2} n r^2 = R^2 (A - \cos \lambda)$ — the result of solving the differential equation corresponding to equal area property.

By substitution we see that $A = \frac{1 + \cos^2 \lambda_0}{2 \cos \lambda_0}$

$$\begin{aligned} \therefore r^2 &= \frac{2 R^2}{\cos \lambda_0} \left\{ \frac{1 + \cos^2 \lambda_0}{2 \cos \lambda_0} - \cos \lambda \right\} \\ &= \frac{R^2}{\cos^2 \lambda_0} \left\{ 1 + \cos^2 \lambda_0 - 2 \cos \lambda \cos \lambda_0 \right\} \\ &= R^2 \frac{\sin^2 \lambda_0}{\cos^2 \lambda_0} \left\{ 1 + \frac{2 \cos \lambda_0 \cos \lambda - \cos^2 \lambda}{\sin^2 \lambda_0} \right\} \\ \therefore r &= R \tan \lambda_0 \left\{ 1 + \frac{2 \cos \lambda_0 \cos \lambda - \cos^2 \lambda}{\sin^2 \lambda_0} \right\}^{\frac{1}{2}} \end{aligned} \quad \dots (1)$$

if $n = 0$, $\lambda_0 = \frac{\pi}{2}$, i.e., the standard $\parallel^1$ becomes

the equator, r_0 and r both become infinite, but $r_0 - r = \pm R \cos \lambda$ by expanding (1) ... (2) and so any $\parallel^1$ of co-lat. λ will be projected in the circumscribing cylinder into a circle at a distance from the equator equal to $R \cos \lambda$. It is the same thing as producing the plane of each parallel of Lat. to meet the cylinder.

The same cylindrical equal area may be deduced from (E) Alber's conical equal area with 2 standard parallels of co-lat. λ_1 and λ_2 , where we have

$$r_1 \cdot n = R \sin \lambda_1$$

$$r_2 \cdot n = R \sin \lambda_2$$

$$n = \frac{\cos \lambda_1 + \cos \lambda_2}{2}$$

$$\text{and } r^2 = r_1^2 - \frac{2 R^2}{n} (\cos \lambda - \cos \lambda_1) \text{ or } \frac{1}{2} (r_1^2 + r_2^2) + 2 R^2 \left(1 - \frac{1}{n} \cos \lambda \right) \quad \dots (1)$$

when $n = 0$, $\lambda_1 = 180^\circ - \lambda_2$, i.e., the standard parallels are equidistant north and south of the equator

r_1 and r_2 become infinite but $r - r_1 = -R \sin \lambda_1 (\cos \lambda - \cos \lambda_1)$ by expanding (1) or $r_1 - r = R \sin \lambda_1 (\cos \lambda - \cos \lambda_1)$ if as a special case $\lambda_1 = \lambda_2 = \frac{\pi}{2}$

then $r_1 - r = R \cos \lambda$ as before

CYLINDRICAL ORTHOMORPHIC OR MERCATOR'S

(C₂) A special case of (C) where,

$$r = m (\tan \frac{1}{2} \lambda)^n$$

$$m = \frac{R \sin \lambda_0}{n (\tan \frac{1}{2} \lambda_0)^n}$$

and the value of n is at our disposal; if we now give for n the value $\cos \lambda_0$, $\lambda_0 = \frac{\pi}{2}$ and the equator becomes the standard parallel.

m becomes infinite but mn is finite $= R$; hence both r_0 and r become infinite.

However $r_0 - r$ can be easily proved to be finite; for

$$r = m e^{n \log \tan \frac{1}{2} \lambda}$$

$$= m \left(1 + n \log \tan \frac{1}{2} \lambda + n^2 \log^2 \tan \frac{1}{2} \lambda + \dots \right)$$

and $r_0 = m (1 + n \log \tan \frac{1}{2} \lambda_0 + \dots)$

$$\therefore r_0 - r = -mn \log \tan \frac{1}{2} \lambda \text{ since } mn^2, mn^3 = 0$$

$$= -R \log_e \tan \frac{1}{2} \lambda \quad \dots (1)$$

$$\therefore r_0 - r = -\frac{R}{M} \log_{10} \tan \left(\frac{\pi}{4} - \frac{\phi}{2} \right)$$

or you may denote $r_0 - r$ by y the distance from the equator; the meridians as well as parallels of Lat. become st. lines at rt. $\angle$ s to each other.

$$\therefore r = 2.30529 R \log_{10} \tan \left(\frac{\pi}{4} - \frac{\phi}{2} \right)$$

$$\text{where } \frac{1}{M} = 2.30529 \dots (2)$$

If we denote the distance in the map of any meridian from the central one by x

$$\text{we have } x = \frac{dL}{180^\circ} : R \text{ where } dL \text{ is the difference of longitude} \quad \dots (3)$$

Conversely from (2) we can prove that the projection is orthomorphic.

Independently also the same equations may be derived from the property of orthomorphism, viz.,

$$\frac{dy}{R d\phi} = -\frac{R}{R \sin \lambda} \text{ or } dy = \frac{R}{\sin \lambda} d\lambda$$

$$\text{integrating } y = -R \log \tan \frac{1}{2} \lambda + A \dots (4)$$

$$\text{if } \lambda = \frac{\pi}{2}, y = 0. \therefore A = 0.$$

Hence $y = -R \log_e \tan \frac{1}{2} \lambda$

$$= -\frac{R}{M} \log_{10} \tan \left(\frac{\pi}{4} - \frac{\phi}{2} \right) \text{ as before.}$$

S. MUTHUKRISHNAN.

POETICAL REFLECTIONS ON DEATH.

IT has been the lot of Intermediate students these two years to read a set of five poems four of which are reflective on death and a fifth marked by melancholy not more cheering than death. The attitude of the poet is somewhat different in each and two of the three poets, Gray and Tennyson, present nearly contrary views. To Gray, the memory of obscure villagers buried under shapeless mounds, is not to be despised. After all, the great and the small are devoured and equalised in death. Pompous monuments to the dead will seem only splendid mockeries, as there is no chance of reviving them or affecting them with praise and flattery. It is pathetic to observe how the poorest man longs to have a tribute of affection from those he leaves behind, at the point of death.

In the 'Ode on Wellington' there is no room for the sullen pessimism of Gray who believed that no man achieved glory or greatness without compromising his moral sense. The life of Wellington serves completely to identify greatness as having been led up to by the path of duty. To Tennyson the toppling crags of Duty

Are close upon the shining table land
To which our God Himself is moon and sun.

The death of such a great man as Wellington fills the world with sorrow which seems for the time inconsolable.

Mourn, for to us he seems the last,
Remembering all his greatness in the past.

But to Wellington himself death can have caused no pain or loss. He should have attained a super-human serenity and his spirit is likely watching the funeral solemnities and the thought of this imposes calm-

ness and reverence in the people. The thought of the immortality of the soul is a source of encouragement to man. He who has been perfect in this life is bound to rise to a higher perfection after death. Grand as are the play of physical forces in the universe wrought by time, nothing equals the greatness of the soul. The hope of man lies in God and those evolving towards Him. Wellington will no doubt be blessed with God's high approbation after death and his spirit live for ever. But after all we are incompetent to image to ourselves the goal of man after death and so it is best to throw ourselves at death on the mercy of God and the intercession of Christ.

Just as in "In Memoriam" Tennyson passes from personal grief to all the problems of life and death concluding in faith as the only solvent, we find an indication of the poet's view even in short poems like the "Ode on Wellington" and "Morte d'Arthur." In the latter poem Bedivere is filled with grief at Arthur's death, the world becoming a vacancy by the passing away of Arthur's chivalric glory. While he lived and ruled the world was blessed as when the wise men awaited Christ's birth. Bedivere was wrong to look only to Arthur for the comfort of his mind which can come only from God. It is the supreme privilege of man to feel the link of love between himself and God and offer prayer to Him on behalf of himself, and of his brothers in the world. Arthur himself was passing, as his faith pictured it—though not his reasoned conviction, to a region of eternal calm and peace.

The common point between Tennyson and Matthew Arnold in his poem on "Rugby Chapel" is the optimism aroused in both by the contemplation of the careers of great

HINDRANCES TO ACCURATE REASONING.

men whose spirits seemed irresistably indestructible. Arnold asks sorrowfully where his father's spirit might be tarrying. It is certain that he should still be endeavouring, in a larger sphere than ever before, to promote the noble ideals he stood for in life. Men who are merely the objects of circumstance, the 'finite clods' of Browning are consigned to oblivion at death. There are others with the disturbing "spark" in them, men who rise above the disquieting and dismal experiences of life and rescue themselves from descending to the brutish level. But these men consume all their capacities in saving themselves. But Dr. Arnold was of a kind who had the grit in them to lead others beside himself in the path to realisation. To such men as Dr. Arnold the world owes its being saved from absolute and dismal annihilation.

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XXIX—14

"LISTEN to the ordinary conversation of the proverbial 'man in the street.' Confusion of ideas, catch-words and cant phrases in place of reasoned conclusions, generalizations from glaringly insufficient data, half thought-out propositions, non-sequences in argument, many-sided ignorance—these are among its characteristics." (A. I. T. "Manuscripts of God," 114.)

These words taken from a book recently published by a friend of mine may serve as a text to introduce what I want to say. They closely resemble another passage in an article written by myself some years ago. "The chief defects in our reasoning seem to be (a) the use of unproved and unprovable statements as premises, (b) the use of a word in two or more different senses in the same argument, (c) the acceptance of that part of the conclusion which serves our purpose and the rejection of that part which does not, (d) confusion of thought leading us to draw from our premises conclusions which they do not support."

These two passages seem to impugn either the intelligence or the honesty of the ordinary educated man. Men are supposed to be rational beings. Animals on the other hand are guided by instinct. They all act in the same way under the same circumstances whether in 1800 or in 1900. One wolf is exactly like another wolf in habits. Primitive man ruled by custom is nearly in the same condition. He does a thing because his ancestors have always done it and it is assumed that it is necessary and inevitable. Any other course of conduct is unthinkable. He is usually successful in his little round of

activities, though perhaps inferior in efficiency to spiders and bees. As Goldsmith says: "The wisdom of the ignorant somewhat resembles instinct of animals: it is diffused in but a very narrow sphere, but within that circle it acts with vigour, uniformity and success." With the progress of civilization however man's life becomes infinitely more complex and his activities more varied. He must learn new subjects and adapt himself to new conditions. Hence the need of education and of reasoning.

If my opening quotation contains a statement of fact let us inquire into the cause and cure. What are the reasons why we cannot reason? (1) Ignorance or prejudice leading to mis-statement of facts; (2) The vagueness of language owing to which many statements, true in one sense, are untrue or meaningless in others; (3) Want of logic or inability to draw the right conclusions from facts; (4) Want of desire to reach the right conclusion.

I once attended a course of lectures by Dr. McTaggart, the well-known Hegelian. He complained in his opening address that most people feel competent to pronounce opinions on philosophical subjects without having studied philosophy, and probably without knowing that what they say has any connection with philosophy. However if this be true the philosopher is not the only sufferer. In the fields of religion, economics, politics and history, in all subjects which have to do with the study of Man, opinions are confidently expressed by those who have never given time to study. The very ideas that a knowledge of facts is necessary and that it can only be gained by a series of observations, inquiries, comparisons and measurements carried out under difficulties, seem to be

comparatively new. In the Middle Ages in Europe reasoning was almost always based on authority, never on observation or experiment. If allegations of fact were brought in, it was by way of illustration not of proof. Facts were the ornaments and not the foundations of the argument. The differences between a fact and a non-fact, or a fact and an opinion, or a fact and a metaphor, thus became obscured. For instance, if it were desired to know what was the height of Mont Blanc or the distance from Rome to Paris or the shape of the earth, these questions were solved not by examination or measurement but by quotations from ancient books written on totally different subjects by people who had never seen Mont Blanc or Paris, and commentaries upon them by other people in like case. Those who have read the works of some of the ablest mediæval controversialists on the subject of the authority of the Pope will be familiar with the kind of argument used. The refutation of these arguments, as Pollock says, was only a little less grotesque than the arguments themselves.

As a writer in the 'Cambridge History of India' tells us: "To be interested in a fact as such, to care so much about its precise individual character as to examine and verify and try to get its real contours, to value hypothesis only so far as it can be substantiated by reference to objective truth—these are the motives behind modern Western Science: and a disinterested intellectual curiosity in the facts of the outside world has actually helped to give the West a power to modify and control that world for practical uses never before possessed by man. It was the beginning of this interest in the facts of the world, the desire to see things as they really were, which marked ancient Greek

culture, as expressed in its writings and its art." Mr. Bevan contrasts this "lively curiosity as to the facts of the Universe" with "that movement of the spirit, exemplified in the sages of India and in the piety of mediæval Europe, which seeks to flee from the many to the one." This "intellectual and physical activity," the desire to know all that can be known, to do all that can be done, to visit every place that can possibly be reached tend to the development of all the powers of body and mind to their highest degree and in their greatest variety. It leads to that apparently purposeless activity and that seeming absorption in what can be perceived by the senses and comprehended by the mind which is the mark of Englishmen and Americans. It is the foundation of what we call "Western Materialism."

"The motive of intellectual curiosity just described, the critical scientific temper, has never been exhibited in complete purity. It is all a question of more or less. The Greeks had it more than any previous people: the modern man of Science has it more than the Greeks; but not even the modern man of Science has so far reduced all the other elements of human nature to their proper place, as to make his curiosity absolutely disinterested or his criticism impeccably scientific. In the case of the ancient Greeks, scientific curiosity was constantly being interfered with and thwarted by another interest which was strong in them—the love of literary form, the delight in logical expression." The more a branch of study leans towards literature the less scientific it is likely to be. Many writers sacrifice truth to an epigram. The most accurate histories are generally the dullest, though the converse is not always true. For an example of this, compare the

first volume of the "Cambridge History of India" or Vincent Smith's "Ancient India" with the hysterics and heroics of semi-historical biographies of Shivaji, or magazine articles on the imaginary glories of the past. Macaulay can be fairly accused of attaching more importance to well-balanced sentences than to meticulous impartiality. We even hear of a French writer who called the Roman Senate an assembly of *deux cents rois*, 200 kings. Really there were more than 300 but he did not like the assonance of *trois cents rois*, and you can imagine the literary effect of pedantic accuracy such as '304 kings.'

If we are willing to take the necessary trouble to ascertain the facts and all the facts we must also have sufficient intellectual acuteness and honesty to follow them where they lead us and to understand them well enough to draw logical conclusions. There is an interesting note in the first volume of the Calcutta University Commission Report (Chap. XIII) p. 392. A young Indian graduate says "If you had explained to me ever so much I shouldn't have understood the spirit of the thing before I went to Oxford. I learnt from my tutor at Oxford—not altogether from him but largely from him, and by seeing what he was rather than by hearing what he said, two or three things which are not in the syllabus but are worth far more than any amount of mere information. First a scrupulous regard for the truth as truth, the feeling that one should not be slipshod in seeking or expressing it. Secondly, intellectual sincerity, the readiness to be blown by the wind of Reason into whatever port it pleases. Thirdly, the supreme value of independent thought and judgment." Before I came to India I once said to a Fellow of a

Southern University, "I am afraid that Indian students will be content with learning (perhaps merely memorizing) the facts of history and will not make great efforts to understand them." His strange reply was "You will be very lucky if you can get them to understand what a fact is."

These words apply specially to the uneducated or half-educated or to those who are in process of getting their education. But after all these are the great majority and in modern times the policy of a great State may be controlled by their opinions. It is practicable to teach the mass of mankind to reason, to give such an education as will fit the ordinary man to take part in public affairs or to succeed in manufacture and commerce.

All learning should tend to train and develop the mind but some subjects are supposed to have special value in teaching us to reason. Of these Logic and Mathematics are often regarded as alternatives and appear as optional subjects for some examinations. Mathematics is called an exact Science and a practical subject, and as such has found favour with eminent utilitarians such as Napoleon and Peter the Great. But in proportion as Mathematics is exact I think that it is not practical, because nothing in this world is exact. We are not surrounded by plane surfaces and rigid bodies. The earth is not a perfect sphere and it is not easy to find a straight line. If the horizon on the sea is almost a perfect circle, if a crystal is a perfect hexagon or some other perfect figure, if a ray of light is perfectly straight, that does not help us much. The most important arguments in the world are not about rays of light or perfect hexagons but about men and men are neither perfect nor straight.

"A circle is a plane figure contained by a line traced out by a point which moves so that its distance from a certain fixed point is always the same." This is a definition which we must humbly accept without argument. Some axioms are assumed and we must admit them. A well-known 'Geometry' used in schools begins as follows:—"All mathematical reasoning is founded on certain simple principles, the truth of which is so self-evident that they are accepted without proof. These self-evident truths are called Axioms. For instance, 'Things which are equal to the same thing are equal to one another' or 'two straight lines cannot enclose a space'." In real life there are no axioms and it is an almost insoluble problem to make a definition. Demand for a definition brings any argument to an end and yet there can be no reasoning if we do not know what we are talking about. The demand is only defensive armour and it is not of much use in an attack. The method of Socrates illustrates what I mean. "Definition," says Dunning, "is notoriously the most difficult task of the trained thinker: the demand for it from the ordinary or the immature mind, or even from the superior and cultivated mind suddenly and with premeditated craft could only have the ludicrous results in which Socrates found such delight." But when Plato in the Republic puts words into the mouth of Socrates and endeavours to give his own definition of Justice, I cannot think him very successful. "Ought we not," he says, "like some huntsmen, to surround the thicket carefully, attending lest 'Justice' somehow escape, and, disappearing remain undiscovered. For it is plain that she is somewhere here." After all the efforts of the disputants a miserable little definition reward

their pains. Justice it appears is to do the work for which one is fitted and not to meddle with the work of others. This means that those who have not been specially trained to take part in government should not take part in government. No attempt is made to distinguish actual from potential fitness. It seems that fitness is something so self-evident that all will agree upon it and that it is as unjust to attempt to acquire fitness when it is too late, as it is to try to govern without fitness. If we compare this idea of justice with those of Hobbes, Thomas Aquinas and Montesquieu, and theirs again with our own when we fail to get what we want, we shall see how far we are from being able to define the commonest and most necessary terms.

In real life there are no Axioms, no truths so self-evident that they are accepted without proof. An attempt to apply to business or to government the statement given above would end in a parody. "All reasoning in real life is supposed to be founded on certain well-known but vague and confused phrases, catch-words and statements understood in different ways by different persons and not understood at all by the majority. The truth of these is so doubtful that it is asserted only by those whose purpose they serve and it is denied by those who have anything to gain by denial. These vague and conflicting phrases may be called political principles, business maxims or by any other name one pleases. For instance, 'competition is the soul of business', 'self-determination', 'non-violence', 'a living wage', 'soul-force', 'the freedom of the sea', 'the will of the people', 'liberty', 'religion', 'justice', 'patriotism', 'hereditary right', 'the right of the fittest to rule', 'no taxation without representation',

'no wealth can be produced except by capital', 'the right to work.'

In real life no one will admit anything and the statements which are introduced by 'no doubt' or 'it cannot be denied that' are often those most doubted both by speakers and hearers. It has been well said that no one will admit that two and two make four if he has any interest to serve by denying it.

But in arithmetical examples some data are given and we are entitled to ignore those not given. Take an example:

A can do a piece of work in 10 hours. B can do it in 6 hours. In what time will they do it if they work together? Mathematically the answer may be four hours or less but it does not need much knowledge of psychology to show that in reality it is quite different. A and B may be two generals trying to lead the same army, two clerks in an office each trying to get the other dismissed, or two peasants driving the same cart. As Napoleon is reported to have said, 'One bad general is better than two good ones.' And some men work better in company and others alone.

Take another example: 'Given that two horses eat as much as three mules, if the food of 8 horses and 20 mules for a month costs Rs. 200, what will be the cost of feeding 6 horses and 6 mules for a year?

We are not told whether the syces steal at a uniform rate, or whether they take a higher percentage out of a smaller amount. We do not know how much the price of grass rises normally in the hot season and whether there were a drought in the previous year or not. But these are the very things which a practical man wants to know. No data are given in real life and very often the chief problem before us is to ascertain the facts. As Lord Balfour once said: 'There are no facts in the

land.' This was in reply to an enthusiastic young member of Parliament who said that he was going to Ireland to get at the facts. When we begin to make inquiries we are inclined to think that there are no facts in any country.

In business the cloth merchant must find out for himself how much wool is being produced and in what countries, what are the prospects of the cotton crop here and elsewhere, how many railway wagons and ships are available for carrying the wool and cotton to the mills, at what price cloth of different kinds can probably be produced, what is likely to be the demand for different qualities among his usual customers. The amount of money which the purchaser will have to spend depends on a score of factors which the merchant must estimate. The hindrances caused by strikes and the possibility of Government interference with freight and prices cannot be overlooked. Even probable changes in the temperature are important. He cannot learn these things by heart out of a text-book, or wait until they are printed in a trade journal next month, or a Government Blue-Book next year. If he does he will be outstripped by his rivals. In fact he derives hardly any help from Mathematics at all. Education in the form in which too often it is given and received in India is not of much use as a preparation for a business career. Our devotion to text-books and our reliance upon memory instead of quickness and intelligence have almost a negative value. In business the important things are those which are now happening or are going to happen and not those which have happened. A business decision must be something new, the result of the working of a man's own brain and not something he can learn by heart. Also the principle

of the elimination of the unfit which is in constant operation in the real world is abhorred by many members of our Senate, and academic bodies who wish fit and unfit alike to appear in the pass-lists.

In Mathematics if any data are given all are given. We are entitled to neglect friction, wastage and everything not mentioned. But in practical affairs we never know whether we have all the factors before us. The engineer may calculate the lateral pressure of water on a dam and yet fail to perceive that there are fissures in the bottom of the lake. A tank 50 yards long 40 yards wide and 10 feet deep contains x gallons of water. If we increase the average depth to 14 feet it should contain $7\frac{x}{5}$ gallons. In reality it may contain $\frac{x}{2}$ or $\frac{x}{7}$ after the operation because the deepening process results in the removal of the clay at the bottom and the exposure of a pervious surface. The breaking strain of steel and aluminium bars is known but structures sometimes collapse owing to the pressure of the wind or some other cause which was not among the data.

In addition to its Greek letters and other symbols, Mathematics speaks of men and boys, horses, tons of iron, cubic feet and such practical things. But they are not so practical as they sound. They are not the horses and tons of the real world. In Mathematics two and two make four and every two x equals every other two x . But two horses do not equal two horses in real life, and two or even five are often less than one. Ten men do not equal ten men, either in politics, in manufacture, in war or in anything else.

If 16 men and 8 boys do a piece of work in 4 hours, how long will it take one man and 18 boys to do the same work if one man does as much work as 2 boys? Mathematically the answer might be 8 hours but if any one thinks that this would be the result in real life let him watch the one man trying to catch the 18 boys.

If Mathematics gives us little help let us apply to Logic, the science which beyond all others teaches us to reason accurately. In England few boys read any Logic whereas in India most students take this subject if they are not on the Science side. Yet I fear that our study of Logic does not enable us to see clearly, think clearly, or reason accurately when we come to deal with realities. Life is too huge and too varied to be a proper subject for our little test. The most accurate foot-rule does not help us to know how far it is from Calcutta to Allahabad. 'Some M is P. No S is M'. We are expected to learn Latin names and mnemonics about Barbara and other ladies. The man who is equipped with these aids to reasoning is like one who knows the anatomical structure of a leopard, e.g., that a leopard has 28 joints in its tail while a panther has 22 or whatever it may be. This knowledge is of no use when he meets the leopard in the jungle. The real difficulty is that the whole syllogistic system seems to be a *petitio principii*. The logician can reason triumphantly if his premises are granted, just as we can all be successful merchants if we are allowed to choose our own buying and selling prices. The logician demands so much and produces so little. We must grant him the hard and improbable thing and he will prove the easy and probable thing. He can only reason from the general to the particular, whereas the scientist reasons from the

particular to the general. Take the most famous of all examples. You can guess which one I mean. When I was in a college in another Province, the Principal (who was a Science man) said to me one day: "The Logic people get on very slowly; when I passed the door of their room last week Kulada Babu was saying 'Man is mortal' and to-day I heard him telling them again that 'Man is mortal'." "All men are mortal: Cæsar is a man: Cæsar is mortal." Quite simple if we admit that all men are mortal, and also quite useless. For obviously it is easier to prove that Cæsar is mortal without the aid of Logic than to prove that all men are mortal even with its aid. Brutus and others were able to demonstrate by experiment that Cæsar was mortal in some sense, but if they had tried to prove the major premise by experiment there would have been an end both of the demonstrators, of their subject-matter, and of those whom they were trying to convince,—a truly remarkable result of a scientific experiment. In a syllogism, therefore, we are arguing from the really unknown (logically known) to the really known but logically unknown—a very useless performance.

Again in Logic every word has a fixed meaning. A man cannot be both good and bad. A cannot be both the cause and effect of B. The principle of contradiction is that it is impossible for the same thing to be and not to be. A is not not A. In a dilemma the disjunction in the minor premise ought to be obvious or at any rate acceptable to the audience. Demosthenes is either unpatriotic or inconsistent. But none of these principles hold in real life. It is rare for an important word to have a fixed meaning. It is quite common for one thing to be both cause and

effect of another. Drunkenness may be both a cause and an effect of poverty. The poor qualifications of many school-masters may be both the cause and the effect of the small esteem in which their profession is held and either of these may be both the cause and the effect of their low pay. It is quite possible for a man to be, and not to be, wise, rich, good, &c. Demosthenes may be neither unpatriotic nor inconsistent. Patriotism only means desiring the success of his own party or his own efforts, and it may be more consistent to vary one's opinions and actions with varying circumstances than to keep them rigid.

Let us take the same example again. 'Men are mortal.' Are they? What does mortal mean anyhow? What is immortality? Most religious teachers deny that the real man is mortal and admit only that man's body is mortal. So vague is language that those who assert immortality and those who deny it often mean much the same thing, while those who agree in asserting it probably mean several quite different things. The immortality of the Christian religion may be considered the direct negation of the immortality of Hinduism, and differs entirely from the immortality of the Mussalman. If Caesar was mortal, why is he still so well-known to us? If we admit that he was a mere man that is only because he does not live in our country. If he were here now he would be either a Mahatma or a Rakshas according to our political prejudice.

I am afraid therefore that we shall learn little from formal Logic because it deals with words and not with things. I must do modern logicians the justice to admit that some of them are not blind to this. "Terms are assumed by logicians to be capable of definite

meaning and of being used unequivocally in the same context: if or in so far as this is not the case we cannot understand one another's reasons." The use of words is like the use of money which constantly changes in value in the pocket or even in the hand while we are making a purchase. For example, take the recent controversy about an experiment. 'When is an experiment not an experiment? It has been said with much truth that Hampden fought to maintain the principle which Washington fought to resist, viz., that the British Parliament was the sole constitutional taxing authority. If we change the principle to the formula 'No taxation without representation' we may say that in words they were agreed. But the agreement would be only in words. 'No taxation without representation' as understood in England meant only that Parliament, though elected by a small minority, had complete control over taxation. "There can be no doubt," said Lord Mansfield, "but that the inhabitants of the Colonies are as much represented in Parliament as the greatest part of the people of England are." However a colonist in using the phrase meant "no taxation" except by vote of a legislative body in which a person known to me, and in whose election I have taken part, has a seat." This is why the modern method of "exploring every avenue" to find an "acceptable formula" is often waste of labour.

I think that it is very interesting to take some statement or even some flight of rhetoric, which hardly contains a definite statement but depends on implication, and to submit it to careful examination in order to discover how many fallacies are contained or suggested in it. Most of the best examples are political or are used in re-

ligious controversy, but there remain some, economic, social or historical, which may be examined without offence. A college debating society should sometimes devote an evening to this work. Another useful exercise is to attempt definition, or if that prove impossible, at least description of the different aspects of a difficult term. I commend this to students and to those who are in charge of debating societies and study circles. Few things are more misleading than comparisons if we fail to observe the differences as well as the resemblances.

The study of History and Economics is also very valuable because here we realise that we are dealing with a subject matter as variable as human nature. Economists are more cautious than they were in the days of Ricardo. They have abandoned the 'economic man' and the idea that 'good land' is cultivated first. They speak only of tendencies which manifest themselves in the absence of any force operating in the opposite direction. The historian also is now too wise to say that Charles I was beheaded because he was a 'tyrant' or that the American Civil War was fought to free the slaves. Life is not quite so simple as that.

Science teaches us to make careful observations and measurements and affords a most valuable mental training. But we cannot make use of its methods in politics or business because our subject matter is less certain. Sodium sulphate is assumed to be free from extraneous matter: it has a fixed formula. There is no definition of democracy or formula for a constitution warranted to work in a given way. The study of history and economics and of scientific politics probably serves best to give us a knowledge of the infinite variety of arrangements which men at differ-

ent times have thought to be natural and proper. If it is difficult to deduce any general principles from recorded instances, it is better to face that fact. If men are actuated by passion and prejudice at least as much as by intelligent self-interest it is useless to deny it. J. S. Mill often made mistakes because he over-estimated the power of formulae to overcome prejudice. It is good to take statements of beliefs and opinions held in large groups and political battle-cries and to subject them to examination. We ought to find out (a) whether they are true in any sense, (b) if so, in what sense, (c) if not, why they obtained popularity. This paper may close with an example in addition to those given above.

'The working man has a right to a better place at the banquet of life.'

Here 'banquet of life' is a figure of speech. A comparison is only valuable if the two things compared resemble one another in the most important respects. A banquet is a feast provided without any effort, contribution or co-operation on the part of those who are going to enjoy it and only for a limited number. There may be valuable elements in life which can neither be bought nor sold. But it is dangerously misleading to use such a figure in a political speech addressed to the uninstructed classes. It almost inevitably creates the idea that there is a great store of goods and advantages somewhere, boundless, unearned, which is unjustly monopolised by 'capitalists.' The audience will suppose that they need neither contribute anything to the store nor buy a ticket for the feast, but have only to stretch out the hand and open the mouth.

One might also discuss the word 'right' and consider whether there are any 'natural

rights' or rights belonging to men as human beings apart from those given by the laws of the State. The word 'right' suggests the correlative 'duty,' and the critic may well ask who will undertake the duty of providing so large a place at the 'banquet' and of satisfying so large an appetite. A mild protest against the limitation of the term 'work' to hand-work only would not be out of place.

Discussion of this kind raises many interesting questions. If we can come to no undisputed conclusion, at least it helps us to inquire into the meaning of the truisms which we hold or think we hold. At the present time when we can no longer follow precedent, and when constitutions are in the making, there is great need of accurate thought and cautious expression.

W. OWSTON SMITH.

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EDUCATION IN REFORM.

THE teaching world has been in a flutter since the Educational Portfolio has become a political plum. The teaching world is deeply indebted to Mr. M. S. Sabhesan, M.A., of the Christian College, Madras, for his able and lucid exposition of "The Educational Policy and the Reformed Government." It is worthy of the Metropolis and the premier non-Government institution therein to sound this note of alarm in this transitional pageant of Education under the Reformed Governments. What is true of the Private School is more than true of all non-Government Schools, chiefly Municipal, working on the single school system.

So far as the teaching world goes, Government or non, two changes in the name of reforms are retrograde. One lies in reducing the starting salary from a promised hundred and present seventy-five to sixty-five and the lowering of chances of later prospects. The resultant saving of Rs. 45,000 is "robbing Paul and paying Peter" and who knows, after all has been done, a Deputy Director may not be required (funds are then sure to be forthcoming) for every four Districts in the long run? The other lies in the tendency to separate the cadre of "School Assistants" from that of the Subordinate Inspectorate. The undesirability of this must be clear from the replies from those in service as to what line they would stick to, merely from a fear of reduced chances as School Assistants. The amalgamation of the two cadres was effected not very long ago as a consummation devoutly wished for in Government Educational Service. While the cry is for 'Unification' and 'Standardisation' the Reform begins with tendencies to bifurcation. Indeed the proverb is true that says that the teacher's pro-

fession lies in correcting "mistakes," every reform requiring a correction.

During his visit here the Honourable Minister expressed himself strongly on the need to do away with struggling schools. No school that is not economically self-sufficient need continue. I wonder why the policy of 'Grant-in-Aid' was adopted or continues. It was also remarked that where there might be even one private school, no public school should be organised or continue, if it is not self-supporting. This, as a policy, reverses the idea of having to provide for educational facilities and progress according to numbers, their need and demand. Ideas of State responsibility in Education seem to undergo, as ably put by Mr. Sabhesan, changes in the very conception. If schools should exist as commercial concerns, as also hospitals, sanitary works, etc., what are the various taxes to be paid for? Talking of Finance, the Hon'ble Minister referred to the top-heaviness of the administration and so it could not be for its maintenance. He looked hopefully to the "Inchoape" axe which after all may reduce the starting salary to Rs. 50 or do away with a few subordinate places and peons'

places. By the way, the cost of these Commissions, Committees, Councils, Boards and Reforms could fairly well have avoided the need for reducing salaries while prices rise. The possibility of reducing the provincial contribution is offered as an alternative bait, but surely the larger magnates will attract it. The country whirls and no statesman, made so, can afford to pause to think on Education and its problems. Ministers also may change from time to time. Thus Education only suffers by transference in the process of political reorganisation. The evils incidental to municipal managements of schools appear in an enlarged form with Central Governments and thus the bolt now falls from the Blue. Two solutions are offered. Since the wheel of Democracy is to be kept rolling and the Reforms come to stay, go a step further and throw the place open to election in the Legislative Council or in the line of the rising cost of administration, throw the Educational Portfolio as contemplated for Districts, into the hands of a Board of competent persons elected on a broad basis.

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THE BEST METHOD IN TEACHING.

METHOD is individual and not particular; there may be as many methods of teaching as there are teachers. It may therefore seem absurd to speak of the 'best method.' Every method works good in the hands of a good teacher, provided he employs his method discriminately according to the age, development and knowledge of the children. The child is a different being at different periods of his growth. 'Each period of development is marked by peculiar physical, mental and moral characteristics that demand specific treatment.' Hence the educative process must vary with the development of the child. The method that would be useful and suitable for boys 16 years old would do actual harm to boys 6 or 8 years old. Here, therefore, an attempt is made to describe briefly the main principles of teaching that must lie in every method, if it is to be successful.

It is a popular belief that teaching is the most easy profession which can be easily practised by every one. People overlook the fact that it is an art as difficult as others. This art requires as much training and caution as do others. Just as every one, however learned he may be, cannot practise surgery, so here also fresh, untrained teachers cannot work well, and instead of doing any good, cause harm to the young charges which require to be handled properly and cautiously.

The word 'educate' literally means 'to read' and 'draw forth', so that it exactly expresses the true function of a teacher. To instruct, on the other hand, is to give information and impart knowledge. Instruction may be accompanied with instruction, as when a teacher besides drawing forth from his charges informs them of what they do not and cannot know without his aid.

Teachers fresh from colleges adopt the method of lecturing in their teaching without understanding the age, the capacity, and the knowledge of their taught, to show their 'great erudition.' They go on pouring 'oceans of facts' embodied in big and mouthful words and think they have discharged their sacred province in the tales that the charges would convey and communicate to their parents and friends, of the erudition of their new teachers. As to the merit of such a teaching each of us can judge from the amount of impression that the educated adults can retain after they have left the lecture-hall, not to speak of the young ones whose mental faculties and attention are not trained and disciplined.

When a teacher is talking to them, the young and immature minds are passive and only semi-conscious. There is very faint, vague and incorrect impression upon their memory. Lively interest is seldom excited to catch and retain the wandering attention. In my opinion 'the teacher's silent presence would do less harm than his boisterous eloquence, which in most cases is really boredom.' His loud monotonous voice not only fails to produce any impression upon the class as a whole, but like soporiferous doses sends some children into day dreams while the others gaze with wonder-waiting eyes, like a statue carved upon a stone, in the face of their teacher. Besides, such a teacher greatly disturbs the peaceful working of the adjacent classes. Let the teacher, therefore, be trained to be economical in the use of his voice. Thus being 'passively active' he would do not only much good to the boys but also cease to be a nuisance to the adjacent classes and will save himself from headache and hoarse throat.

The best method is that which leads the child to think and work for himself to surmount the difficulties that come in his way.

The teacher is to guide, to smooth and to soften the uninviting course by administering 'continual doses of interest.' He is to create a charm that would invite the attention of the taught to the task in hand. He is to tell nothing that the students can find out by themselves. But what is unsurmountable must be told and that too in an interesting way. In short let him think himself to be a discoverer; to be one who is to be guided to follow a particular way by himself and not to be conveyed to his destination. It is this 'subjective attitude' that is important, so that his mind may remain awake and his attention concentrated. The impression thus left would be abiding and lasting. The things that he would learn by himself under the guidance of the teacher would be retained and would become his valuable possession, while what the teacher would do for him is sure to be lost. The new facts must be told to him in an impressive manner but 'the right of generalisation from particulars and the right of inference from generalisation belongs to the pupil.' Wherever a difficulty comes in, it must be removed by hints, suggestions and questions.

If the lesson is oral, let it be interrupted by questions so framed as to call for an effort of thought and memory on the part of the child. At the end of the lesson some five or ten minutes must be devoted to the questions which should link up the whole by interconnected thoughts and ideas, each one going before suggesting the next to come. Apt illustrations, relevant short stories should be frequently introduced to make the lesson interesting. The black-board work should never be forgotten. A short summary of the work done should be put upon it. Points difficult to be cleared orally should be cleared by a diagram upon the black-board, which is sure to catch and retain attention.

The teacher also should not forget the use of graphic representations such as pictures, models, maps, etc., as a medium of instruction. Besides being a great help to explain a thing in the most clear manner, they also greatly help to catch the attention of the boys. Most teachers make no use of the pictures given in a text-book; they simply look upon them as meant for diversion and amusement. Such pictures always illustrate the points that the author wants his readers to know and should be studied as one does when one actually sees a thing or faces a situation.

Lastly the teachers should be very cautious to see that the task imposed upon the students should not over-tax the tender brains, but it should be commensurate with their age, growth, and the development of the mental faculties.

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ESSAY-WRITING.

THE word Essay is a hateful word: it is associated with so much in our schools that is false and hollow and showy. As a rule, Essay-writing is not taught at all, for it can hardly be called 'teaching' when a class is ordered to write on subjects about which they know little and about which, under the conditions, they can learn but little. To force pupils to flounder through a page of drivel, or to give to the beginners an idiotically abstruse subject is not merely inexpedient but radically immoral. The trials of one of Miss Kate Douglas Wiggin's heroines at the hands of a well-meaning school-mistress are well worth quoting:—

"Rebecca made a poor hand at composition-writing at this time. Miss Dearborn gave her every sort of subject that she had ever been given herself: 'Cloud pictures,' 'Abraham Lincoln,' 'Nature,' 'Philanthropy,' 'Slavery,' 'Intemperance,' 'Joy and Duty,' 'Solitude,' but with none of them did Rebecca seem to grapple satisfactorily. "Write as you would talk, Rebecca," insisted poor Miss Dearborn, who secretly knew that she could never manage a good composition herself. "But gracious me, Miss Dearborn: I don't talk about Nature and Slavery. I can't write unless I have something to say, can I?" "That is not what compositions are for," returned Miss Dearborn dolefully, "to make you have things to say. Now, in your last one, on Solitude, you haven't said anything very interesting." "I don't know any more about Joy and Duty this week than I knew about Solitude last week," grumbled Rebecca." Therefore, children must have *ideas* if they are to express them. The pupil's effort should not resolve itself into a wild search for ideas that will not come, but should be an attempt to arrange and express ideas that are there

awaiting expression. The essay should not be an examination in facts as well as an examination in composition. The facts should either be fully supplied, or the subject should be one with which pupils should be perfectly familiar. We must at the same time distinguish between ignorance and unreadiness; for the former the only remedy is knowledge, whilst preparation and discussion meet the latter case. It is better, however, to aim at being a Hans Anderson or a Grimm than at being an accurate clerk.

By setting a too difficult subject, the teacher invites misfortune to himself. The dreary woolly essay bludgeons the brain of the teacher into semi-insensibility. Almost any subject can be transmuted from dull lead to bright gold by the alchemy of a brisk class discussion. Essay-writing is an intimate matter; it cannot be handled as if it were a coat of intellectual paint. We cannot afford to keep the boys too long in leading strings. Leading strings may transform themselves into crutches without which children will be obliged to hobble painfully for a long while before they can walk easily by themselves. Courage and enterprise soon reduce the stilted productions to something which is infinitely worth while. Subjects must be concrete at the beginning. Children think in images, not in ideas. The more definite and concrete a subject, so long as the child has an ample supply of ideas upon it, the more natural and ready will be the flow of his language. Examples of easier and more useful kinds of subjects are:—A picture placed before the class; Accounts of previous lessons; Accounts of out-of-school experiences; Pieces of imaginative writing such as, dispute between Ink and Pen as to which is the more useful to a writer, or the story of a penny or of a worn-out football as told by itself. Examples of subjects requiring reflection and discussion

are:—Town and Country Life compared; Why should we learn Drawing? An imaginary conversation between two selected characters; and so on.

Of equal importance are both *matter* and *form*. Good material badly put together may be almost unintelligible, whilst poor material well put together is an empty thing. Matter is cared for by providing suitable subjects and giving suitable help. Form is cared for by training the pupil to *think over the subject carefully before beginning to write* and to make a scheme or outline for guidance in the actual writing. In English Secondary Schools, form is little heeded. In German Secondary Schools, matter counts for little. There is no reason why either matter or form should be neglected.

Think before you write. To come upon a fairly well-written essay in our schools is like coming upon a pool in the desert.

Writing before thinking is like putting the cart before the horse. Such hasty writers can do nothing but juggle with words. If asked to write on the necessity for the study of History of Education, they will probably build up a short history of education. They will sit idle at times, and suck the pen. The teacher should make the pupils realize that the drawing up of a good and full skeleton is not a waste of time. Ten minutes out of half an hour is by no means too much to give to preliminary thinking. Well begun is half done. If at the end of one-third of the allotted time the boy has got a good 'skeleton' he will be able to clothe it with flesh in the remaining two-thirds.

A few questions will produce plenty of matter and a few more will arrange it. Questions like

"What is a railway station?" "Where are railway stations built?" "What are the chief

daily events at a railway station?" "Are railway stations all alike?" may guide the writer to draw up a 'skeleton' of the essay, as follows:—A Railway station: 1. *What it is*. A place where trains stop to allow people to get in and out, and where people wait for trains. 2. *Where they are placed*—On railways at the nearest points to towns and villages large enough to make it worth while to build them. 3. *Description*—Two long platforms raised two or three feet above ground-level. Roof, Ticket Office, Waiting Rooms, Telegraph Office, etc. (The arrival and departure of a train). 4. *People employed*—Station-Master, Ticket-Collectors, Clerks, Porters, Lamp-cleaners, Signalmen, etc. (Their work and wages). 5. *Comparison of stations*—Great city terminus and little wayside station.

The finest training for good writing is good reading. The more a person reads, the better he will write, and there is no other better way of acquiring "style." It may be worth while to set before the class a good model. Only the very best writers, it is true, will produce really creditable imitations, but all will have gained some benefit by wrestling with the difficulty and by the close study of the model. R. L. Stevenson tells us that whenever he was attracted by the beauty or the force of a passage, he immediately set himself to imitate it.

Children should be taught to choose the *right* word. Take, for example, the italicised words in:—The sun *shone* brightly. It *blazed* high in the sky at noon. It *glittered* on the water. The forest *sparkled* in the sun-light. The dew *glistened* in the morning sun. There was a *gleam* of sunlight after the storm. Children will soon discover that it is better to say "The frost *sparkled*" than to say "The

frost shone" or "The frost gleamed" and so forth. To show children how important it is to choose the right word, take the following example:—Suppose we see a boy run down the road. If he just runs, we say, "The boy ran down the road." But if he went very fast, we should say, "The boy rushed down the road." If he went very very fast, we might even say, he tore down the road, or even that he flashed: Instead of telling us that the cat said "Thank you," children should write, The cat mewed, "Thank you,"... "The house stands in a field under the trees" is a careless and dull production. A few trials result in the following:—"The little white house with the thatched roof stands beneath the big trees in the middle of the meadows."

All teachers know how difficult it is to get children to write an essay without the everlasting recurrence of "and..." or "so..." or "then..." The best way to overcome the difficulty is to give regular practice in sentence weaving.

A clear style is the reflection of a clear head. The thought and the words are to be identical. Good style without good matter is impossible. Words in combination and not isolated words make style. If the essay has no unity it makes no clear expression. The

aim of the writer is to give faithful expression to his thought. The reader wants the essay to be clear and interesting. There are three elements in essay-writing: the thought, the medium and the audience. The translation of thought into language yields style. A very common tendency in young writers is to use more words than are necessary to express themselves. Wordiness is the natural result of confusion of thought. Prolixity is a similar fault arising from similar causes—especially the inclusion of irrelevant matter. We should never write colloquial expressions. Slang should never creep into essays. We must attack the roots of the evil. We must ever be on the watch for such slips. We must never tolerate any slipshod expression. There are many essay-writers who will peruse books instead of reading them; they will retire instead of going to bed. Let them avoid a style like—"Mr. Tully was a person of rubicund countenance and his hair was conspicuous by its absence...etc." In what a chaste and elegant style writes Rabindra Nath—"Where the mind is without fear and the head is held high; where knowledge is free, where the world has not been broken up into fragments by narrow domestic walls; where words come out from the depth of Truth, etc., etc. Into that Heaven of Freedom, my Father, let my country awake."

SASADHAR BANERJI.

INTERMEDIATE EXAMINATION, 1923.

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ELEMENTARY EDUCATION— A RATIOCINATION.

By Mr. N. SIMHADRI.

GENESIS.

THE realm of pedagogy unlike other sciences is replete with uncertainties that are at once grand and amazing. The great galaxy of intellectual thinkers from the foremost Froebel to the most modern Montessori have placed the world under a deep debt of gratitude by their wonderful researches in the cause of humanity and we now seem to stand on the threshold of an era when all pedagogical disquisitions have passed beyond the stage of speculative bias and depend entirely on the positive results of actual experimentation. With the advance of years and the growth of scientific research the training of child intellect is assuming more and more the nature of an exact science. The labour of scholars whose love of study would do credit to the best phase in the history of human activity has made startling researches in child psychology. The application of the Kindergarten system *mutatis mutandis* to the conditions of an Indian School Room is the first key to open the gateways of knowledge to the prospective student. Adepts of this system in their frenzied enthusiasm for its total adoption failed miserably until a rapprochement was effected and some of the salient features of the system were imbibed. A *via media*, therefore, of what is exotic and what is indigenous had to be chosen before reformers interested in educational experiments embarked on this new venture. Suffice it to say that the introduction of the Kindergarten system in Elementary Schools marked the first milestone on the road to the progress of Education in this country.

XXIX—16

REDUCTIO AD ABSURDUM.

The system of teaching according to this new method needed a fresh setting and the observance of a strict formalism had therefore to be insisted upon. The adoption of Time-tables, prescription of hours of study, framing of a curriculum are *inter alia* the main items of the practical side of the question. A rigid punctiliousness characterised the tenor of work on the aforesaid items with the result that in their zeal things seemed to get out of gear. A minutely-divided Time-table did not suit the activities of the people for whose children it was intended; limited school hours with decent intervals were not in accord with the idiosyncracies of the people at large; curriculum of studies which was a conspectus of a few subjects was not in taste with the dogmatic tendencies of the villagers. Everything was in pell-mell and the ship-wrecked boy saw himself floundered amidst weird and uncanny surroundings. The boy passed through a course of study for nearly 6 years and found himself unable in the end to combat the situation in the outside world with his meagre intellectual output. The result was dreadful and spelt considerable apathy and hatred towards the system that was worked with little grasp of its fundamental character. There was therefore a serious set-back in what should otherwise have been a successful smooth-sailing to the desired haven.

A STUDY IN ANALYSIS.

All those interested in Elementary Education must bestir themselves to offer a correct explanation of the fundamental character of the system and to place the whole structure on a vigorous working basis in consonance with the wishes of the people for whom it is mainly intended. I may now proceed to offer in greater detail a few suggestions for revitalising the system so that it may respond more easily even to the most captious critic. The

essential aim which should forestall a scheme of work or any organisation is its sense of unity, or to be explanatory the several component parts of a system or an organisation though varying in their functions must harmonise with one another and must produce as a resultant one concordant whole or one unifying thought. Anything that is not pervaded with a sense of this rhythm is mere patch-work and therefore infructuous. Every kind of education given to the boy has the fulfilment of an approachable ideal and the process adopted for its attainment must therefore be consistent and sound. Examining then the question of Elementary Education in the light of the above hypothesis we are confronted with the view as to what Elementary Education aims at and what are the constructive processes for the realisation of that aim. I shall content myself by discussing in the main the aim of Elementary Education and the constructive method and eschew for the present all consideration of the applicability or otherwise of the Kindergarten system to which a passing reference was made in the opening sentences. True education, be it primary or secondary, is an organic whole and aims at the unification and consolidation of several forces. It draws out all the latent potentialities of childhood, drills them into so many shapely forms and equips them finally as so many arrows in the intellectual quiver of its adolescence. A student after the completion of his scholastic career must come out with the requisite intellectual output and must have all the wherewithal to fight out successfully the battle of life. Broad outlook, right catholicity, correct diagnosis of environmental conditions, a capacity to be on the vantage ground in his social and economic relation with the world—these then are a few of the outstanding features which go to sum up the true aim of education. It becomes, therefore, increasingly evident that this law of evolu-

tion which exhibits itself in a constant building up of diverse characters towards a real or organic whole is of the essence of true education. Anything that does not cater to this aspect of a boy's education is very like possessing a good-looking doll which has no life in it. If a man cannot conduct himself suitably unto his position as a member of his society, if he is not sufficiently awake to a sense of civic consciousness, if he cannot properly discharge his responsibilities of *paterfamilias*, and in fine if his life is not regulated by a sense of fair play, equanimity, good-will and high-character—woe unto him and to the education that is given him. To put the whole truth in a nut-shell, education must aim at giving a man the necessary practical outlook of the world so that he may act and have his being in harmonious relation with the laws of nature. Having dwelt at length on this phase of the question I shall now discuss the *modus operandi* which forces itself as its necessary corollary. Any system of working that is proposed to be applied must have a purpose and an aim and not act as a dead weight on the latent possibilities of childhood. The several rising forces must be developed and made to go through a process of integration so that they may ultimately evolve towards an organic whole as opposed to being a mere aggregate of these forces. The work in an Elementary School-room bristles with peculiar difficulties and the sensible teacher should try to make them as the touch-stone of his future labours. It is agreed on all hands that all Elementary Education should be broad-based on the Kindergarten system of teaching and that the moment an attempt is made to divorce it from this acknowledged system the whole thing comes down with a crash as jejune and effete. I may sound a word of caution to my readers that I do not for a moment suggest a total adoption of the system, a transplantation en

bloc with its huge overgrowth of ages of experimentation and morbid usage. I do not think fanatics of this system will accuse me of heresy if I should advocate the inculcation and appropriation of some of its best virtues to suit the conditions of an Indian school room instead of a wholesale adaptation *in situ*. An honest attempt is, indeed, made to impart instruction in a large number of Elementary Schools in consonance with the strict canons of the Kindergarten system of teaching and it will be long before the progenitors of the scheme can hallo with joy over their successes. Every effect of ours must be successive and sequential and cannot be made to ride rough-shod over prevailing conditions. I have heard it said by men tried and not found wanting in the field of education that conformity to the above requirements is a fruitless game and that it is not in tune with the peculiar conditions of Indian life. However much I would desire to give due deference to the remarks of these experienced men they must confess to a feeling of over-wrought personal equation. To persons guided by a spirit of level-headedness, devoted interest and absence of personal bias it must be abundantly clear that carefully drawn-up time-tables, suitable courses of studies, appropriate methods of teaching, are a few of the many well-defined and clear-cut grooves for even the veriest tyro to follow unscathed.

THE THREE UNITIES.

Like the three unities of a classical drama that regulate the development of a plot there are three such unities that should govern Elementary Education. They are: (1) Correlation, (2) Adaptation and (3) Completion. The different subjects of study that come within the purview of the school-curriculum should be related with one another for it is on the possibilities of their inter-relation lies the scope for successful teaching. Anything

taught in isolation and without dependence is contributive of little good and every possible attempt should be made to correlate the different subjects. The subjects so correlated must have above all the satisfying feature that they suit the genius of the people for whom they are intended. All that is said, discussed and talked about should have direct relation to the environment of the school-boy and should form the groundwork for building up his future experience. To see a boy blindly reciting a catalogue of verses when he can barely interpret a few homely couplets, and to see him memorising a series of foreign monetary tables and doing sums bearing on them when he can hardly find the interest he shall have to pay to the exacting money-lender are a few of the anomalies which it should be the earnest desire of every sensible educationist to reform. It is the direct negation of the principles of Elementary Education and all programme of work must at once be sound and suitable to the conditions and requirements of rural life. The idea of some people that all odd sorts of things should be taught because they are educationally good is fetish and must be dismissed as a meaningless fad. Having laid much emphasis on the inter-relation that should subsist in the several subjects taught in the Elementary School-room and their adaptability to the reigning conditions of life the crowning effect of the synthesis of the above unities should show itself in a completion of those two aims. Elementary Education must savour of this unity of completion, more particularly seeing that it is chiefly intended for the masses with no idea of a higher educational career and that it must contemplate to equip the out-going school boy with all the *sine qua non* required to acquit himself successfully as a human entity in all his relations with the world. To effectuate this, time-tables, curricula of studies, syllabus of work

and all other appurtenances of education must be characterised by a gradual development of knowledge step by step and should not be eclectic in nature. The whole process of work as seen from year to year and from standard to standard must exhibit a reasonable and successive construction of work evolving at the end into a coherent whole. If out of neglect or indifference to study the primary conditions of a place a scheme of work is drawn up in a wooden way as is largely done now the whole effect becomes spasmodic and not conducive in any way to the best interests of the children. Such a course becomes a soulless routine and reflects eventually in meagre response to the undertaking.

CONCLUSION.

It must be conceded on all hands that the time has come for us to build up a more comprehensive, and a more rational scheme of Primary Education which is, avowedly, intended to serve as a haven for the upliftment of the masses at large. The time is no longer for us to sit with folded hands for "the consummation devoutly to be wished." All earnest workers will therefore apply themselves to postulate methods for a better unified system of knowledge to be imparted in the large network of schools "from which," in the memorable words of His Most Gracious Imperial Majesty the King-Emperor, "will go forth loyal and manly and useful citizens able to hold their own in industries and agriculture and all the vocations of life."

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SCHOOLS AND SCOUTING

By MR. V. SUBRAMANYAM, B.A., B.T.

IT is in the experience of many Scout Officers, that schooling and scouting do not go hand in hand, especially when the troop is controlled and managed by the school authorities. A private troop carried on by an enthusiastic Scout-master with efficient patrol-leaders works much better. No doubt there are difficulties in its way, which I will discuss presently. But on the whole it can be presumed, with experience of school troops, that a private troop might get on more efficiently.

The difficulties of a school troop are many and varied. Firstly, the difficulty of having a favourable headmaster. Sometimes we get an admirable headmaster but he is often a centralised head. It is difficult to do any thing without his permission, and this curbs the initiative of an enthusiastic Scout-master. Sometimes the headmaster is opposed to scouting, and because other schools do scouting, he tries no doubt to help it but under compulsion and with little faith. We also get headmasters who are keen on scouting, helping scouting in all ways. But the last kind of headmaster is very rare; as I said above he is a centralised, showy man.

The second great difficulty to scouting is the varied activities of the school, specially when there are various meetings which attract boys more than scouting. It is all the more so if it is a residential school. In a residential school, the boys' time is taken up by many things which bring them fame rather than mere dry scouting.

We have known cases where the boys are more attracted to physical culture exhibitions—no doubt an admirable thing. They bring them

medals, decorations, than in scouting where it is all service and no return favours and titles. No doubt it is natural to young minds, but all the same scouting has its noble qualities and return favours which are recorded in one's own life. It lasts for lives but these exhibitions are only mundane glories.

The third obstacle to scouting in school is the outside influences, I mean non-scout attractions and party strifes. Whatever the Scout-master might drill into the ear of a scout, on good citizenship and service, the outside influences of boys with bad teaching from leaders of oppositions turn them to a raw useless scout. Some might say that the influence of the Scout-master was not strong on that particular boy, but a Scout-master and his scouts are few compared to a big majority of boys. Always evil attracts boys more than good.

The fourth point of importance to school-scouting is the necessity or non-necessity of making it compulsory. Some headmasters make it compulsory and ruin the real spirit of scouting. When it is made compulsory, some boys who really and sincerely feel that they should not be scouts, come in and they talk lightly of scouting and spread mischief and dissatisfaction, as we all know that a single spark of fire destroys a mighty village. If it is not made compulsory the scouts form a minority, as all good movements are, and there is always a tug-of-war with non-scouts who willingly and purposely put obstacles in the way of scouting.

There is also a fifth difficulty, the question of camp life. If it is a residential school, much camping can be done. But the getting of holidays and special vacations for camping comes in the way. Some school troops get them and others don't. The headmaster emphatically says No and thus one important value of scout-

life is lost. Also camp life by non-scouts is always associated with mirth and merriment, and made fun of instead of giving it the highest value of resourcefulness and dependence on one's self for everything.

Another difficulty to scouting in general but not to school scouting alone is the dress or uniform problem. Experience shows that people who are poor and cannot afford to get the uniform are really keen on scouting and a troop with some scouts with uniform and others without it, makes it rather ugly. Scout office would say that Troop Committees should supply them with dress, but however it has ever been a difficulty. Even with notable Troop Committees, for want of proper enthusiasm they only give their names for the Troop Committees but all difficulties have not to reach them. I am sure this must have been the experience of many Scout officers. The uniform is costly and the officers should adopt it to the needs; the Association ought to make provision for it.

A further difficulty arises when a headmaster insists on having a teacher as a Scout-master. I know many troops in which there are Scout-masters who are old and have no spirit of youth in them, who cannot feel and act young, and always put on an air of authority and bigness. Naturally boys are averse to that nature, and they do not care for their Scout-master. I have seen in many schools the Drill-master becoming the Scout-master, because he happens to know something of drill and so by right he becomes a Scout-master. An enthusiastic young man, no matter if he is a student, full of cheer and pluck in him, and who always feels young would be a better selection than an authority on scout literature and an old teacher. A scout is born and not made.

There is also another difficulty when a school begins work after summer holidays. The new term of work begins, old scouts leave the school, new recruits come in, and it is hard for the Scout-master to keep up the enthusiasm of the older scouts, when he is training the raw ones. Sometimes want of variety makes scouting dull.

Lastly a general idea among boys, that scouting is not useful and that there is no use of learning knots, signalling, and drilling; they also think it is all showy and waste of time. When once this thought enters on young minds it is rather difficult to convince them, as scouting is all practical work. The importance of scouting is recognised by the whole world and it is only under an inefficient Scout-master that it dies.

I cannot say much about private troop scouting as I have no experience in it. There are not so many difficulties, as there are for the school troop. The great drawback would be, the want of outdoor life, as it is difficult to collect all scouts at a particular time, to go to camp, as they would have varied activities at that particular time in their individual schools. Also the getting-up of the kit and rations would be difficult. A good troop well-equipped—as it is easy to get a picked lot among different schools—with an efficient Scout-master, who always feels young, works better.

These are the various difficulties of school-scouting and there might be many more.

PROCEEDINGS OF THE ELEMENTARY MATHEMATICS ASSOCIATION AND THE MADRAS TEACHERS' GUILD.

23

MENTAL ARITHMETIC

By PROF. E. B. ROSS, M.A.,
Christian College, Madras.

At 5.30 P.M. on Friday, the 27th October 1922, a meeting was held under the joint auspices of the Mathematics Section of the Madras Teachers' Guild and of the Elementary Mathematics Association. It was presided over by Mr. H. A. Hart, Inspector of Schools, Madras Circle. Prof. E. B. Ross, of the Madras Christian College, delivered an inspiring lecture on Mental Arithmetic.

PART PLAYED BY MATHEMATICS,

First, in dealing with the place of Mental Arithmetic in education, the learned Professor pointed out that all the Universities demand a certain minimum of Mathematics in their entrance examinations and that perhaps no University demanded so little as Madras, where it seems to be thought that it is possible to have an educated man who does not know any appreciable Mathematics. He thought that it is scarcely possible to regard a man as educated without his knowing the spirit of Mathematics. Even in literature, for example, Shakespearean criticism is not able to get on without statistics, which requires Mathematics. Within the limited syllabus, the pupil must be made to learn as much of the spirit and practice of Mathematics as possible. India is now in great need of statesmen. A statesman, educated on old-fashioned lines, classics, say, is likely to have the first requirement of a statesman—sympathy which may carry him through ordinary times. But, in troublesome times, deliberate and reasoned argument is required. If he does not have familiarity with figures and, worse, if he has a distaste for them, he is not likely to be successful. Lack of familiarity

makes him either dislike or admire the use of figures too much.

USE OF MENTAL ARITHMETIC.

Mental Arithmetic is said to have played a very prominent part in the education, a generation or two ago. In the Professor's own experience in the valuation of old Matriculation papers, about a decade ago, he was struck with the wonderfully high standard and accuracy of the performance, although the work was probably slow. But, from his experience with the present students, he finds that the standard has fallen very low. He thought that this was partly due to the cult of the "average boy." In this worship of the "average boy," that being is supposed to be bad in Arithmetic and so the standard is said to have been lowered to suit him. Why is the average boy supposed to be bad in Arithmetic? If it is dislike, it can be diminished a good deal by paying more attention to Mental Arithmetic. But, as it is, paper and pencil seem to have an overwhelming attraction and he observes, among the Honours students, that this instinctive tendency to pick up the pencil is very difficult to resist, even in doing trivial calculations. It does a great damage that the teacher does not realise. Probably it is due to the tendency to pay too much attention to the method and too little to the result.

MEANS OF IMPROVEMENT.

Coming to the means of improving the ability in Mental Arithmetic he said that the multiplication table must be learnt at least up to 20×20 and that the pupils should be made thoroughly familiar with the factors of numbers up to 300 and one must go a great deal further among the numbers having small factors like 2, 3 and 5. Squares and powers of numbers ought to be made familiar. $2^{10} = 1024$ is very interesting in itself and it is of very much greater use than is ordinarily realised. There is another operation that can be usefully carried on in one's head. Short division must

be made with higher numbers also up to 50, say, without much inconvenience. The use of logarithms, say to three figures, must be made familiar. If one knows log 2, log 3, and log 7, one can find the logarithm of numbers up to 100 with reasonable accuracy. With this equipment, systematic guessing, with later verification, can be made use of with great advantage. Some people object to guessing as if it were a crime. But he could not understand them.

In summing up, the learned Professor said that we are living in a world of figures in modern times, that in the next 10 or 20 years at least, India will have much need for a systematic and thorough acquaintance with figures, that, consequently, the pupils must be encouraged to turn over numbers in their heads and that, in this matter, mental arithmetic will penetrate faster and will produce more permanent effect than the work with pencil and paper.

A DISCUSSION.

The lecture was followed by an interesting discussion in which Mr. Sundararajachariar supported the lecturer's view about the deterioration in Arithmetic by stating that in the S. S. L. C., out of 12000 candidates, 250 get zero and 700 get below 10 per cent. and he also agreed with the lecturer that this was largely due to making everything note-bookish. Messrs. Ramaswamy Aiyar and Ramiah spoke on the indigenous methods of teaching Mental Arithmetic. Then, the Chairman emphasised each of the points raised by the lecturer and exhorted the teachers to pay more attention to the teaching of Mental Arithmetic.

24

FUNDAMENTAL NOTIONS REGARDING NUMBERS AND LIMITS

By PROF. P. V. SESHU AIYAR, B.A., L.T.,
Presidency College, Madras.

A joint-meeting of the Mathematics and Science Section of the Madras Teachers' Guild and of the Elementary Mathematics Association was held at

4:30 P.M. on Saturday, the 2nd December, 1922, in the Hindu High School, Triplicane, with Prof. K. R. Ramaswamy Aiyangar in the chair, when Prof. P. V. Seshu Aiyar delivered an interesting lecture on the above subject.

Mathematics is a growing science; it is growing at the top and also sending its roots at the bottom; and, it is very desirable that teachers in High Schools and Second-grade Colleges do keep themselves in touch with its growth at the bottom, i.e., with the fundamental ideas which form the foundations of modern analysis. It is only then that their conceptions will get clarified and they will be able to render the teaching of Elementary Mathematics more effective and free from faults.

Students come to colleges very often with wrong notions of things and they have to be made to unlearn certain concepts they have formed in the lower classes. It is also found that text-books written by otherwise able and experienced teachers contain many inaccurate statements—such inaccuracies and faulty notions generally centre about the conceptions of infinity, division by zero, limiting values, etc.... Here are some examples of such inaccurate statements taken from a recently published text-book (1921) written by two experienced teachers: "If x is a variable quantity and takes the values 1, 10, 100, etc...., then $\frac{1}{x} = 1, .1, .01,$ etc.... i.e., as x increases $\frac{1}{x}$ decreases. And when x becomes very large without limit or infinitely large, i.e., a quantity larger than any that we can name, $\frac{1}{x}$ becomes very small or infinitely small. It becomes so small that its value becomes a negligible quantity and this value of $\frac{1}{x}$ is also treated as zero. It is not actually zero, as in the previous case*, but is so small that it can be altogether neglected. The symbol to denote an infinitely large quantity or infinity is ∞ . There.

* The previous case referred to is $x - x = 0$.

fore $\frac{1}{x} = \frac{1}{\infty}$ when x is infinitely large and is equal to zero as seen above. Conversely, $\frac{1}{x}$, when x is infinitely small, can be represented as $\frac{1}{0}$ and is equal to ∞ ". This extract is given only just to give a definite instance, to substantiate the above remarks.

From my experience with college freshmen and my acquaintance with teachers, I can say that notions similar to those contained in the above extract are found in very many teachers, though there are exceptions, and in many of the college students. I should like that the students from the very beginning should be told definitely that infinity without a qualification is meaningless. At the most, it can be taken to convey only a negative idea, namely, that it is not finite, its etymological meaning. The term infinity and phrases containing that term are used in Mathematics only in a conventional sense, i.e., without such conventions, they convey no meaning. Consequently, I should also like it to be well-remembered that division by zero has no meaning and hence is excepted in Mathematics. I should like that this fact is well-impressed on the students so that they may be able to state boldly that $\frac{1}{x}$ has no meaning when x is 0 and that $\tan \alpha$ is meaningless when α is a right angle. In the above-given extract the authors talk as though infinity is a definite quantity and that division by zero is possible. And it is statements like these contained in text-books and coming from teachers that lead to wrong notions being formed by students.

Further, the above extract states that, when x becomes infinitely large, $\frac{1}{x}$ becomes so small that it becomes a negligible quantity and "that it is treated as zero though it is not actually zero" as in the case $x - x = 0$ and "that it is so small that it can be altogether neglected." Such a statement creates a wrong impression in the young

mind that certain quantities may be neglected by themselves. But, in Mathematics, there is no such thing as an intrinsically negligible quantity, though, in actual life, quantities are neglected in comparison with other quantities. In Mathematics no quantity however small is neglected; otherwise, it ceases to be an exact science. Approximate results are no doubt given; but, in all such cases, care is taken to state that they are approximate and very often an attempt is also made to estimate the error that is committed.

Another wrong notion implied in the above extract is that zero has two meanings (i) as absolute nothing, (ii) as a small quantity which can be neglected. But, in Mathematics, zero is used in one and only one sense, namely, what is implied in the relation $x - x = 0$. The other meaning ascribed probably arises from a confusion due to the fact that zero is the limit of a variable quantity, which is positive and which can be made to become less than any assignable quantity, however small. In technical language, zero is a limit point in the linear continuum. But, this property is not peculiar to zero. It is possessed by every other real number in the continuum, e.g., 1 is the limit of $1 + \frac{1}{x}$ as x tends to infinity.

Some may contend that wrong notions implied in the above extracts are not really wrong notions held by the authors but the inaccuracy is only due to defective expression. To some extent it may be true in the case of students, because of the foreign language; but, in the case of authors and teachers, even such defective expressions should be condemned, for it is only the expressions of the teachers that mould the conception of the students. Further, apart from the difficulty of language, there is also a real difficulty in the conceptions themselves and they require careful handling.

I may also state here another difficulty which was referred to me by a mathematics teacher,

namely, that in proving the remainder theorem we begin with the step that $\frac{f(x)}{x-a} = Q(x) + \frac{R}{x-a}$.

Multiplying by $x - a$, we get

$$f(x) = Q(x-a) + R$$

and then putting $x = a$, we show that $R = f(a)$. Here, in the first step there is division by $x - a$ which is possible only when $x \neq a$; but in the last step we put $x = a$. Does this not vitiate the whole proof? As represented in the above, there is certainly an impropriety.

But the truth is that the second step $f(x) = Q(x-a) + R$ is true for all values of x and the previous step is not necessarily required to establish it. It could be established in fact by a proper grouping of the terms of $f(x)$. No doubt, in actual practice, the process of division is used to expeditiously arrive at Q ; but, the expression for Q does not, as already mentioned, essentially depend on the process of division.

Again, young men usually say that $\frac{x^2 - a^2}{x - a}$ equals $2a$ when $x = a$. They very often infer this from the identity $\frac{x^2 - a^2}{x - a} = x + a$, which identity however has a meaning only when x is not equal to a . Very often books also lead to this erroneous notion that $\frac{x^2 - a^2}{x - a}$ takes the value

$2a$ when $x = a$. I should like that emphasis on division by zero should be so very thorough that when a student is asked to give the value of $\frac{x^2 - a^2}{x - a}$ when $x = a$, he boldly gives out that that expression has no meaning when $x = a$.

Of course $2a$ is the limit of the value of $\frac{x^2 - a^2}{x - a}$ as x tends to a from either side. Thus, $2a$ is the limiting value of the function as $x \rightarrow a$ but this is quite different from saying that it is the value at $x = a$.

Another mistake usually committed is in proving the proposition that the circumferences of circles vary as their radii.

Here, usually, two circles are taken and two regular polygons of the same number of sides are inscribed in the two circles and after establishing that the perimeters of the polygons are to one another as the radii of the circles, it is argued that as the number of sides of the polygons is indefinitely increased, the perimeters of the polygons approach closer and closer the circumferences of the circles and in the limit when the number of sides becomes indefinitely large, the perimeters coincide with the circumferences and hence, circumferences vary as the radii.

In the proof as given above, there is an implication (1) that the circumference of a circle has a definite measure, (2) that the perimeter of the polygon has a limit, (3) that that limiting value is equal to the circumference. That there are three such implications is not often realised. Of these, the first, namely, that the circumference has a length with a definite measure is merely intuitive, which cannot be admitted in a rigorous proof; strictly speaking, the length of the circumference ought to be defined. The second may be easily proved or may even be assumed in the initial stage; the third will depend upon the definition that we give for the circumference. The proper procedure will be (1) to prove or at early stages to assume and state it explicitly that the perimeter has a limit, (2) to define the length of the circumference as that limit, and (3) to deduce the theorem, from the proved fact that the perimeters vary as the radii.

The following illustrations may be given to bring home the untrustworthiness of the intuitional notions in such matters, and also to show the unreliability of the notion that because one curve approaches another indefinitely and ultimately coincides with another as ordinarily understood, the length of one curve is equal to the length of the other.

ABC is a triangle; D, E, F are the mid-points of the sides; ED and DF are joined. Now, the broken line BE, DFC has the same length as

BA + AC. Similarly, if the mid. points of the sides of BED, and DFC be taken and joined, we get the broken line BI GJ DK HLC = BA + AC. This process may be continued to any extent. The corresponding broken line will always be equal in length to BA + AC. Now, by continuing the division to a sufficient extent, we can make the broken line approach BC as closely as we please. And, in the ordinary language, it may be even said to coincide ultimately with BC. For, by such coincidence, it is only meant that any point of the plane on the same side of BC as A can be made to lie on the same side of the broken line, by carrying on the division sufficiently far. That this is possible in this case is evident. For, every such point is at a definite distance from BC and by continuing the division so that the altitude of the small triangles is less than that distance, the broken line is made to lie between the point and BC. In other words, the point lies on the same side of the broken line as A. Thus, the broken line ultimately coincides, as is ordinarily understood, with BC and yet has a length different from it.

Even in the case of the circle, if on the sides of the inscribed regular polygons as diameters semi-circles are described, the wavy curve formed by these semi-circles approaches the circumference of the circle as closely as we please and ultimately coincides with the circumference in the same sense as is said of the polygon.

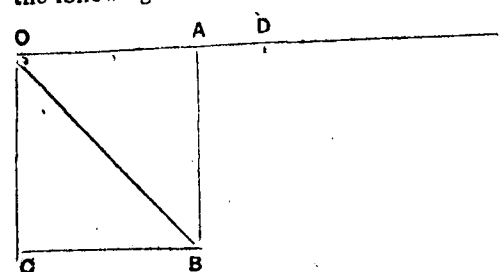
But, its length is always $\frac{\pi}{2}$ times the perimeter of the polygon. Then, are we to understand, by the length of the circumference the limiting value of the length of this wavy line or the length of the perimeter of the inscribed polygon?

Finally, with a view to clarify the idea of numbers, rational and irrational, I shall deal with the set of points on a line corresponding to rational and irrational numbers and the way in which they are packed on the line. First, if we take all the rational numbers, greater than unity, there is no number

which can be said to be the smallest of these numbers, for we can always find a number lying between 1 and any rational number greater than 1. [If a be a rational number greater than 1, $\frac{1+a}{2}$ is such a number]. In other words, this means one cannot say which rational number comes next to unity. More generally, in the case of an infinite aggregate, there need not always necessarily be a greatest number or a smallest number of the aggregate. The existence of the greatest and the smallest of a set can be postulated definitely only of a finite set.

Another notion that is of interest in this connection is that in the case of infinite aggregates, the whole may be equal to a part, in the ordinary sense of equality. For example, the number of integers is equal to the number of even integers. For, one set can be put into one-to-one correspondence with the other.

Further, the rational numbers, when arranged in their order, are very densely packed. For, between any two rational numbers, however near they may be, there is an infinite number of rational numbers. And, between any two of these latter numbers, we have again an infinite number of rational numbers and so on. Thus, if the rational numbers are represented by points on a straight line, the points would appear to be packed in the closest imaginable manner. But, still, there are points on the straight line other than those representing the rational numbers, as can be seen from the following:—



Let L be the straight line and let OA represent unity. On OA as a side describe a square OABC.

Join OB. With O as centre and OB as radius, describe a circle cutting the line L at D. Then D is a point other than a rational point. For $OD^2 = OB^2 = 2OA^2 = 2$. And there is no rational number whose square is 2. Hence, OD, i.e., the point D, does not represent a rational number. Similarly, the existence of many points on L other than rational points can be proved. In fact, between any two rational points, we have an infinite number of points other than rational points. Such points are called irrational points and numbers introduced to correspond to such points are called irrational numbers.

Thus, if rational points alone are marked in a line, though it would appear and behave as a straight line, as ordinarily conceived, still it will be riddled with holes and one may even have two such lines crossing and yet not intersecting at a point.

The set of positive rational numbers can be put into one-to-one correspondence with the set of positive integers by arranging them as follows:—*

$$\begin{array}{cccccccc} 1 & 2 & 1 & 3 & 2 & 1 & 4 & 3 & 2 & 1 & \dots \\ 1 & 1 & 2 & 1 & 2 & 3 & 1 & 2 & 3 & 4 & \dots \end{array}$$

so that the rational number $\frac{p}{q}$ corresponds to the positive integer $\frac{1}{2}(p+q-1)(p+q)-2+q$. In this arrangement, every rational number is repeated indefinitely. Thus 1 occurs as $\frac{1}{1}, \frac{2}{2}, \frac{3}{3}, \dots$. We can however avoid this by omitting every number which has already occurred in simpler form, although the problem of determining the integer to which $\frac{p}{q}$ will then correspond becomes slightly more complicated.

Hence, the set of rational numbers is said to be *enumerable*. As a result of these two ideas, we have the following paradox:—If a line one mile in length be given, one could cut off from it bits, whose length in the aggregate will amount only to one inch, in such a way that there is no continuous

* Cf. Hardy: *Pure Mathematics* (Second Edition) page 1. Ex. 3.

length however small left behind, but only a set of discrete points.

Now all rational numbers between zero and one could be put into one-to-one correspondence with the set of positive integers by arranging them as follows:—

1 1 2 1 3 1 2 3 4
2' 3' 3' 4' 4' 5' 5' 5' 5' ...

in which the numbers are arranged, first according to the magnitude of their denominators, and, secondly according to the magnitude of their numerators, so that given any proper fraction $\frac{p}{q}$,

we can assign its rank in the above arrangement and conversely given the rank, the number may be written down.*

O D C A

Let OA represent one mile. Let $OC = \frac{1}{2} OA$, $OD = \frac{1}{3} OA$, etc.... so that C, D, etc.... correspond to the numbers, 1, 2, etc., and generally corresponding to any rational number lying between 0 and 1, i.e., a point lying on OA, there is a positive integer n . From the neighbourhood of that point and having that point as the middle

point, remove a bit equal in length to $\frac{1}{2^n}$ of an inch. If this be done, with respect to every rational number lying between zero and one, the total length

removed will be $\left(\frac{1}{2} + \frac{1}{2^2} + \dots + \frac{1}{2^n} \dots \right)$ of an

inch which, in the limit, equals an inch. Since, rational points are densely packed, as we have seen, in other words, since there is no length in OA, where there is no rational point, bits will have been removed from any little bit of the line, which anybody can think of, i.e., there is no continuous length, however small, left behind.

CONCLUSION.

After a short discussion in which Messrs. Raghavendra Rao, Thiruvengadatha Aiyangar, Sabesan and others took part, the Chairman emphasised that it was very unsafe to allow the students in the lower stages to play with infinity and that many mistakes in teaching would be avoided if proper and adequate use were made of the Principles of Continuity and of Permanence of Form, and gave some illustrations of the use of these principles.

* Bromwich: *Infinite Series*. page 1. Ex. 3.

Reviews and Notices.

"THE STORY OF MANKIND," BY HENDRIK VANLOM.
(PUBLISHED BY MESSRS. GEORGE HARRAP & CO.,*)
Price Rs. 10/15.

Messrs. Harrap & Co. have once again placed us in their debt by bringing into India one of the most excellent books dealing with the outline of History which it has been our good fortune to come across. Indeed we might almost say that the place and importance of H. G. Wells' 'Outline of History' in the 'grown up' world is similar to this 'Story of Mankind' in the child-world and we would recommend it to every school, Elementary and Secondary, in this Presidency. Students under training as also teachers and parents of children would do well to buy the book and read it. Apart from its value as a book of history it is excellently printed, illustrated and bound and would make a handsome addition to one's library. The book begins with the earliest times and continues until the present day and the writing is in such flowing and easy English that it is a pleasure to take it up; numerous sketches add to the value of the book and make it live, and we only wish that every one who is at all cultured and many who want to be but are not, would buy the book and have it for their very own, it would be an excellent investment.

PHYSICAL EDUCATION, BY H. P. HALEY (PUBLISHED BY MESSRS. GEORGE HARRAP & CO.,*)

This is one of the most necessary books for Indian schools. It is long overdue but now that it has been given to the educational public, we hope they will take advantage of it and put it into use in their every-day work. Every teacher should know something of Physical Training and should make use of it; unfortunately every teacher does not know and here is an opportunity for them to learn. The book is one of the clearest expositions we have yet seen of the modern methods of physical training. The games given are sensible and arranged in order of age suitability. The book contains a most useful and readable chapter on Physiology and a most necessary chapter on the training of physically defective children. We thoroughly recommend it to schools and only hope they will before long make it compulsory.

* Indian Agents: P. T. I. Book Depot, Bangalore.

'PSYCHOLOGY AND TEACHING OF NUMBER' BY MARGARET DRUMMOND. (PUBLISHED BY MESSRS. GEORGE HARRAP & CO.,*) Price 2s. 6d.

Miss Drummond's name is a guarantee that a book will be not only good but what is ever so much more, useful. The teaching of number in its early stages is one of the most difficult things that a teacher has to encounter. We all know that education should be based on psychology, but our knowledge of the psychology of the young child is still in its infancy and few of us have time to make the deep study of the child that we would wish to. It is to such as these that Miss Drummond's book comes. It is based on the careful observation of childhood made by psychologists including the author herself. The chapter on Research work is one which every teacher should read and we feel sure that they will thus be stimulated to their own research and thus add their "bit" to the interesting and necessary science of Child-study. Besides this the book will help to make the Arithmetic period in the infant school one of delight instead of the reverse as at present. We recommend the book with pleasure.

"KLIPPER-KLOPPER," BY MARGORIE WILSON.
(PUBLISHED BY MESSRS. GEORGE HARRAP & CO.,*)

This is a series of verses for children but the verses are not suitable for Indian children although in the higher forms perhaps some of them might be appreciated. The book however is excellently got up as are all Messrs. Harrap's books and would make an excellent gift book for older children; it would also be useful in a school library.

'LEGENDS OF THE STARS,' BY MARY PROCTOR. (PUBLISHED BY MESSRS. GEORGE HARRAP & CO.,*)

What a delightful book it is! We confess to pure joy while reading it and would wish that every child in every country could have a copy not to speak of the teachers of those children. The sky

* Indian Agents: P. T. I. Book Depot, Bangalore.

at night becomes a fascinating friend when one thinks of the legends associated with them. The book is well got up and the illustrations are vivid. We thoroughly recommend the book.

NANNOOL, BY DEWAN BAHADUR S. BHAVANANDHAM
PILLAI, (MACMILLAN & CO., LTD.) Price Rs. 2.

This is a new edition of the well-known standard grammar of Tamil, edited for use by students. This grammar was hitherto available in one or other of the editions by the four commentaries and reprints of those editions without any reference whatsoever to the requirements of the modern students in schools and colleges. The old commentaries were so written that a student of the subject required the assistance of a learned scholar generally to take him through the subject and required usually such a continuous and concentrated attention that it became a study in itself. This method is hardly suitable for the purposes of the modern student, who has to study it as one among several other subjects, and this new edition is an attempt at supplying this want. This edition gives the sutras first, followed by a word to word meaning and then extracts forming the salient features of the various commentaries, pointing out corresponding sutras to the older grammar Tolkappiyam. It also supplies the want of students of Tamil grammar in the earlier stages, a succinct treatment of the other divisions of Tamil grammar, such as prosody, rhetoric, etc. These are given in two appendices at the end. There are other useful appendices besides, the first of which is a short account of the various Tamil grammars in existence.

The book is well-printed and ought to prove very useful to the students. The two introductions, one in English and another in Tamil, discuss the various new features of this edition. The edition is priced Rs. 2, which may be somewhat high from the point of view of the Indian student. A lower price may perhaps contribute to wider popularity and greater sale.

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The Educational Review.

What is the kind of poetry which young boys take? Such is one of the questions to which a solution is attempted in a recent report issued by the Association of Assistant-Masters in England. The Committee consisted of eighty members and that is a circumstance attaching special value to the observation contained in the report. "What is disliked," says the report, "is the sentimental ballad such as the *May Queen* and the Sunday School lyric of the *We Are Seven* type. Wordsworth's and other 'heavy' and 'moralising' poems are also disapproved by the young critics. In contrast, it is not surprising to find that John Masefield's vigorous work appeals to their literary taste, although one would imagine some of it to be unsuited to juvenile students. *Idylls of the King* and *Sohrab and Rustum*, among narrative poems, are found attractive to most boys while of poetry pleasing to the ear, Swinburne and Selections from Robert Browning are appreciated. Rupert Brooke, Wordsworth's nature poetry (where he does not moralise too much), portions of Tennyson and Milton (although the latter inspires awe rather than love) meet with approval. Shelley on the other hand is found too vague and misty." The Indian boy's outlook is in some respects different from that of the English, and some of these observations will need revision and alteration to describe his tastes and prejudices. We have some-

times heard complaints from Indian school-masters about the unsuitability of this or that poem prescribed by the authorities concerned. It would be interesting if any teacher or body of teachers studied this question and told the readers of this Review, with a certain amount of authority what exactly is the kind of English poetry which the average Indian school-boy likes. After all, if interest is to be really created in a subject like literature, the peculiar turns of the tastes of the youthful readers must be taken into account.

The Calcutta Review, at present the monthly organ of the Calcutta University, is responsible for drawing attention to a curious proceeding of the Dacca Intermediate Board, in connection with the standards of its examinations which are at present recognised by the University of Calcutta. Among the pieces of instruction issued to the examiners is the sentence: "The percentage of passes *should* as far as possible reach the average level of Dacca in recent years." We must confess this is a strange way of regulating results, based as it is on an unsound educational principle, making the results depend not on the intrinsic merits of the work put forward by pupil and master, but on a certain percentage achieved in earlier years. In a letter on the subject addressed to the Government of Bengal, the Syndicate of the Calcutta University rightly complains that the direction is open to grave objection. "The per-

centage of passes at an examination does not depend solely upon the standard of examination. The standard may remain fairly uniform, yet the percentage of passes may largely vary. Assuming that the standard remains constant, the percentage of passes must depend upon the preparation of the candidates, as also upon their attainments. Again, if we confine our attention to a single institution, it is clear that if all circumstances remain invariable, the percentage of successful candidates may be made to vary from year to year by the exercise of more or less care in the selection of candidates to be presented at the examination. When the percentage of passes at an examination is thus dependent upon a complex set of circumstances, it is not proper to instruct the examiners to examine the papers in such a way as to make the percentage of passes reach what is called an average level." This is a subject which will soon have to be tackled by the Universities in India, in view of the great variation which now prevails among them in the matter of the standards of their examinations. In the meantime, the Government has been informed by the University that if the examinations held by the Board are conducted on the lines indicated, "the Hon'ble the Vice-Chancellor and the Syndicate must seriously consider whether the certificates given by the Board should be accepted or not."

The Madras University Bill has been passed into law, but we do not go into ecstasies over this achievement.

Madras University Act.

On the other hand we are filled with gloomy forebodings for the future and we wonder what is going to happen, especially as the Government is not able to hold out hopes of financing a really unitary and residential University. The reconstitution necessarily means an addition to expenditure in many directions which do not directly mean any addition to the educational facilities open to the student. Out of the small grant which the Government of Madras proposes to make available, a good part will go to the paid Vice-Chancellor, and the *democratization* also unfortunately means an enormous addition to the travelling allowances and expenses connected with the constant meetings of various bodies. The newly-constituted Universities of Lucknow and Allahabad are already realising it to their cost and there is already talk of retrenchment there as in certain other Universities in India. Will the Government of Madras profit by all this experience? It is probably too late, and in any case the Ministry in power would not be deprived of the credit for 'reform' and new legislation and the congratulatory utterances which we notice were forthcoming in a fulsome manner the other day in the Council as soon as the Bill was passed. The work, may we remind the Government, has only just begun, and the Act will be considered a success only in so far as it

only anxious to have financial encouragement for the continuation of its work, which with all its defects is acknowledged on all hands to have been valuable. But our Councillors will disturb her position further, by submitting her to a process of reformation which is not wanted at all by any responsible body of educational opinion. If the Legislative Councils in India are going to be so callous to the wishes and opinions of academic bodies, the time will soon come when educationists will have to consider seriously, whether it may not be better to have our Universities established by some kind of a Charter, instead of leaving them as they are at present to the mercy of all kinds of 'legislators', who are only too fond of tinkering with academic constitutions into the spirit of which they are very rarely able to enter and whose knowledge of real educational needs is often of the most elementary and even vanishing kind. A European critic, writing to one of the English papers in Calcutta the other day, complaining of the way in which thoughtless and malicious critics were assailing the University of Calcutta, compared them to "village dogs howling at the moon." But thanks to the reformed

constitution in India, these critics are more powerful than "the village dogs" referred to and are unfortunately getting very near biting even the "moon." Will the mischief be yet prevented, by all the sane elements of Indian public life rallying to the support of the University and keeping inviolate its autonomy? We will wait and see.

Lecturing at the University of Dacca, the other day, Mrs. Mackenzie, the well-known lecturer on education from England, drew attention to the experiments in educational freedom now being made in some English schools. She pleaded for less compulsion with regard to the lessons the pupil has to take. The general idea behind the experiment was that the natural desires and inclinations of a child were right and that he should be allowed freedom of choice both as to what he should do and as to when he should do it. The traditions of Indian education are probably not particularly encouraging to the new idea, but Indian teachers should certainly make it a point to study these experiments in special relation to Indian conditions. We should be glad to invite contributions to this journal on this subject.

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SRINIVASA VARADACHARI & CO., TRIPPLICANE, MADRAS.

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IDEAL OF A NATIONAL UNIVERSITY.*

I WANT first of all to express my deep and grateful sense of appreciation for the very high honour you have done me in calling upon me to lay the Foundation-Stone of the Gujarat Vidyapeetha buildings. It is a far cry from Gujarat to distant Bengal, and your invitation, like the similar invitation from your sister institution, the National Muslim University at Aligarh only a few weeks ago, only sets me wondering as to what I have done to deserve this kindness from you all. The poet has said, "Tis distance lends enchantment to the view," and perhaps this is the psychological reason which has led you, my friends, to view my humble activities in the cause of my country in altogether too flattering a light, and has won for me a very warm corner in your hearts. You will therefore have to excuse me if the reality falls far short of your expectations.

* Address of Dr. Sir Prafulla Chandra Ray, of the University College of Science, Calcutta, when laying the Foundation-Stone of the GUJARAT VIDYAPEETHA Buildings, Ahmedabad, on 9-8-22.

XXIX—19

Once having had the privilege of your love, however, I mean to take advantage of it; and I want to utilise this occasion for some homely talk with you, my brothers, on the present problems before our country, and particularly on the various ways in which a great National institution like yours may be of service to the National cause in building up and training the youth of the land. This question of the proper training of our young men and women, has engrossed my attention for practically the whole of my mature life, this has been my favourite occupation, some might even say it has been my obsession—but I have no alternative but to plead guilty to the charge, and indeed am quite proud of the guilt, for my earnest conviction is that the future of our country depends upon the lines on which the education of her children is built up.

MAHATMA GANDHI.

Your University, measured by the length of years, is an infant institution; but from the circumstances that attended its birth, from the traditions of its august founder, from the progress that it has made during the brief span of its existence, I say

it is an infant of high promise. I am only sorry that its high-souled founder, Mahatma Gandhi, is not with us here to grace the occasion, and I know you all share my sorrow and regret. His physical absence, however, assuredly ought not to matter; his nation-wide vocation has not permitted him to repose in the sacred precincts of his *Ashrama* on the banks of the Sabarmati, as he perhaps would have liked in his heart of hearts to do but for the country's imperious call; his enforced absence to-day is only the penalty of his greatness; and as was proclaimed in trumpet-tones in full fervour of faith by another kindred soul, another mighty son of Ind, Lokamanya Bal Gangadhar Tilak, "the case that he represents will perhaps prosper more by his imprisonment than by his remaining free." In these great days of a national struggle for freedom, let us not be of little faith, let us not be faint-hearted, let us not falter and fall. Let us make our shoulder broad so that we may worthily uphold the great burden, the great trust that it has now become our privilege to bear. And I have no doubt that in this institution, as in other departments of our national life, if we only put our shoulders to the wheel, we shall achieve results which will gladden the heart of this martyred saint-patriot of India.

Mahatma Gandhi was a seer; he saw with a clarity of perception that was staggering to some of us; he pierced through the mists of contemporary prejudice, and seized the real genius of this ancient race; and he had vision, apocalyptic vision of the India of the golden past and the India of the resplendent future; and he had the courage to believe in his vision; and he had the supreme genius of translating this vision into reality. And one of these translations has been the *Ashrama* of Sabarmati. The ascetic discipline, the healthful vigour, the reposeful culture of the *Tapobanas* of ancient India had captured him, and he believed in the immense potency of this message of the *Tapobanas* for the uplift of our race; and the burning faith that was always his,

in whatever he really believed, left him no rest until he had himself created a *Tapobana* to realise his ideals. And all India looked with eagerness and expectancy on the results of this great resurrection, and her expectations were not falsified. The *Satyagrahashrama* has really been a maker of men.

But the intense faith that Mahatma Gandhi had in the ancient forms of culture did not make him blind to the great changes that have actually occurred through the efflux of time. He saw that a wider, more comprehensive organisation was required which might cater for the needs of a wider society, which might impart instruction in all the various branches of knowledge that a modern community indispensably requires and which might synthesise all that is best in the cultures of the East and the West; and he laid the foundations of this National University at Ahmedabad. The place was undoubtedly well chosen; Ahmedabad combines the most pronounced features of the East and the West; the factories and mills and other appurtenances of the modern industrial age rear their heads by the side of the holy trees that cast their dim, religious shade over the peaceful pastures of an Aryan *Ashrama*. And it was indeed in the fitness of things that a modern National University like yours should have its sanction here.

HIS IDEAL.

And what was Mr. Gandhi's ideal when he founded the University? I can do no better than quote the ringing and inspiring words of the great Master himself when he launched this institution on its new career. He said:

"This National University draws its inspiration from the national ideals of a United India. It stands for a religion which is the Dharma of the Hindus and the Islam of the Muhammadans. It wants to rescue the Indian vernaculars from unmerited oblivion and make them the fountains of national regeneration and Indian culture. It

holds that a systematic study of Asiatic culture is no less essential than the study of Western sciences for a complete education for life. The vast treasures of Sanskrit and Arabic, Persian and Pali and Magadhi have to be ransacked in order to discover wherein lies the source of strength for the nation. It does not propose merely to feed on, or repeat, the ancient cultures. It rather hopes to build a new culture based on the traditions of the past, enriched by the experience of later time. It stands for the synthesis of the different cultures that have come to stay in India, that have influenced Indian life, and that, in their turn, have themselves been influenced by the spirit of the soil. This synthesis will naturally be of the Swadeshi type where each culture is assured its legitimate place, and not of the American pattern, where one dominant culture absorbs the rest, and where the aim is not towards harmony, but towards an artificial and forced unity. That is why the University has desired a study of all the Indian religions by its students. The Hindus may thus have an opportunity of studying the Koran and the Muslims of knowing what the Hindu Shastras contain. If the University has excluded anything, it is the spirit of exclusion that regards any section of humanity as permanently untouchable. The study of Hindustani, which is a national blend of Sanskrit, Hindi and Persianised Urdu, has been made compulsory. The spirit of independence will be fostered not only through Religion, Politics and History, but through vocational training also, which alone can give the youths of the country economic independence and a back-bone that comes of a sense of self-respect. The University hopes to organise higher schools throughout the mofussil towns, so that education may be spread broad-cast and filtered down to the masses as early as possible. The use of the vernacular as the medium of education will facilitate this process and ere long, the suicidal cleavage between the educated and the non-educated will be bridged. And as an effect of industrial

education for the genteel folks, literary education for the industrial classes, the unequal distribution of wealth and the consequent social discontent will be considerably checked. Let us pray to God that the workers get the necessary faith and strength to uphold the banner they have unfurled."

A WARNING.

Better ideals could perhaps never be set before a University than are envisaged in this inspiring utterance—a nobler, a more catholic concept could scarcely be imagined. Even the most generous-hearted internationalist would scarcely find anything here to object to. And if this University can keep to this ideal as steadily as a magnet does to the pole-star, it will be an inestimable blessing to the country. I wish from the bottom of my heart that this expectation be realised. But it would be idle to deny that I have my fears. It is a general phenomenon in every country, and perhaps only more pronounced in our own, that institutions stagnate; the flower that blooms in the first flush of youth and sheds its fragrance around, in course of time withers into dry petals, all seared and blighted; the big, heart-enthraling ideals which absorb and nerve the first pioneers degenerate into hollow dogmas; the spirit goes and the corpse only survives. The corpse may be an imposing one, it may have been hallowed by the embalment of centuries, but it is after all only a mummy, a pretence, a simulacrum, and cannot breathe life into the dry bones of the nation. The living gospel ossifies into an 'ism' and in the 'ism' all soul is killed. If a great personality has been the living force behind the institution, ultimately he becomes a formula, a symbol, and a god, by whom everybody must swear and to whom homage must be paid unless one is prepared to share the fate of St. Stephen at the hands of the orthodox multitude. The greater the personality the greater this danger; if he is a Christ, a Buddha, a Muhammad, a Gandhi, he promptly becomes a cult, a legend, an Avatar,

As Emerson says: 'The Institution becomes the lengthened shadow of the Man. This is no doubt highly creditable for the Man, it speaks volumes for his magnetism, but it spells ruin and stagnation and death to the Institution.'

FREEDOM THE MOTTO.

My friends here might be thinking that I am laying the colours too thick, that I am manufacturing for myself a bugbear from fancied dangers. But my friends, I utter with all the solemnity that I am capable of, that I have seen in our country too many promising institutions stagnated and wrecked in this way, too many sparkling and foaming and life-giving currents parched up and dried out in the arid desert of personal adulation and vulgar apotheosis for me to be quite free from apprehensions on this score. And that is why I am never tired of sounding a note of warning whenever I think there is a likelihood of such danger. As I said elsewhere *freedom should be the motto of a centre of culture and not unthinking veneration and sycophancy*. Emerson's great saying must be engraved on the tablet of our hearts: "Whoso would be a man, must be a non-conformist."

DANGERS OF THE REACTION.

Even when there is no great personality who overshadows the institution there are sometimes some prejudices and hatreds which prevent its reaching the fulness of its stature and thus circumscribe its usefulness. These prejudices may have some deep and quite understandable psychological reasons behind them; they may be due to that racial or communal or patriotic bias which Herbert Spencer has so vividly delineated; they may owe their birth to the quite healthy reaction of a returning national self-consciousness after the quiescence and torpor of ages. But none the less they are prejudices and obsessions and obscure the truth. Such a period of reaction we are now passing through. After the unmerited neglect and undeserved contempt that we entertained for our past heritage, our past cul-

tural traditions when we were blinded by the first dazzling glare of the West, has come the reaction — a reaction as the effect of which we are tempted to hug everything that belonged to us as something precious, something sacred, however paltry and even pernicious some of these things may happen to be. Our social customs and usages, our ways of living and thinking, we have got the passion to regard as sacrosanct. Even our social abuses, our religious crudities, our untenable absurd notions we try to defend and explain and spiritualise. And so it has come about, though at first sight it seems passing strange, that some of our foremost nationalists, our most revolutionary and advanced political thinkers, are the most sun-dried rigid reactionaries in social matters. The most go-ahead political doctrinaires are the most vociferous in their slogan of "Back to the Vedas." The foremost claimants for greater rights and liberties at the hands of the British are sometimes the most reluctant to concede similar rights and liberties to the depressed classes of our own society. The caste-system which to a commonsense man would appear to be one of the greatest obstacles in the path of our future progress, these nationalist leaders would hug to their bosom, why forsooth because the "Varnashrama Dharma" has been handed down to us for generations and is one of the priceless heirlooms of antiquity! This reaction has also been noticeable in the field of culture — English education is a curse, Western science is a snare and a delusion, Western civilisation is Satanic! Let us purge ourselves of this pollution by bathing in the sacred waters of our ancient lore; and then shut ourselves tight in our "Ashramas" with the windows and doors hermetically sealed so that not a breath of profane wind may disturb our meditations. We have been perilously near making "Achalayatana" our ideal.

UNTOUCHABILITY.

It has been said, and I think not without truth, that none of the items of our national programme has been proclaimed so loudly on platforms and

neglected so grievously in practice as the item of the removal of untouchability. Everybody seems to repeat it as a formula, thanks perhaps to the magnetic personality of Mahatma Gandhi, and then seems to think no more about it, as if it were a mere trifling detail, more a hobby of the Mahatma than anything serious. I would however regard the attitude towards untouchability as the touch-stone of true patriotism. There is not the slightest chance of the country as a whole progressing to Swaraj as long as the attitude of mind persists which has the audacity of regarding a section of our own kith and kin as beyond the pale of humanity and of looking upon their very touch as defilement. It is rank hypocrisy, gross insincerity, it is no love of freedom but sheer self-aggrandisement, if we persist in depriving our brethren of elementary human rights "and at the same time clamour for freedom for ourselves. "By thy conduct shalt thou be judged" is the eternal law of justice; and history has amply shown that we have indeed been so judged. The mill-stones of Fate grind slow but exceeding small, and this lesson has been branded deep in our hearts by the slow-grinding torture of centuries. We have only reaped as we have sown.

A NEMESIS.

Listen to the terrible words which the Mahatma in his prophetic ire has hurled at this unspeakable sin:

"Has not a just Nemesis overtaken us for the crime of untouchability? We have segregated the "Pariah" and we are in turn segregated in the British colonies. We deny him the use of public wells; we throw the leavings of our plates at him. His very shadow pollutes us. Indeed there is no charge that the 'Pariah' cannot fling in our faces which we fling in the faces of Englishmen."

Untouchability is not a sanction of religion, it is a devise of Satan. The devil has always quoted scriptures. But scriptures cannot transcend rea-

son and truth. They are intended to purify reason and illuminate truth. I am not going to burn a spotless horse because the Vedas are reported to have advised, tolerated or sanctioned the sacrifice. The letter killeth; it is the spirit that giveth the light. And the spirit of the Vedas is purity, truth, innocence, chastity, humility, simplicity, forgiveness, godliness and all that makes a man or woman noble, and brave. There is neither nobility nor bravery in treating the great and uncomplaining scavengers of the nation as worse than dogs to be despised and spat upon. Would that God gave us the strength and the wisdom to become voluntary scavengers of the nation as the suppressed classes are forced to be. There are Augean stables enough and to spare for us to clean.

Hinduism has sinned in giving sanction to untouchability. It has degraded us, made us the 'Pariahs' of the Empire. Even the Mussalmans caught the sinful contagion from us and in South Africa, in East Africa, and in Canada, the Mussalmans no less than the Hindus came to be regarded as 'Pariahs'. All this evil has resulted from the sin of untouchability.

So long as the Hindus wilfully regard untouchability as part of their religion, so long as the mass of Hindus consider it a sin to touch a section of their brethren, Swaraj is impossible of attainment. Yudhishtira would not enter Heaven without his dog. How can, then, the descendants of that Yudhishtira expect to obtain Swaraj without the untouchables? What crimes, for which we condemn the Government as Satanic, have not we been guilty of towards our untouchable brethren?

We are guilty of having suppressed our brethren; we make them crawl on their bellies; we have made them rub their noses on the ground; with eyes red with rage, we push them out of railway compartments—what more than this has British rule done? What charge that we bring against Dyer and O'Dwyer, may not others, and even our

own people, lay at our doors? We ought to purge ourselves of this pollution. It is idle to talk of Swaraj so long as we do not protect the weak and the helpless, or so long as it is possible for a single Swarajist to injure the feelings of any individual. Swaraj means that not a single Hindu or Muslim shall for a moment arrogantly think that he can crush with impunity meek Hindus or Muslims. Unless this condition is fulfilled we will gain Swaraj only to lose it the next moment. We are no better than the brutes until we have purged ourselves of the sins we have committed against our weaker brethren. We may not wait till eternity for this much belated reformation. It is a reform not to follow Swaraj but to precede it."

NO HISTORICAL BACK-GROUND.

It is superfluous to multiply words about this self-evident matter; one does not require to write volumes to demonstrate that two and two make four; and one need not spin out to prove that this doctrine of untouchability is spiritually disastrous, politically suicidal, and historically false. For even if we leave out of account the deep spiritual fall that is the necessary consequence of this arrogant vanity of man towards brother man, even if we do not consider the inevitable fissiparous tendencies of a house divided against itself in the struggle for national freedom, what after all, I ask, is the historical background of this doctrine? Even if it be conceded for argument's sake that pure Aryan blood should not touch and commingle with any other hue, where is that pure Aryan to-day? It would indeed be marvellous to discover to-day that pure-blooded scion of the Aryan race untinged with the slightest admixture of alien blood in the four corners of the Indian Empire—indeed not less marvellous than the discovery of a resurrected Dodo. However we may attempt to tickle our own vanity by self-deception, the whole verdict of Indian history and ethnology is against it.

However we may like to hug to our bosom the favourite notion that India lived a retired and

secluded life cut off from the rest of the world by the protective heights of the Himalayas and the endless waves of the Indian Ocean, stubborn facts are otherwise. From those dim, misty beginnings of Indian history when the Aryans poured into India and collided with the Dravidians and other aboriginal tribes, miscegenation has been going on; scenes have shifted; new actors have strutted upon this imposing arena; Darius Hystaspes, Alexander the Great, the Graeco-Bactrians, the Yueh-chi, the Kushans, the Scythians, the Arabs, the Afghans, the Mongols, the Europeans, have sent in successive waves of different ethnic types to mingle and merge themselves in this vast ocean of Indian nationality; and he would be a bold man indeed who dares to trace the succession of one pure, undiluted type of blood in any section of the succeeding generations. Cultural assimilation has rendered the confusion only worse confounded. The alien elements had been absorbed into the Indian system; and we have had the curious spectacle of the descendants of the Scythian invaders after being mingled with the Hindu children of the soil, tracing their descent in one unbroken continuous line from the most pure-blooded Kshatriyas of the mythical age, and ultimately going up to the Sun or the Moon. This is the common history of the Rajput clans; they would no doubt be highly offended if one were even to whisper that the blood coursing through their veins is not of the purest blue variety coming down from King Ramachandra or Emperor Yudhishtira; but alas! facts are incorrigible and they tell a different tale. Then again, even apart from these invasions and consequent ethnic intermixtures there was the great revolution in the world of thought which we call Buddhism. That gave such a rude shaking to the caste-structure of Hindu society that it toppled over into fragments; the fragments became mixed up in an inextricable confusion; no doubt they re-integrated; but this re-integration was on different lines and after a long interval neo-Brahmanism arose; and little heed could possibly

be paid to ethnic purity and original types in the process. Consequently this new-fangled rigidity of caste and pretension to blood-purity is historically ludicrous, and untouchability is a neo-revivalist fiction. Absolutely nothing more. Only it is a pity of pities that this exploded fiction should be attempted to be bolstered up by quotations from the Shastras in the face of commonsense and reason. If we at all mean business, if we are at all serious in our national endeavour, this canker which has been eating into the vitals of our society must go.

A FIGHT RESOLVE.

It is because I feel so strongly in this matter of the untouchable classes that I was so pleased to learn that you have in your Senate passed a formal resolution to the effect, that in accordance with the constitution of the Senate no institution that specially excluded the depressed classes could be affiliated. That is as it should be—in accordance with the spirit of the times and in consonance with the needs of the nation. I hope and trust that your University will also be abreast of the times in the broad and catholic spirit of the training it will impart, that it will steer clear both of that personal obsession and nation narrowness that I have drawn your attention to, and that, while true to the kindred points of hearth and home, it will try to harmoniously combine whatever is of the best in the varied cultures of the world.

SWARAJ AND NATIONAL EDUCATION.

National institutions are very dear to me, and all the strictures that I am sometimes in the habit of passing are outcome of my affection, for you know that one likes to see one's loved one free from all blemish. They are so dear to me for I feel that here at least is something in which we can engage in independent activity, construct things according to our own ideal, and feel ourselves our own master. We have been so long spoon-fed, so long used to have everything done for us, to look

to the authorities and the Government for all our "boons" and removal of our wants and disabilities that we have almost forgotten the use of our own limbs, and they have become, so to say, atrophied. It has been a sort of hypnotic trance as it were; we ourselves have lost all consciousness of being able to do anything and being good for anything, and our rulers too have lulled us to further somnolence by their theories about trusteeship, and white man's burden, and minority and steel frame and what not. The most blighting curse of servitude had overtaken us—mental inertia and loss of faith. Wherever I see, therefore, in however small and insignificant a sphere, some sign of independent activity, of self-reliance, free from mendicancy, my heart rejoices, for there is life. Success, however small, is contagious; the spirit catches; and the excitement born of faith and accomplishment simmers through the country-side. Mere complaint, and grumbling and agitating seems very degrading; instead of crying out and squealing and throwing darts like pettish school boys, why don't we turn to ourselves, and try to remove our wants and work out our own progress? Nations by themselves are made. Swaraj will have to be earned—it is only valuable in so far as it is strenuously earned; it would be worthless as a gift. Our modern industrial awakening is one of the portents of this increasing self-reliance; and this movement for taking up our own educational work is another. I need not be understood as saying that such private efforts unassisted by the State will suffice for the needs of the country or that the State itself has no obligation in the matter (as our Bengal Retrenchment politicians seem to think); nothing of the sort; I mean only that any step in the direction is a step forward in self-government or self-training. In the words of the Bbagavadgita I might say, *Swalapanamapasya dharmasya thrayathe mahatma bayath.*"

FUTURE OF NATIONAL SCHOOLS.

As most of my friends are aware I have been in touch with the national education movement in

our country ever since its inception ; I have been intimately connected with the National Council of Education, Bengal, that owed its rise to the Swadeshi movement, and at present when this new national movement has resulted in giving a new fillip to this cause and numerous National schools have been set up, I have been visiting many of these institutions in Calcutta and the mofussil. No doubt they are not in as thriving a condition as one would have liked to see them—that may be due to want of proper management or the paucity of wholesome ideals. It is clear that if they are to be merely replicas of the existing schools under Government control, and strike out no new path, supply no crying need of the community, evidently they will not live and do not deserve to live. But properly conducted they ought to have a great future ; they are free of the official incubus, free from the trammels of red-tape ; if only they be so directed that they supply what the society wants, they should assuredly survive.

However small, however moribund some of the schools I visited were, I always felt one thing—an atmosphere of liberty, a feeling of release from the bondage of the beaten track, a thirst for striking out a new path and carving a new career. I felt the justice of what Mr. Gandhi once said : “The greatest defect of Government Universities has been their alien control and the false values they have created as regards ‘careers’”. You may remember that well-known story of Carthaginian history about Agathocles, the ruler of Syracuse. When that proud and resolute chief sailed over to defeat the Carthaginians, during the Sicilian wars, the first thing he did on landing in Africa was to burn his ships, that his soldiers might have no opportunity of retreat, and no hope but in victory. From that famous and characteristic incident “burning the boats” has passed into a proverb. Well, my friends, these boys in our national schools have also burnt their boats ; no more retreat for them ; closed to them for ever are those soft cushy jobs, yclept Government appoint-

ments (to which again in stern fact, if I may interrupt my sentence, many are aspirants but few, very few are chosen) ; closed also to them are the so-called genteel professions like law, for instance, (wherein too it is sad to contemplate our youths waste the best part of their lives in weary plodding with practically no return)—naturally therefore they have to walk off the beaten track, they have to depend upon themselves, they have to use their own wits to earn their own living, in a word they have to become bigger men in the true sense of the word. As a consequence the whole outlook is changed, the whole morale is strengthened. National school boys appear to me to be a joyous, cheery, youthful lot, up to anything, determined never to be down and out if they can help it.

OUR RESPONSIBILITY.

Of course our responsibility is great ; this splendid material we must take the fullest advantage of, we must so train them as to make them fit to face the world, that they may turn out sturdy, active, patriotic citizens able to earn an independent competence. If we cannot do that, if we fail, the loss will be immense, youthful enthusiasm will not last for ever, will not be nourished on mere excuses and promises, it will evaporate, the boys will get downcast and sink back into their old fold, all faith in themselves, their leaders, their nation lost. What a tragedy ! Hope and faith are the tonics on which man, still more the young man, feeds and grows and strengthens ; and if they be gone what is left ? They will simply swell the ranks of the untimely old cynical young scoffers and croakers and lazy loungers which it saddens the heart to see. This catastrophe must not be, if we can help it.

The proper direction has therefore to be given. Education of the right sort suited to our present requirements has got to be imparted. And the essentials of such a system are the encouragement of self-help, self-control and discipline, the principle of plain living and high thinking, and a life of

asceticism and Brahmacharya during the student career. On the intellectual side it should be the aim, to quote the language of a similar institution with which I am connected, “to impart and promote the imparting of education, attaching special importance to a knowledge of the country, its literature, history and philosophy, and designed to incorporate with the best Oriental ideals of life and thought, the best assimilable ideals of the West and to inspire students with a genuine love for, and a real desire to, serve the country.”

SCIENTIFIC EDUCATION.

A too exclusively literary education has been our bane. I do not deny the value of the humanistic studies ; indeed, I would be the first to extol its cultural value but this is clear that this too theoretical and literary training has practically unfitted us for anything else than learning by rote and quill-driving. In practical life, in the struggle for existence we are being steadily driven to the wall. Scientific education, both pure and applied, and vocational training are the crying needs of the hour. It need not wound our national vanity that here we shall have to learn at the feet of the West ; there is no harm there ; Science is international. And it is not as if it were altogether a new thing to have Science in India ; it is a calumny to say that India has produced nothing but poetry and philosophy ; India was not lacking in the scientific spirit in ancient times, and it was from the East that the West borrowed her Science, and we have only to renew that glorious tradition. We must make up the lee-way ; and so we have to redouble our energies in this direction so that our boys when they emerge from their Universities should be thoroughly equipped by knowledge and training to earn an independent livelihood, without having to knock about in vain from door to door with “no vacancy” staring them in the face. And there is no denying that your Presidency of Bombay is an ideal place for such an institution to thrive. Here your boys are brought up in an atmosphere of business and independent initiative, not as in my province where service is looked upon as the sole means of livelihood. I have no doubt that a National University on these lines has a hundred

times greater chance to survive and flourish in Bombay than in Bengal. Here the boys as also the guardians want training and education and not the hall-mark ; the mind of the students will be all the more healthy and fresh being freed from dreary routine and the tyranny of text-books made to order ; greater elasticity of courses and arrangements will render progress more rapid and thorough ; and students are bound to flock to it in numbers with alacrity. But alas ! things are otherwise in Bengal ; and I have no hesitation in saying that Bengal must follow in the footsteps of Bombay if she is to prosper. As I was saying, therefore, you must pay special attention to the scientific and technical side of your activities, for unless we can keep abreast of the modern world in this respect we are sure to lose in the race of life.

EDUCATION OF WOMEN.

Another point, too, which I want to emphasise is the education of our women. I confess, that in this matter as in that of untouchability, our inert social orthodoxy stands much in the way, and our nationalist leaders are not quite as forward as they might have been in the promotion of female education. Indeed it would be no exaggeration to say that absolutely no provision for the education of our girls has been made in our schemes of National Education during the past few years. One would however think that here, as in the field of Primary Education, national effort should be more fruitful, as there is no service-mania to overcome and no desire for hall-marks to get over. Our women do not become clerks. And if national spirit could be infused into our women-folk that would be doubly valuable, for women are the moulders of the race to-be. A nation is as its mothers make it. I need not dilate on this matter—it is a self-evident proposition. Remember Tennyson's eloquent lines :

The woman's cause is man's they rise or sink
Together, dwarfed or godlike, bond or free !
For she that out of Lethe scales with man
The shining steps of Nature, shares with man
His nights, his days, moves with him to one goal
Stays all the fair young planet, in her hands—
If she be small, slight-natured, miserable,
How shall man grow ?

The nation cannot surely progress with full one-half of its members atrophied.

PHYSICAL CULTURE.

A most lamentable feature of our educational systems and of our life in general, is the utter neglect of physical culture. I know not how it is in other provinces but it is most disastrous in Bengal. I am afraid however that this apathy is a universal phenomenon in India. Our students when they pass out of the portals of the University are in nine cases out of ten physical wrecks. You will be staggered to learn that as a result of the extensive medical examinations of students that have been carried on under the auspices of the University of Calcutta it has been discovered that not one out of three boys is perfectly sound in health. Bad teeth, bad eyes, indigestion, anaemia—these are the universal curses. And out of such material a strong virile nation cannot be built up. Man is after all an animal, and in order to be a strong man one must first of all be a strong animal. Our forefathers knew it; they laid it down as an injunction "*Sariramadyam khaludharma sadhana*," a good health is the first step to virtue. And this physical culture was one of the primary ends of the system of Brahmacharya practised in the Ashrams. If we can recover our health and vigour, if we can become a manly race, half our ills, social, political, economical, would be overcome. With our weak physique we instinctively cower before the muscular European, and this weakness colours our whole outlook. When a European slaps us, or boxes us or kicks us, or pushes us out of a railway compartment we have to quietly pocket the insult, and then have recourse to the whining tactics of the weak and pour forth our lamentations in the columns of newspapers. The sight is sickening. I have never yet heard of a Peshawari or a Kabuli being roughly handled by Europeans. They would simply not dare. Look at the contrast. Everybody, and not merely the European, appreciates a healthy blow, but has nothing but contempt for the lachrymose weakling. I say Swaraj would be more than half-gained if only we could become a nation of healthy stalwarts. Ill-nourishment, want of physical culture, and consequent ill-health have reduced

us to a race of pigmies, all joy of life, all ambition, all aspiration gone. Sir Frederick Treves, the distinguished scientist and physician, wrote only recently in his book "The Other side of the Lantern," of the Indian people in this strain:—

"India bears an impression of poorness and melancholy. Sadder than the country are the common people of it. They are lean and weary-looking, their clothing is scanty, they all seem poor and toiling for leave to live. They appear feeble and depressed."

Sir Michael Sadler once said in a lecture that what struck him most was that the Bengalees did not know how to smile; this is, I fear, true more or less for the whole land; all smile, all joy, all vigour has left the country. It is the most serious indictment of the present administration. But we cannot be content with simply registering an adverse verdict against the foreign government. Our nation is perishing; it is our work; we have to set our own house in order; we must save ourselves. Our Universities therefore should place this matter of physical culture in the very forefront of their programme. The School and College authorities should make it a point to see that the students engage in games and exercises; they should organise excursions and travels and sports; they should train the boys in drills and military discipline. I think that the educational and moral value of discipline cannot be rated too high. I welcome therefore the progress of the Boy Scout movement in India. I might, my friends, throw out a suggestion to organise your boys on the healthy, active lines of this movement. Europe has much to teach us in this matter of discipline, and we might do worse than take a leaf out of her book in this respect. If this National University can make each individual unit of society every inch a full-grown man or woman, it will have worthily redeemed its promise.

My friends, I will not detain you longer. What I have to say to you about the other pressing problems of the day, about loyalty to the motherland, about the unity between the Hindus and Muslims

and the other sections of the community, and similar other matters, I have already had occasion to discuss with great fulness at Aligarh, as you are aware; and I do not intend to repeat these observations to-day. I would simply ask you, as I have asked you before, to steer by the chart that your great Captain has laid out for you, without faltering and without impatience, without rest and without haste.

CONCLUSION.

You have made a splendid start. Your plant has been rooted in a most congenial soil. And I congratulate Bombay on the magnificent response which she has made, on the magnificent donations that have come in to make this University, one of the greatest attempts of Mahatma Gandhi, for starting a centre of national culture, worthy of its great founder. And I thank her from the bottom of my heart, for this great achievement: I have no doubt that with this great enthusiasm behind it the University will flourish and be all that we desire. And may the example prove catching! May the whole country be dotted over with national institutions, big and small, to lay the foundations of a genuine national system of education, which is a crying need of the hour. They will be the nurseries of true citizens, able to do and to dare, instinct with the spirit of national service—they will train up men who will not be lured away by the mere pomp of pelf and power, but who will feel that in the salvation of our motherland, in the emancipation of the voiceless millions of our country, in the alleviation of their lot, poor and paltry and miserable, their own salvation lies—they will mould a race of heroes who will suffer all for the sake of their ideals, cheerful and robust and optimistic in the certainty of ultimate triumph. Our cause is just, our mission is noble, our goal is sacred; do not mind, do not worry if there is an occasional set-back, if our progress is sometimes not so speedy as one would desire. Do not be ruffled that the promised land is not reached in a day; do not get down-hearted that the little seed has not expanded into the giant baobab tree in the twinkling of an eye.

This is not Nature's law. Hear what Terence McSwiney says:

"It is a common error that a man's work for his country should be based on the assumption that it should bear full effect in his own time. This is most certainly false; for a man's life is counted by years, a nation's by centuries; and as work for the nation should be directed to bringing her to full maturity in the coming time, a man must be prepared to labour for an end that may be realised only in another generation. It does not mean that we shall work in loneliness, cheered by no visions of the Promised Land; we may even reach the Promised Land in our time, though we cannot explore all its great wonders: that will be the delight of ages. But some will never survive to celebrate the great victory that will establish our independence; yet they shall not go without reward; for to them will come a vision of soul of the future triumph, an exaltation of soul in the consciousness of labouring for the future, an exaltation of soul in the knowledge that once its purpose is grasped, no tyranny can destroy it, that the destiny of the country is assured, and her dominion will endure for ever."

Mahatma Gandhi has set this great ideal of quiet, determined, self-collected work; he has preached this gospel of strenuous endeavour; he has called back the nation to its native moorings; he has set his face against the frittering away of the nation's energies in useless, dramatic, sensation-mongering; he has upheld the cause of Truth as against show—and this call of Truth has pierced to the very core of the nation's heart, and has rendered back unto her the soul that she had well-nigh lost. In this atmosphere of Truth let us work, calm, resolute and joyous in the conviction that our efforts, so they be genuine and honest and real, will usher in the light of a fuller day.—*Mahatma Gandhi ki jai!*

COMPULSORY PRIMARY EDUCATION—A STUDY.

BY

MR. K. R. R. SASTRY, M. A.

(Licentiate in Teaching), Fellow of the Royal Economic Society (London).

IN moving a Resolution to appoint a mixed Commission of officials and non-officials to frame definite proposals regarding the gradual introduction of Free Elementary Education, the late Hon'ble Mr. Gokhale made the following significant observations on the 18th March 1910 from his seat in the Imperial Legislative Council:—"The increased efficiency of the individual, the higher general level of intelligence, the stiffening of the moral back-bone of large sections of the community, none of these things can come, without such (Elementary) education." Towards the end of the year, in reply to the discussion about this topic in the pages of "The Spectator" and "The Times," Mr. A. P. Patro (now the Minister of Education in Madras) contributed a series of four carefully prepared articles to the "Indian Patriot" under the heads of "Nature and Scope, History, The Neglect, Practical Suggestions and The Means." Mr. Patro gave the problem of Primary Education in Madras a stronger basis than ever before. I wish to draw pointed attention to his article on "Practical Suggestions," where he meets some of the fallacies successfully and makes the following weighty observation: "Unless an awakening is created in the country and a desire is really felt by the people, the action of Government will not bear fruit."—(Italics mine).

A REVIEW OF THE RECENT ELEMENTARY EDUCATION ACTS.

It has taken eight long years for the second city in the British Empire to get an

Elementary Education Act passed; Bihar and Orissa had its Act passed on February 26th, 1919, the Punjab Act was passed on April 7th, Bengal passed an Act on May 14th, the U. P. followed suit on June 7th, and the Madras Act received the assent of the Governor-General on 18th November 1920. It is evident that all these Acts belong to the pre-Reform period of legislation; and it is interesting to note that premier Bombay has come out with another Act to rectify the shortcomings of the previous one. All these Acts are agreed in leaving the initiative for the introduction of compulsory education to local authorities. The Bengal Act went further by requiring all Municipalities to undertake a survey of the condition of Primary Education in Municipal areas and to submit an estimate of the cost of introducing compulsory education "for boys between the ages of 6 and 10 residing within these areas."

EFFECT ON THE GRANTS-IN-AID.

The transition from the system of payment by results to the system based on the average attendance of pupils classed under backward and otherwise, was complete even before these Acts. The next stage was payment for the number of teachers, graded according to their qualifications, general as well as professional. There was always the standing instruction to the Inspecting Officer to see that the newly-calculated sum was not below what would be arrived at under the old Rules. The teachers in public-managed schools were used to be paid a capitation allowance in addition to their pay. Even under the new mode of calculation, the teachers in the Aided Elementary Schools had a justifiable grievance at the poor sum they were able to get, over and above what the Manager took for

his share. Accordingly, the Report of the Bureau of Education in the Government of India reviewing the progress during 1919-20 has the following remarks to offer re the Grant-in-Aid:—"The tendency is to substitute a system of grants to Aided Primary Schools under which the primary teacher is assured of a fixed and, as far as possible, adequate, monthly stipends instead of an income which depends partly on the number of pupils in his school, partly on the results obtained by them at examinations." It is to be pointed out that Sections 42 and 43 of the Madras Act do not make any reference to this regrettable phenomenon. This tendency of assuring a primary teacher in the aided school of a "fixed, adequate, monthly stipend" deserves the early and pointed attention of the Department.

COMPULSORY AND FREE EDUCATION.

The need for introducing compulsion, if any further reasoning be required, will be evident from the following table indicating the proportion of Elementary School attendance:—

India	...	100
Japan	...	493
Canada	...	548
Great Britain	...	568
Australia	...	686
U. S. A.	...	803

Accordingly Sections 44, 45 and 46 of the Madras Act state the conditions under which compulsion can be introduced in a locality. Section 47 has got an important proviso attached to it. The local authority of "such area" is obliged to "pay compensation for such period and in such manner as may be prescribed for any loss of income, which may be caused by such remission of fees to

Elementary Schools under private management." The progress thus far made in Madras was elicited by the talented Leader of the Opposition on 15-11-22. The Hon'ble the Minister of Education laid on the table the following information:—Negapatam, Kumbakonam, Vellore, Tinnevely, Conjeeveram, Erode, Tiruppur and Tellicherry have got Government sanction of their resolution for introducing compulsion. Erode leads off for introducing compulsion to girls also. Further the Local Boards that have decided to levy the Educational Cess under Section 34 are 55 Taluk Boards and 17 Municipalities in the Presidency. It is refreshing to note that in many of these centres, the passing of the Compulsory Education Resolution has synchronised with the visit of the Minister of Education or the Inspector of Municipalities.

THE NEED FOR A CONSCIENCE CLAUSE.

The necessity of a Conscience Clause in schools in which religious instruction is regularly provided has been unhappily thrown out by the Madras Legislative Council. The weakest part of the chain consists in the provision sought by Section 53 (4) for the starting of a new school in cases of protest from "ten guardians" to send their children to an institution where a different faith is taught compulsorily. On the other hand, in his letter to the Bishop of Lucknow, the Hon'ble Mr. C. Y. Chintamani has again established his marked foresight. As finally approved by the U. P. Government, the text of the Conscience Clause runs thus:—

"(a) No one shall be compelled to attend any religious instruction or observance, as a condition of his admission into, or continuance in, an aided educational institution, if he or his parent or guardian (if he is a minor),

objects to it and informs the authorities of the institution of his objection in writing."

INSTRUCTION IN THE THREE R'S INCOMPLETE.

Already, shrewd villagers have begun to question the efficacy of five years of education in the Three R's in a primary school. The obvious occupation of the plough and the practical necessity of guarding the corn-fields against encroaching birds only look essential for their existence. It is an open secret that all the rural schools have poor attendance during the sowing and harvesting seasons. No wonder, that Sir M. Visweswarayya pronounces his verdict as follows:—"Such Primary Education as is provided is of an impractical character. The cultivator and the craftsman view it with disfavour as leading to estrange their boys from their surroundings and to make them dissatisfied with their hereditary calling without necessarily fitting them for anything better."

THE ELEMENTARY SCHOOL CURRICULUM.

Besides the Three R's, insistence should be made on the accompanying points suggested by the ex-Dewan of Mysore. "The elements of business-morals, especially the necessity of discipline in all realms of life and the value of time and behaviour towards elders"—these should be taught through a well-planned syllabus as well as through example.

VOCATIONAL EDUCATION.

The defects of the existing method and matter of instruction are sought to be rectified through starting vocational classes. During the last ten years, no other educational term has been so frequently used in Madras than this. Are vocational classes to be part of the regular Elementary School-course along with the Three R's? Or, are

there to be *special vocational schools* linked to the Elementary School system? An intimate knowledge of the working of the existing types of Elementary Schools, leads me to choose the latter course. It is true that the starting of separate vocational classes is not possible at all places; in the District-centres such classes can be established to start with. Where a vocational school is not possible, "arrangements might be made for the requisite subjects to be taught in continuation classes on special week-days or perhaps in the evenings."

These vocational schools should provide training in the elements of agriculture, commerce, handicrafts, carpentry, engineering, woodwork, smithy, and other trades for the boys, and cookery, dress-making, nursing and house-wifery for girls.

According to an estimate about 60 % of the boys in rural schools would require agricultural training. From the *fields to the books* should be the underlying scheme. It is no discredit to the elaborate Western chemical analyses and capitalistic methods, if one were to state here that the Indian farmer has learnt many a relevant consideration in the field of hard experience, which our Agricultural College students take years to take cognizance of. On identical grounds, weaving classes will have to be started in centres of weaving industry. Improvements on such lines *alone* can make Compulsory Elementary Education a success.

THE DUTY OF PARENTS.

The duty of the State towards the child is happily becoming increasingly realized. Mr. W. Clarke Hall after a painstaking study of the duty of the State towards the child comes to the following weighty conclusion:—"The

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child that through neglect drifts finally into the hospital, the work-house, or the lunatic asylum, costs the nation at least £40 or £50 a year for his support in these institutions. The child, who, through similar neglect becomes an habitual criminal or drunkard, by the time he is arrested, tried and imprisoned, probably *costs considerably more* (Italics mine) than that amount."

Now, the duty of parents and guardians alone remains to be done. With the introduction of compulsion, the bearing of Sections 49 and 52 of the Madras Act on the duty of guardians is imperative. Apart from this compliance with the Act, the enormous good that can alone be done by parents' associations and by direct parental interest in vocational schemes should be increasingly realised by guardians. The Village Panchayat, itself the cream of the villagers, can reward the poor village school-master *in kind* at any rate. The school-master's pay of Rs. 12 + Rs. 4 (?) does not compare favourably with the higher salary of a village postman who has had *no professional training* whatever. If the latter is said to be an "imperial servant," the former is *certainly an international servant*.

KARUNATARANGINI

(English translations from the author's original lyrics in Sanskrit)

By K. KRISHNAMACHARYA, B.A., L.T.

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IT goes without saying that the profession of teaching is really noble and highly responsible and the entrants thereto are expected to start with a decent equipment and with a determination to put forth a sustained intellectual effort to keep themselves fresh and lively, and maintain their teaching at a high level of efficiency all through. The requirements indicated are by no means easy of realization, unless there is the strongest incentive to the needed exertion.

That the emoluments of our profession have never been tempting and are from day to day getting less and less inviting is common knowledge. It behoves you therefore to start with no high expectations of pecuniary profit or prosperity but with a passion for ideals and for the discovery of ways and means to accomplish them, lest otherwise the inevitable disappointment in respect of emoluments should damp your enthusiasm and render you miserable for life. Should you set about your work in a spirit of contentment and resignation and under the strong impulse of an ideal, you would have no cause at all for feeling disappointed under any circumstance, however untoward, but only exhilaration and joy in the event of a change for the better in the angle of vision of the powers-that-be in matters of education. Does not Milton say:

"The mind is its own place and in itself
Can make a Heaven of Hell or a Hell of Heaven?"

The needed spirit being secured, nothing on earth, no discouragement from any quarter, nor even persecution, can at all shake you in, or turn you from, the pursuit of your ideals.

* By Mr. R. SWAMINATHA AYYAR, B.A., L.T., F.M.U., Headmaster, Town High School, Kumbakonam, at the Government Training School, Tiruvalur.

Your ideals, as teachers, should be to train up pupils committed to your care to think and reason aright and to act aright when the time for action arrives. In short you have to train them to enlightened citizenship. The pupils of to-day being the citizens of to-morrow, training to citizenship is a piece of national service requiring a decent equipment and a persistent vigorous effort. You have to be students all through life, adding to your stock of knowledge, keeping your eyes and ears open to the influx of ideas from without in view to making the necessary preparation for a wise dissemination of knowledge. Every school-master, whatever his grade, is, by reason of his calling, bound to bear the torch of learning to the extent of his opportunities and capabilities by way of dispelling darkness. He should learn to help to the devising of an effective scheme of education.

The system of education which has been in vogue in our country for decades is being overhauled in all its grades and in all its phases; and changes of far-reaching consequences are soon to be introduced. The policy and schemes in outline have been in a manner indicated; but the details remain yet to be worked out in view to the practical fulfilment of the projected aims. This last item of work is by no means easy, and unless men in charge of it are capable and worthy, it would be 'all cry and no wool.' The school-masters are the men really concerned in the matter and the powers-that-be must descend to meet them, humble and retiring as these are, and hearten them by kind and considerate treatment into settling details and putting them into practice. That the schemes at present adumbrated will, for the practical working, be ere long committed to you is pretty certain and when that comes to pass, you will, I have no doubt, bear your responsibility in a manner worthy of the training you

have received and manage to effectively carry the scheme to fruition.

The Elementary Education Act of 1920 together with the District Educational Councils created by it seems to have so far failed to give satisfaction to the people actually engaged in the work of education; and the scheme of free and compulsory education that has followed in its wake has but accentuated the disappointment and distress of the elementary school teacher. Who can question the soundness of the principle involved in the said scheme and the *bona fides* of its promoters? Why has there been then so much grumbling and discontent in so many quarters? The cause is not far to seek. The practical workers in the field, the men that are vitally connected with it and have to bear a direct active part in the working, have been ignored; and hence the trouble.

According to the Elementary Education Act, one of the duties of the District Educational Council is to frame an estimate of the existing provision for Elementary Education and of the further provision necessary to place Elementary Education within the reach of all children of school-age and also prepare, in consultation with the authorities concerned, schemes for the extension of Elementary Education in each Taluq Board and Municipal area. The Act further provides that every District Educational Council shall maintain a fund, to which shall be credited all incomes derived from endowments or other property owned or managed by the Council. One may ask what District Educational Council in the Presidency has so far arranged for the extension of Elementary Education or has had the good fortune to have an endowment or to own or to manage property so as to have funds enough both for expansion of education and for a liberal enhancement of the actual educator's emoluments.

Under Section 3 (v) of the Act the Rules provide: "Elementary Education shall mean instruction in a vernacular in Reading, Writing and Arithmetic, Drawing, Nature Study, Physical Training and may also include some additional subject, such as Hygiene, Geography, Civics, English and Practical Instruction, the last depending upon the chief occupations or industries of the locality and the class of pupils. Taking education in general, as every man of culture would do, as a training not merely for a livelihood but for world-citizenship and universal brotherhood, one may ask how far the District Educational Councils and the Elementary Schools taken under their wing have accomplished the purposes of the Act and the aims of the education which the Act regulates. It is indeed hard to answer the question. I would, if I may, suggest that, in order to adequately secure the fulfilment of the purposes in question, the *bona fide* teaching element must be more strongly represented than at present on the Councils, so as to have enough of men of ability, leisure and inclination to study first-hand the local conditions, industries and needs and suggest schemes calculated to meet the needs. At the same time there should be employed in the schools teachers imbued with high ideals and having the mental, moral and physical equipment necessary to enter into the spirit of the schemes proposed and carry them out in practice. The present is no occasion for me to dilate upon the constitution and powers of the District Educational Councils. But what concerns me more is the teaching element in the schools and the responsibilities devolving on it.

In all British India of about 250 millions of people only about 8.4 millions are said to be receiving instruction. Again for every 60 pupils receiving non-technical education only one is said to be under instruction in a

professional or technical institution. It must be borne in mind however in this connection that the popularity of technical and commercial institutes depends entirely upon how far the young men who have passed through them are able to obtain situations in life befitting their training and knowledge. The expansion of the existing institutes as well as the starting of fresh ones must be regulated by the demand for technically trained men, which, in its turn, depends upon the expansion of Indian trades and industries. The necessity for the exercise of circumspection in this matter cannot be over-emphasised. All the same, it must be admitted that the country needs much more of education, both technical and non-technical, and every effort must be made to bring more and more of our men under instruction of some kind or other. To supply this want, teachers of the requisite training, capacity and enthusiasm must be brought out in sufficient number and told off each for the work suited to his training. Enough funds must be provided to keep the teachers well above want and enable them to give undivided attention to their work.

The allotment for Education in 1921-22 for the whole country is about Rs. 16½ crores out of a revenue of about Rs. 180 crores, while the expenditure on the army has been about Rs. 65 crores. No one would fail to be struck with the smallness of expenditure on a matter of such vital importance to the country as education, as compared with the huge expenditure on the army. If the necessary funds be set apart and decent salaries provided for teachers of the requisite training and capacity, men of the right sort could be had for teaching and the needs of the country, best met.

It cannot be hard for the State with its vast resources to find increased funds for Education in view of its imperative necessity and

beneficial effects. It has but to estimate the total amount needed and lay the axe at the other items of expenditure just to the extent required to make up the total needed. It is a truism that expenditure on Education is an economic national investment making for a falling off of expenditure all round and for a distinct advancement of the nation in every direction. The abnormal rise in the cost of the necessities of life, the proverbial inadequacy of the emoluments of the teaching profession and the extreme pinch of poverty which the members of the profession in general suffer have led to the formation of Teachers' Associations all over the country for enforcing demands for enhanced salaries to teachers; and, taking note of the signs of the times, more than one Government in our country, the United Provinces, Bihar and Orissa, are said to have taken steps to adequately increase the salaries of teachers in their schools, both public and private. It won't do for the State to make a distinction in respect of salaries between schools managed by Government or local bodies and those managed by private agencies. It should, on the other hand, in its own interest, consider all teachers as its own servants and make a point of placing them all, each according to his grade, on a footing of equality and mete out to all similar treatment in respect of pay and prospects. Unless this is done, men of the right sort cannot be attracted to the profession and schemes of education, be they ever so excellent, must fail of their purpose for lack of expert piloting. Hence the need for a change in the attitude of the Government and the Educational Department towards the profession of teaching as a whole; and yet a greater need there is for a wholesale revision of the Educational Codes so as to meet the present-day educational demands of the country and of the people engaged in the beneficent work of Education. Unless the

revision of the Code so imperatively called for by the circumstances of the hour is immediately effected, the cause of Education is bound to suffer, the progress of the country must be retarded and the purposes of the reforms, political and educational alike, frustrated.

The success of the recent political reforms depends entirely upon the people's representatives on the various Legislative Councils and the choice of proper representatives is again dependent upon the intelligence and the enlightenment of the electorate. What is therefore most urgently needed in the interests of the reforms is the education of both the young and the adults and more particularly of the latter who form the immediate electorate. These latter require accordingly to be got to realize their civic duties and responsibilities, to sympathise with the intentions and aims of Government and co-operate with them in their achievement. In this kind of adult education, making for citizenship and universal brotherhood, you, teachers, could play no mean part. Besides giving instruction to the youngsters at school, for which you are engaged, you may, where you are employed, start evening classes and organise Reading Rooms or Libraries for the education of the adults within the limit of your own culture and facilities. You may, by example as well as by precept, get the people about you to live a life of cleanliness, virtue, industry, thrift, contentment and usefulness. You may, by making villages or suburbs the centres of your activities, check the tendency of people to migrate to towns for the so-called life of fashion and enlightenment. Periodical talks to people about you on the dignity of labour, hygiene, and civic duties, domestic science and sanitation and the principles and aims and the possibilities of the local industries and trades you may well arrange

by way of showing your readiness to serve the State and the people to the best of your ability and knowledge. If you only make up your mind to have your outlook widened and so live your life that you may be able to render a good account of yourselves in fulness of time, you can without difficulty equip yourselves for the kind of extra school work indicated above. The more you exert yourselves genuinely for others, the greater the regard you command and the greater your material prosperity too. People cannot always be so blind as not to see who work genuinely for them and who work against them. Nor can the State, for which you so much work and whose progress you so much strive for, ignore you long. Government must soon take you, genuine workers as you are, under their wing and show your profession the same consideration that they show to the less useful but more favoured professions.

The present comparative neglect of our profession is perhaps due to our taking everything lying down. We ought to show useful honest work; and when its due recognition is not forthcoming from the concerned quarter, we ought to agitate for the due reward and that, in a perfectly loyal, constitutional manner, without in the least transgressing the limits of decency and decorum and without the exhibition of the least animus. Already there are coming into being in our own province duly constituted organizations having for their aims, the advancement of the teaching profession, the enhancement of the teachers' salaries, the remodelling of the school courses, technical and non-technical, and the provision of the necessary training institutions and lastly the betterment of the methods of instruction. It is incumbent on us to make the cause common and take an intelligent, enlightened part in the work of these organisations. We should never rush

headlong without looking ahead and back. There are already on the tapis questions relating to the expansion of Education, Elementary, Secondary and Collegiate, the provision of Vocational Education, the most effective medium of instruction in schools and the modification of the curricula of studies. The results of the discussion cannot but be encouraging and effective if done on sound lines and in the right spirit, with our heads quite cool. Our cause being just and our aims being legitimate and landable, the agitation is sure to tell, sooner or later. That teachers in general have been sufficiently level-headed and that they are capable of taking a dispassionate view of men and things in times of excitement has been, I think, recognised in influential quarters and the recognition may possibly take a welcome form in due course. We should not rest content with merely knocking at the door of Government for our advancement but should make every effort, by preaching or teaching, to procure for Education, general or technical, public sympathy and support. Thanks to the new democratic spirit and the awakening of the national consciousness, people have begun to show a desire to respond to the call for national service; and monetary contributions for the cause of Education from people and the founding of educational institutions by men of wealth are becoming more and more common; and if well-directed efforts are persistently made to stimulate this spirit of sacrifice and help, the cause of Education and the school-master is bound to triumph.

That the present system of education in general is more literary and less technical or practical than the needs of the country justify or require, and that a scheme of Vocational Education fully responsive to the wishes and needs of the people is being devised is common knowledge.

It is again common knowledge that the present system of Elementary Education, which consists more or less in instruction in the Three R's, does not go far enough to train up pupils for life and for true citizenship and that the authorities concerned are engaged in devising a system which would be a self-contained unit in itself.

The scheme of free and compulsory education just introduced in some parts of our province, far from being welcomed as a beneficent measure which it really is, seems to have awakened only a feeling of disappointment and distress. Some feel that education given gratis can be of little value. Others who are poor and who happen to be fathers of children of school-age are said to feel wronged by being deprived of the help and earnings of their children. There is yet another section of people more vociferous than these, viz., the teachers and the managers of the schools whose incomes have been cut deep by the inadequacy of the compensation allowed. In order that the purpose of the scheme may be realized, it is here and there suggested that arrangements be made to ensure efficiency of teaching by employing competent teachers and paying them well and also to pay adequate compensation for the loss of income to the managers and to poor parents, if possible.

It is alleged in some quarters that schools are maintained in localities where they are not very much needed, that there are no schools in places where they are most needed and that there is thus a great deal of misapplication of public funds.

The question of Female Education is another hard nut to crack. The illiteracy among our women is most astounding, the number of women and girls under instruction being said to be 1.4 millions in all. Almost one half the population is growing in mental darkness.

The education of a girl may mean, they say, the education of a whole family, while the education of a boy may not mean more than the education of an individual. It must be borne in mind that no national progress is possible if one half of the nation pull in one direction and if the other half pull in the opposite direction in matters affecting social and material advancement. Adequate provision for the proper education of our women is indeed a necessity and educational institutions of the right sort have to be established where they can best serve the interests of the people.

In the Girls' Schools in existence here and there the curricula of studies are said to be wholly unsuited to the practical needs of Indian womanhood and it goes without saying that a scheme of studies likely to fit in with the present and with the future in relation to the social position of the classes from which the girls are drawn, is a desideratum.

It is said, and said with some truth indeed, that pupils who have passed through the secondary school course are found to have no ideals before them and have little or no idea of their civic duties and responsibilities. Neither is the education they have received found to help them very much to earn a livelihood; and loud are the demands almost on every side for some measure of vocational instruction by way of preparation for trade or handicraft. The curriculum being already heavy, the introduction of Vocational Education in Secondary schools is impossible, unless some of the present subjects are cut out or the present school course is rendered lighter by the cutting down of the present syllabuses. Opinions are divided as to the desirability of doing either. The apprehension is that any tampering with the existing scheme may adversely affect the cultural side of education; and if anything is

possible at all, it is said that only a bias for a vocation can be given in Secondary schools and no vocational instruction direct. This is a much debated subject at present. Government have just issued orders regarding the constitution and functions in general of *ad hoc* District Secondary Education Boards. The details yet remain to be worked out.

The above are some of the more important or outstanding educational problems engaging the attention of both the Government and the people; and ere long may issue the Government Order regarding one or other of these. In the meantime you may arrange meetings of your Associations for the consideration of any or all of these problems and submit in proper form your well-considered views thereon for the consideration of the Government. If your Associations show themselves worthy of being consulted, Government may in future be pleased to refer other educational matters of importance to them for an expression of opinion. Whether Government consult them or not, it is their duty, I believe, to discuss from time to time educational questions as they arise and submit their conclusions to the authorities concerned for such action as they may deem necessary.

In the new dispensation, Secondary School teachers may have little to do with University Education and I propose therefore to leave it alone. But I am tempted to observe that, if University Education is to be pushed up by starving Elementary and Secondary Education, the material progress of the country will be greatly impeded. University Education is but a superstructure Elementary and Secondary Education being the foundations. If the foundations are shaky, the superstructure, however grand and

elaborate, must necessarily come down. It needs no ghost to tell us that. It is to be hoped that our benign Government will make a liberal allotment of funds for Education in the Budget and earmark enough funds first for Elementary and Secondary and Technical or Vocational Education and devote to University Education the balance left out of the allotment, supplemented, if need be, from other sources. In truth the interests of the country demand more of the former than of the latter. All this I say only by the way.

Having in a manner indicated the out-of-school activities in which you can profitably engage yourselves, I ought to say a word about your inside school work for which you are appointed and paid. You are in duty bound to advance in all manner of ways the reputation and efficiency of your schools by promoting the interests and the well-being of the pupils in them. I may tell you I am myself a trained teacher and realize pretty fairly what spirit the pedagogic books I studied and the pedagogic lessons I heard and saw in my time awakened in me. But the books you have read, the lessons you have heard and the work you have witnessed must be vastly superior and the start you have had must in consequence be infinitely better than mine. I could therefore have nothing of use to say to you. I wish therefore only to say that you will do well to ever bear in mind what ideals your good masters here may have placed before you, what principles you have been able to learn and what modes of procedure you have seen here and to make the best endeavour to carry them out in life, so as to secure satisfaction and credit to yourselves and a name and fame to the teachers that have with

so much care brought you up. When with your pupils, treat them as though they were your own kith and kin, identifying your interests with theirs and make every endeavour to meet their little wants, redress grievances, if any, and set right what shortcomings they may have. In class put yourselves in the place of the youngsters and realize their difficulties and so shape your questions as to elicit the answers required. Never mind the trouble involved. It is incidental to your calling. Never teach over their heads. Be patient and forbearing in dealing with them and their little faults and put forth your best effort to train them to think, reason and express themselves aright. In short do what is said to have been done by the preacher to his flock in Goldsmith's *Deserted Village*:

"As a bird each fond endearment tries
To tempt its new-fledged offspring to the skies
He tried each art, reprov'd each dull delay
Allured to brighter worlds and led the way."

Remember the educative value of the subjects you teach and make a point of realising it or driving it home in actual work. Further, study with care the tendencies, tastes and talents of your pupils as they manifest themselves and try every means in your power, securing the co-operation of parents or guardians on one side and the sympathy and support of the school authorities on the other, to advance the pupils each in the line in which his talent lies. Study the particular craft or trade or occupation that is largely pursued in your place, and lead the children on to know about it and take to it if they get to like it. Never fail to inculcate upon children, rich or poor, the dignity of labour by suitable lessons, whenever possible, endeavour to get your boys to like their family calling and to take to it in fulness of time with avidity and zest. Pre-eminently agricultural as our District is, the demand for agricultural instruction is not much in evidence and such of you as may

secure situations in village schools ought to awaken a taste for agriculture in your pupils, particularly in the children of the agriculturists in your school and thus pave the way for people resorting to agriculture as a profitable occupation. By so doing, you may be laying the foundation for a scientific study and pursuit of agriculture in the District.

Having so far dealt with the intellectual side of school-life, I feel, a word about its physical and social side will not be altogether out of place. I am a believer in the rule by love and not in that by fear. In an Elementary School there ought to be no occasion for punishment of any kind. Careful, sympathetic supervision, wise guidance, intelligent teaching, kind and considerate treatment and provision of congenial activities, suitable diversity of occupation, are the several means for doing away with the necessity for punishment. If you have had Scout training, you can add to the attractions of your school and multiply healthy joint activities for the children of the school.

If children should quarrel, never hesitate to know the cause of the quarrel and promptly make it up. Never commit the mistake of sending them up to the Headmaster for punishment, while it is your own duty and privilege to set matters right. A timely word of advice from you must be enough. There ought to be no talking in class among boys if the teaching is sufficiently interesting and thought-awakening. If children are in ill-health, procure promptly the necessary remedy for it. If children are untidy and their clothes stink, never hesitate to draw their attention to it and mend matters. Organize suitable games and other forms of recreation or physical training so as to promote healthy social life among children and create healthy physical conditions in the school, where it may be all beneficence, joy, ease and peace. Endeavour to be yourself an exemplar, being a centre of beneficent influence. Nothing is more glorious than to have made the best use of one's talent and nothing delights the soul so much as the fulfilment of one's mission in life. May God bless you all with the health and strength needed to fulfil your mission in life and may you enjoy that bliss which comes of that fulfilment.

CHARLES DICKENS AND EDUCATION.

THE place of Charles Dickens among the English novelists and his claim to an abiding popularity have been the subjects of a rather stiff controversy equal to, if not greater than, that which has raged over the name of Tennyson and his claim for a place among the immortal poets. Critics have been busy with him and his works and as their duty naturally is, have found fault with his language which they call loose and ungrammatical, his humour coarse and vulgar, his character sketches grotesque and bizarre, his plots indefinite and intricate. Much of this may be true. Even such an ardent admirer of Dickens as the leviathan of present-day literary critics, G. K. Chesterton, the famous Editor of the *Illustrated London News*, has had to admit his protégé's shortcomings. Persons of a more conservative literary standard like A. G. Gardiner place Dickens far below Thackeray. It is all a matter of taste—but the perennial geniality of temper and the invariable human kindness with which he clothes even his worst characters actually takes away much of their apparent repulsiveness and makes us feel that their defects are not so much inherent in them as in the artificial surroundings which human short-sightedness has fixed around them.

The mission of Charles Dickens is to lay bare the seamy side of human life, to open up the mental and moral sores and cankers that eat into human mind and society, not with the rough hand that the post-mortem doctor uses, but with the delicateness of touch and feeling with which the surgeon uses his knife to save his patient's life. His language may be unpolished but in every line of it we can feel a ringing sincerity of purpose, a quality which, in his cynicism, Thackeray may be said to be entirely stranger to.

Dickens' outlook on life is not that of the reforming missionary. There is no fanaticism or intolerance. His novels were not written so much with the idea of reforming the world as to set it feeling and laughing. How far he achieved this purpose any reader of his can testify for himself. In most of his works we can find some social abuse subjected to his virile criticism. His *'Hard Times'* is an eloquent tirade against soul-killing industrialism, and an emotionless fact-bound education. His *'Little Dorrit'* depicts the horrors of the Marshalsea, the debtor's prison. His *'Bleak House'* pictures the inhuman dilatoriness of the Court of Chancery; his *'Oliver Twist'* the miseries of a soulless administration of Government and Municipality. In an exactly similar way most of his characters are exaggerated types of vicious humanity like *'Sairy Gamp'*, who is the caricature of the untrained private nurse of the days before the time of Florence Nightingale—a type analogous to our own barber midwives who are still 'going strong.' But one common outstanding feature of most of his novels is his argument, his plea for the prerogatives of childhood. His gentlemen may be only snobs or sentimental dandies, his heroines, forward minxes or animated wax-dolls, his villains grotesque nightmares; but his children are children; not the goody goody ones of Maria Edgeworth but frail human creatures whose capacity for pleasure and pain he portrays to a hair's breadth of accuracy. His novels may be said practically to be written to prove the existence of the divine element in the lowest and most degraded species of humanity, a plaint for giving the child its birth-right of pleasure and happiness.

As a fighter for the prerogatives of childhood he has attacked the inhuman system of education prevalent in his days. Schools and

teachers and teaching methods have been subjected to his attack in one form or other. A novelist is not a practical reformer. His duty is to portray facts as they exist, to show up abuses wherever they are found. It is generally beyond his province or capacity, except in a general way, to show how these are to be remedied. Dickens therefore has shown only the defects in the system of education as he saw them. His contribution to educational theory is mainly negative. It is therefore difficult to say what he would have, what kind of school or system of education he would advocate. He has given the world the benefit of his criticism and described the system as he saw it in its worst aspects. But even from this negative contribution we can gauge his real feelings towards the education of the child.

Of the great English writers Dickens is possibly the one who least owed his greatness to his education. That it should have fallen to him to fight on behalf of down-trodden childhood is not so much a matter of surprise as of gratification. In his 'David Copperfield' which the ingenuity of his critics has made into a sort of autobiography, there are incidents in the life of the hero which are echoes of Dickens' own experiences. Mr. Creakle's School is supposed to represent the first and only one which the juvenile Dickens attended and considering the intensity of feeling and pathos that pervades the description of David's childhood, we cannot but consider this view to be not altogether unbased on facts.

It is very difficult to reproduce in ordinary bald language the essence of Dickens which has its best setting in his own unrivalled, spicy, humorous language, a language adaptable enough to fit without being bizarre the ludicrous as well as the serious situations. But it occasionally happens that a certain

gust of unreal sentiment obscures his finer qualities. As an example, we may cite 'the pathetic death to slow music' of little Nell in 'Old Curiosity Shop' and that of little Paul Dombey in 'Dombey and Son' which leave us rather cold than melting. Somebody has said that Dickens' characters do not grow in a natural manner. Dickens catches a man or woman in an intensely characteristic mood just as they do in a cinema film; he then makes a whole story out of this one lightning revelation. He puts a microscope in our hands and we watch with excited attention the perfectly consistent if often strangely violent grotesque adventures of the beings comprised in his world of fancy. We have all seen snapshots of tennis players caught in a characteristic posture which, fact though it may be, is not at all flattering to the persons depicted. Such photographs may be said to be realistic but cannot be said to be real in a living sense. The camera with its lightning speed catches them in a posture which the eye of a spectator fails to notice or noticing fails to retain an impression of. Such are most of Dickens' characters also. He carries this to such an extent that his characters, their names and certain physical tricks are indubitably connected together. It is almost impossible to think of Sam Weller without hearing his bluff cockney humour, of Mr. Carker in 'Dombey and Son' without seeing his gleaming teeth; Mr. Pecksniff in 'Martin Chuzzlewit' without his insufferable hypocrisy; 'Uriah Heep' without his snaky motions and oily hands; Lord Verisopht in 'Nicholas Nickleby,' without his colourless foolishness; Mrs. Gamp without her inseparable umbrella and nosy language redolent of gin. The real imitative vitality such as the characters of Fielding or Jane Austen possess, the enchanting marionettes of Dickens may never display—in all their oddities they may be incorporeal—but they appeal to their human readers and

the appeal is in no way weakened because it is softened by humour or coloured by exaggeration.

Charles Dickens had a very chequered childhood and a disheartening period of struggle in his youth. The greater part of his life was spent amidst, if not actually, in the squalid surroundings of the real London as distinct from the aristocratic West End. As a reporter to the London papers he had occasion to come into intimate contact with the lower and middle class life not only in London but in the provinces as well. His novels are the outcome of his personal experiences. With such a quick heart as he had, trained by actual suffering to the harassing effects of mental and bodily hunger and to the thirst in the child as in the adult for love and kindness, it was but natural that he should turn his facile pen, as soon as he knew the power it wielded, to bring home to the vast mass of his readers the facts as he knew them in as telling a way as possible.

The times in which he lived were prior to those which saw the awakening of national consciousness to the necessity for the humanisation of education and the promotion of child welfare. Even as he was writing, the abuses that he attacked were in a state of transition and his powerful pen must have had its effect in bringing home to the vast and varied class of his readers what was happening outside their consciousness. We can get some idea of the prevalent state of affairs from the following extracts from the Preface written by Dickens himself to the complete edition of his 'Nicholas Nickleby':—

'Of the monstrous neglect of education in England and the utter disregard of it by the statesmen as a measure of forming good or

bad citizens, and miserable or happy men, this class of school (meaning Yorkshire schools) long afforded notable examples. Any man who had proved his unfitness for any other occupation in life was free without examination or qualification to open a school anywhere.' Again, 'we hear sometimes of an action for damages against the unqualified medical practitioner who has deformed a broken limb in pretending to heal it. But what about the hundreds of thousands of minds that have been deformed for ever by the incapable pettifoggers who have pretended to form them?'

Except perhaps in 'Pickwick Papers' which saw his debut as a popular author the problems and mischances of child education and training occur as main ideas in most of his novels. The central point of 'Nicholas Nickleby' and 'Hard Times' may be said to be this only. Again in the education of the little Dombey, of David Copperfield, of Martin Chuzzlewit, of Pip and Estella in 'Great Expectations,' of Joe and the Chancery wards in 'Bleak House' there occur the same topics in different aspects. Except in the one instance of the good Dr. Strong's School in 'David Copperfield' all the educational institutions and teachers are held up to criticism and ridicule. It may be worth while to get some idea of his view-points from a consideration of his main novels.

1. *Nicholas Nickleby*. In this novel Dickens crucifies the inhuman, cruel and the worst side of education. His portrait of Wackford Squeers, the school-master, his wife, his hopeful son and daughter, and his description of the economics of 'Dotheboys Hall' present some of the most revolting pictures. In going over these we cannot but be struck by the

close resemblance it carries to the but recently dead or dying system of vernacular or Kudipalli Education prevalent in our villages. Even the passing generation of Indians can give examples of Indian Squeerses and Indian 'Damn the boys Halls.' Mr. Squeers' advertisement of his school cannot but bring a smile to any ordinary reader.

'Education at Mr. Wackford Squeers Academy, Dotheboys Hall—at the delightful village of Dotheboys near Greta Bridge in Yorkshire, youths are boarded, clothed, booked, furnished with pocket money, provided with all necessities, instructed in all languages, living or dead, mathematics, orthography, geometry, astronomy, trigonometry, the use of the globes, algebra, single stick (if required), writing, arithmetic, fortification, and every other branch of classical literature. Fees £ 20 per annum. No extras, no vacations, and diet unparalleled. Mr. Squeers in town and attends daily from 1 to 4 P.M. at the Saracen's Head, Snow Hill.'

N. B.—"An able Assistant wanted. Annual salary £5—a Master of Arts preferred."

That last N. B. has quite a modern flavour and might have been copied from one of our own contemporary newspapers. Mr. Squeers' appearance was not at all prepossessing,—his one eye and that not at all ornamental: his low protruding forehead, his scholastic black coat with sleeves too long, and trousers a deal too short, and in which he appeared ill at ease as if he were in a state of perpetual astonishment at finding himself so respectable. This is a picture of him waiting for a visitor in company with a diminutive boy, the latest recruit to the Academy, who glanced at him from time to time in evident dread and apprehension. Mr. Squeers is

vexed at the reflection that his visitor is late and that he would not be able to do any business that day. He looks at the little boy to see whether he is doing anything he could beat him for—as he happens not to be doing anything at all he merely boxes his ears and tells him not to do it again. This incident is Squeers all over.

Of the internal economy of Dotheboys Hall, the following exhortations of Mr. and Mrs. Squeers will amply illustrate:—

Mr. Squeers to his boys. 'Conquer your passions, boys — and don't be eager for vittles.'

Mrs. S. to the new teacher. 'Understand once for all that we don't want any foolery with the boys. They have the brimstone and treacle (a nice composition rivalling our castor oil mixture) because if they hadn't something or other in the way of medicine they would be always ailing and giving a world of trouble and partly because it spoils their appetites and comes cheaper than breakfast and dinner. So it does them good and us good at the same time and that is fair enough, I am sure.'

The effect of this inhuman method of education, Dickens describes as follows:—

'He could not but observe how silent and sad the boys seemed to be. There was none of the noise and clamour of a school-room, none of its boisterous play or hearty mirth. The children sat crouching and shrinking together and seemed to lack the spirit to move about.' This is a picture that should warn those among us who may be tempted to call a school noisy or undisciplined.

Mr. Squeers' method of imparting education is the heuristic carried to the logical end, subject only to an intensely selfish considera-

tion. When Mr. Squeers has marshalled the boys in point of order with one book for an average of eight boys, he proceeds to enlighten his new assistant Nicholas Nickleby thus:—

Squeers: This is the first class in spelling and philosophy Mr. Nickleby. Now then where is the first boy?

Boy Please Sir, he is cleaning the back parlour window.

Squeers. So he is to be sure. We go upon the practical mode of teaching, Nickleby — the regular educational system — *c-l-e-a-n*, clean, verb active, to make bright, scour. *W-i-n*, win, *d-e-r*, der, winder, a casement. When a boy knows this out of the book, he goes and does it. It is just the same principle as the use of the globes. Where is the second boy?

Boy. Please Sir, he is weeding the garden. 'To be sure he is,' said Mr. Squeers not at all disconcerted. 'So he is. Bottinney—noun substantive, a knowledge of plants — When he has learnt that Bottinney means a knowledge of plants, he goes and knows them. That is our system, Nickleby. What do you think of it?'

'It is a very useful one at any rate,' said Nicholas significantly.

S. 'I believe you' rejoined Squeers. 'Third boy, what is a horse?'

B. A beast, Sir.

S. So it is. An't it Nickleby?

N. I believe there is no doubt of it, Sir.

S. I believe there is not. A horse is a quadruped — and a quadruped is the Latin for beast—as anybody that is gone thro' grammar knows — as you are perfect in that, boy, go look after my horse and rub him down well or I will rub down. The rest of

the class go and draw water up till somebody tells you to leave off — for it is washing day to-morrow and they want the coppers full. That is the way we do it, Nickleby.

That the picture that Dickens thus presents was not purely imaginative is evidenced by the variety of ludicrous statements concerning himself and Yorkshire schoolmasters at the time — many of whom laid claim to be originals of Mr. Squeers and even threatened personal violence and legal action against Dickens.

2. Then there is Mr. Creakle and his school in 'David Copperfield.' The principle on which this school was run was 'terrorism' pure and simple. Mr. Creakle's description of himself is 'I am a Tartar. When I say a thing I do it. When I say I will have a thing done, I will have it done. I am a determined character. That is what I am. I do my duty. That's what I do. My flesh and blood when it rises against me is not my flesh and blood. I discard it.' Mr. Creakle was a man who certainly enjoyed his profession. He had a delight in cutting at the boys, which was like the satisfaction of a craving appetite. 'I am confident he could not resist a chubby boy especially — that there was a fascination in such a subject which made him restless in his mind until he had scored and marked him for the day. I was a chubby boy myself and I ought to know.' That is how Dickens explains Mr. Creakle's proclivity to using his cane. We cannot say that the type represented here is absolutely extinct among us; a type which considers a day well begun if begun with an all-round flogging. As Dickens puts it through the mouth of David 'such (teachers) if any, have no more right to be possessed of the great trust they hold

than to be Lord High Admiral or Commander-in-Chief in either of which capacities it is probable they would do infinitely less mischief.' Mr. Creakle having been a hop-dealer before he became a teacher had probably none of the advantages that an educated man may be said to possess and so our anger against him is tempered with a certain pity. His favouritisation of well-to-do boys, and his betrayal of one of his Assistants to the whim of one of such favourites is also a lesson that we might make a note of.

3. *Dombey and Son*. In Dr. Blimber's establishment at which little Paul Dombey was educated we have a slightly advanced type. Here it is not personal violence used against the child but mental violence done to it by unsympathetic, ununderstanding treatment. In Dickens' own words, 'Dr. Blimber's establishment was a great hot-house in which there was a forcing apparatus incessantly at work. All the boys blew before their time. Mental green peas were produced at Christmas and intellectual asparagus all the year round. Mathematical gooseberries (very sour ones too) were common at untimely seasons and from mere sprouts of bushes under Dr. Blimber's cultivation every description of Greek and Latin vegetable were got off the driest twigs of boys under the frostiest circumstances. Nature was of no consequence at all, no matter what a young gentleman was intended to bear, Dr. Blimber made him to pattern somehow or other.'

The satire of these lines fits our days as well as those of Dickens. With our overladen curricula and hurry to prepare boys for the examinations our system of education does resemble a hot-house system of forcing up of young minds to a pattern. The results

may be universally admired. Examiners may be satisfied. But there may be instances in which this vigorous training may kill the body as it did in the case of little Paul Dombey, or atrophy the mind as it did in the case of young Toots rendering him an imbecile, walking automaton. It frequently does happen that when a young man begins to have whiskers he leaves off having brains.

4. *Hard Times*: Another side of a faulty system of education is that depicted in 'Hard Times.' A materialistic fact-bound education in which the feeling of wonder in the child is stifled and buried under fathoms of dry choking facts has its Nemesis in a moral collapse. Instead of making the system serve the child the child is sacrificed to the system. He is educated not for himself but for his would-be employer. The book is an argument against the theory that schools must be practical. They must not teach anything that is not of practical value — only what is directly useful — nothing but what has a price in the labour market. We want no sentiment, no romance, about education. This is utilitarian education in its narrowest definition with a vengeance.

Mr. Gradgrind the industrial magnate's advice to his teacher, Mr. Choakumchild, is worthy of note — 'Now what I want is facts, nothing but facts. Teach these boys and girls nothing but facts. Plant nothing else. Root out everything else. You can only form the minds of reasoning animals on facts. Nothing else will ever be of any service to them. This is the principle on which I bring up my children — and this is the principle on which I bring up these children — Stick to the facts, Sir.'

Mr. Gradgrind unlike many moralists had

the courage of his convictions and bred up his children under the same system that he advocated for others. The effect it had on them was disastrous. Tom, his son, passed from facts to disgrace and sin. His daughter, Louisa, was saved first by her love for her degenerate brother and finally by the influence of the outcast girl, Sissy Jupe, the wandering circus clown's daughter. This unsophisticated child of nature in whom the germs of tenderness and longing for human love could not be quenched by the dry-as-dust facts, saved Louisa in the end from something greater than bodily suicide, moral degradation and shame. It required this catastrophe to bring home to her erring parent the defects in his system. His confession in the end may appear to be forced but it contains a statement which forms one of the fundamental concepts of education. 'Some persons hold,' he says hesitating, 'that there is a wisdom of the head and that there is a wisdom of the heart. I have not supposed so; but as I have said I mistrust myself now. I have supposed the head to be all sufficient. It may not be sufficient.'

The two examples of women-teachers that Dickens has delineated are both equally unprepossessing. The first Mrs. Wopsle's great aunt whose name Dickens has made famous in 'Great Expectations' kept an evening-school in the village—that is to say, she was a ridiculous old woman of limited means and unlimited infirmity who used to go to sleep from six to seven o'clock every evening in the society of youth who paid two pence each per week for the improving opportunity of seeing her do it. Examples are not rare among teachers in our lower schools especially, where the same somnolent tendency does

not show itself — who let the boys read aloud conveniently near at hand and go to sleep to the tune of the boys' reading—who waking up at intervals tap the nearest boy on the head to show their alertness and at the same time to give a warning to the others.

The second example of a woman-teacher comes in 'Dombey and Son.' Mrs. Pipchin is a cadaverous old lady who keeps 'an infantile boarding house of a very select description.' Her methods are a little more vigorous than those of Mrs. Wopsle's aunt. She pampers herself with mutton chops and sweet bread messes while the children are fed on poor food, and presides over the readings, it being a part of Mrs. Pipchin's system not to encourage the child's mind to develop itself like a young flower but to open it by force like an oyster by relating to it gruesome stories of lions and other ferocious human and inhuman creatures.

The private idiosyncracies of parents and guardians in the education of their children have also been touched upon by Dickens. The sacrifice of little Paul Dombey by his father at the altar of his family and firm's name is a monumental example. Many a great man's child is educated not for his sake and according to his natural inclination and taste but that he may follow in his great father's footsteps. The tragedy of many a young life can be traced not to the inherent weakness or want of brains in the young people themselves but to the unsuitability of the education given to them. In our craze for the current system of education every boy, be he rich or poor, is treated to a sample process of fitting up. Physical or mental inaptitude for the work is not considered and

examples will not be wanting where the disappointed parent is prepared to discard such a son who has failed to suit himself to the education given to him. Little Dombey, his father's only son, is thus educated at Mrs. Pipchin's school and then at Dr. Blimber's where his education is forced into him. They manage to fill him up but in the process the frail body gives way and he dies. In this connection there comes to my mind an extremely striking parable of our revered poet, Rabindranath Tagore, published in the 'Modern Review' some years back, with the title the 'Parrot's Training'. A great king sets up a vast institution with an elaborate organisation to educate his pet parrot. Thousands of persons find lucrative employment and everything and everybody about the parrot thrive except the parrot itself. After some time the good king hearing a faint rumour of some mischief-monger against the practical working of the fine system that had been set up decides to visit his parrot to find out how his training is going on. He is taken in grand procession and his eyes sparkle with pleasure at the grand edifices and the signs of prosperity prevalent everywhere. On inquiring for the parrot he is taken to the golden cage where it is kept. The king attempts to stroke it but the little weakened body gives a last gasp of protest, a rustle of dry leaves in its book-filled stomach is heard and the parrot dies. It has been choked to death by books.

Again the spoiling and clouding up of a young life like that of Estella in 'Great Expectations' — where the love crazed Miss Havisham undertakes upon herself a perverted system of education of the young girl's sentiments so that through her she might

revenge herself upon man for the disappointment to which she had been subjected at the very moment when, clad in her bridal dress she stood waiting for her intended husband to take her to the altar. She adopts the orphan girl and immuring her in the sepulchral house shut up and walled to keep off the sunlight brings her up to think man a legitimate prey for woman to hunt and torture. Pip, the hero, is the counter-part of Estella. He too is an orphan brought up by his sister, the wife of the village blacksmith, Joe Gargery. She has the art of making vices of virtues, of making everybody exquisitely unhappy and uncomfortable. While being earnest in her conception of her duty towards her orphan brother she has the capacity to make his life unhappy and that of her husband too. He, simple soul, loves Pip in his own dumb intense way. The friendship between the rough, uncouth grown-up man, and the young child is one of the finest pictures that Dickens has drawn. The following passage from Pip's description of his bringing up is characteristic:—

"My sister's bringing up had made me sensitive. In the little world in which children have their existence whosoever brings them up there is nothing so finely perceived and so finely felt as injustice. It may be only small injustice that the child can be exposed to but the child is small and its world is small and its rocking-horse stands as many hands high according to scale as the big-boned Irish hunter. Within myself I had sustained from my babyhood a perpetual conflict with injustice. I had known from the time that I could speak that my sister in her capricious and violent coercion was unjust to me. I had cherished a proud conviction that her bring-

ing me up by hand gave her no right to bring me up by jerks."

This is a passage on child psychology which is more forcible in its appeal than whole books of theory. That love could do what coercion could not is illustrated by the way in which Pip picked up his education with the help of Biddy, a girl little more educated than himself. Probably the finest education that he could have had was his intimate association with old Joe, the blacksmith, whose noble soul could through halting language intelligible only to the sympathetic ears of childhood reveal golden ethical truths, never forgotten lessons which helped to form his life.

It is when he comes to the waifs and strays of society that the big heart of Dickens opens out. He is never more sublime; never better in his element than when he describes the mental anguish that ill-treatment and injustice brings to the heart of down-trodden childhood. Yet in spite of all his knowledge of the evils in the lowest strata of human life Dickens could still find some sparks of the divine element in them. His picture of poor Joe, the street sweep, in 'Bleak House,' is one of the most pathetic ones. Desertion, squalor, poverty, misery, could not kill the human heart in the Street Arab. The least act of kindness done to him by a passing stranger is treasured up in his mind to death. Speaking of his benefactor at the inquest on the latter's dead body, his eyes are filled with tears. 'He was good to me, he was,' says the boy wiping his eyes with his wretched sleeve. 'When I see him alaying so stretched out just now I wish he could have heard me tell him so. He was very good to me, he was.'

Oliver Twist, the child-hero, is an example of

the triumphant vindication of the divine element in the child in the face of insuperable temptation to villainy. According to Dickens strong manhood grows into being even in cases where there is a total absence of formal education. Sam Weller, the personification of Cockney humour, is a sharp-witted intelligent and honest lad, — but his education as described by his father, Tony Weller, the retired stage coachman, with Sam's comment thereon is given below:—

'Very glad to hear it, Sir,' replied the old man. 'I took a deal of pains with his education, Sir, let him run in the streets when he was very young and shift for himself. It's the only way to make a boy sharp, Sir.'

'Rather a dangerous process, I should imagine,' said Mr. Pickwick with a smile.

'And not a very sure one neither,' added Mr. Weller, Junior.

The only example of a good school that Dickens has described is Dr. Strong's in 'David Copperfield.' It is but a shadowy picture after all and gives us no concrete idea of what Dickens' ideal of a good school was.

"Dr. Strong's was an excellent school—as different from Mr. Creakle's as good from evil. It was very gravely and decorously ordered and on a sound system with an appeal in everything to the honour and good faith of the boys and an avowed intention to rely on their possession of these qualities unless they proved themselves unworthy of it which worked wonders. We all felt that we had a part in the management of the place and in sustaining its character and dignity. Hence we soon became warmly attached to it. I am sure I did for one and I never knew in all my time of any other boy

being otherwise with a good-will desiring to do it credit."

This is far from being a positive picture of what Dickens would have considered to be the best ideals in education. But to a thorough reader of his novels the what-ought-not-to-be will be very striking. Dickens stands for justice to the child. He subordinates the education of the intellect to the education of the heart and hand. It is a faulty definition of education to call it training of the body, the will and the intelligence. The heart and emotions require as much looking after; for, to the child its feelings are the sources of its greatest sufferings. And there we come to Dickens' emphasis on the child's claim as a birthright to a happy life—a life which does not demand of it efforts beyond its power both with respect to the exercise of its mind as well as of its body. Dickens protests against under-education, or educational neglect, over-education of the Dr. Blimber kind, perverted partial education of the Choakumchilds. The child is to be allowed to open of itself flower and fruit under kindly surroundings, direction and supervision. It is not to be forced into a pattern. The aim of education according to him is not external to the child but within the child itself. The education should help to make the child a good citizen and a happy man or woman. The one golden maxim which he may be said to preach is 'Respect the divine fire of truth and love of devotion and enthusiasm, that lie dormant in the child's heart. Blow gently so that the divine spark may kindle into flame and illuminate the darkest recesses of its own heart and spread its light over all the world.'

N. R. RAMACHANDRAN.

THE VALUE AND DEVELOPMENT OF CORPORATE LIFE IN SCHOOLS.

THAT the ideals formed by companionship and social contagion during the years of early adolescence are among the most effective and influential conduct-controls of early maturity, there can be little doubt. The standards of courage, endurance, hardihood, truth, chastity, personal honour, and moral rectitude, as well as the more specific ideals of cleanliness, industry, accuracy, and the like, formed during these years, are almost certain to be the directive forces of conduct. The hope of the future must lie in the character of the ideals with which youth is inspired, and since these come more numerous, and certainly more effectively, out of the social environment of youth than out of the formal instruction to which youth is subjected, the value of the social life of the school can scarcely be over-estimated.

Deep love for the parents is deep-rooted in the child. This love widens with the growth of years. Love, like charity, begins at home. Then it begins to form ever-widening circles round it. No sooner does a child go to school than he makes it his second best home. When he enters his class, a charming vision rears itself in fondness before his mind, a whole flood-tide of sunshine makes glad his beating heart, a glow of sweet gladness illumines his heart.

But let me pause, for I am afraid the picture may be overdrawn. What are the emotions which are most trained at home and at school? Are pupils taught to respect other people's personality, other people's work, other people's rest? Are they taught how important it is to show attention, gentle-

ness and patience? Are they taught tolerance? Are they taught to value all that is beautiful and noble, to revere greatness, to worship beauty? Do they at least learn to be grateful for all the love, labour and strength spent upon them? How often do we notice that their bearing towards their elders is free and exacting, towards their equals rude and intolerant, towards the younger thoughtless and cruel? Children are not taught to love, but they learn all too soon how to be self-seeking and to claim their rights only. But brotherly love should enter into the very marrow of their bones, for is not their school their second best home? Are not the teachers as good as the parents, and the class-mates brothers? They should be, if the tone of the school is to be of the finest. Each class is like a family, and the members of that family are inter-dependent. To do a foul deed is to darken the good name of the school. In England, the pupils of every school think it the best of its kind in the country and will stay on in it to the end of their school career. They have an *esprit-de-corps* or corporate spirit or spirit of loyalty to their school.

This calls for some indirect control. The boarding schools eliminate parental indulgence; the ideals of virility and hardihood are consequently given a range of freedom in expression; a feeling of comradeship grows up. There is a silver link, a silken tie—a profound sympathy for the equals in age which binds heart to heart and mind to mind, in body and in soul. The choice of play-mates of an equal age, for example, points to the fact that intellectually and even morally, the school is a necessary and powerful auxiliary to the home.

Our thoughts, our feelings, our deeds are prompted by the common traditions and common language of the nationality to which we belong. In fact, a man is a creature of his domestic, industrial, civic and political environments. This holds good with the juveniles as with the adults. The school corporate life therefore paints the stamp of character upon the pupils. "Many a youth who is demure enough before his parents and teachers swears and swaggers like a pirate among his tough young friends."

There is a "psychology of the crowd" in the school. The minds of the individual students are to some extent merged in a "collective mind" just as the thoughts and feelings of a crowd in a meeting are turned in a definite direction. Belief in particular ideals may be formed in the corporate life of a school. When Mark Antony bends the Roman populace to his will, no clear logical statement but a succession of vivid and startling images comes to his aid and he succeeds to initiate the people to a political ideal.

Thus we see that common age, common traditions, common language, and common ideals are the chief factors of corporate life in schools. So the personal influence of the teacher, who is able to fire their imagination with lofty ideals and to infuse into them a spirit of sacrifice and service, is of great moment and paramount importance in developing this corporate life.

But the teacher should exercise only an indirect control, as I have hinted above. He will have a powerful and valuable ally in a student noted for decisiveness, self-assertiveness and the like. Let their love for the school lead them to espouse the side of law

and order. Let their own leader or prefect be regarded 'as a big boy, with perhaps a dash of the elder brother.' The better the spirit the better the tone, and the better the tone the better the discipline, and the better the discipline the better the school. Along with the bond of sympathy, let there be the idea of lawfully-constituted authority on the one side and of due submission on the other.

Certain beliefs obtain powerful hold upon men's minds. Even in school groups conservative tendencies and the desire to uphold the honour, prestige and tradition of the school are always at work. Codes of professional etiquette are well-known instances in point. We have therefore to reckon with the influence of the school as a whole—the force of its traditions, the power of its public opinion and its settled usages—in short, its common spirit or *esprit-de-corps*. Healthy corporate life will win over the sympathies of a well-disposed new-comer in no time; even a wicked, ill-disposed, tardy and half-hearted new-comer will fail to tear himself off the established order of things.

Side by side with social sympathy there is also social opposition in corporate life in school. There is a love for contrasting one's self with one's fellows in behaviour, in opinion, or in power. This open rivalry need not be spiteful and ungenerous. Where there is no competition there is no life. The deepest spring of action in us is the sight of action in another. The contagiousness of Arnold's genius was such that a Rugbyman was said to be recognizable all through life by a peculiar turn of character which he acquired at school. This classic tone is a tradition kept up by imitation and emulation in corporate life. The students are to know that to offend

against the standards and traditions of the school is most deplorable, because its reputation is blackened. School companionship extend their knowledge, widen the sympathies and sharpen the wits. In their corporate life they exchange their ideas; correct and revise their expressions; accept, reject and criticise one another's judgments; smooth down angularities. So a spirit of perpetual competition between members of one class between different classes in a school, or different sections of that school, between one school and another school, must constantly be encouraged as a perpetual stimulus to the teachers and the taught.

The pride in the good name and high standing of the school is a powerful incentive. Corporate life may also be developed by interchange of visits among teachers of different schools. The fact of constant inspection acts reflexly in stimulating pupils to greater effort and in building up *esprit-de-corps*. School exhibits may also be profitably used as incentives. The regular work of the pupils should form the exhibits, so that their time may not be given in undue proportion to the preparation of the exhibits.

SASADHAR BANERJI.

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MODERN SCIENCE AND ITS CONCLUSIONS.

THE knowledge of the world around us is obtained only by means of our five senses, and this knowledge, to a scientific observer, reduces itself into two fundamental types, namely, that of matter and that of energy. All external phenomena which present some shape and size, either independent of or depending upon environment, as solid, liquid and gas, are called *matter*; while all other external phenomena which have neither shape nor size, and which are neither depending upon, nor are independent of, environment, such as heat, light, sound, electricity and motion, we classify as *energy*. A closer examination of either of these types of phenomena has shown that the quantity of each in the whole universe is fixed and unalterable, and that we can neither create nor destroy matter or energy.

What is this matter then and what is this energy? Let us start with matter first. Matter is found to consist of very minute particles existing in a free state, which are also in a state of perpetual motion. These particles are called *molecules* in Physics. A further sub-division of the molecule is conceived in Chemistry, and Dalton, the author of the Atomic Theory of Matter, assumed that a molecule consists of still more minute particles called atoms which preserve a certain distance from each other, and which never exceed this distance on account of the powerful mutual attraction existing among themselves.

The nature of these atoms was next investigated into and it is found that there are ninety-two and ninety-two alone different kinds of atoms, and that these atoms have also different weights. The lightest atom is the Hydrogen atom, and the heaviest atom is

that of Uranium, which weighs 240 times as much as the hydrogen atom. Between hydrogen and uranium are arranged all the rest of the ninety-two atoms forming a scale of gradually increasing weights.

This atomic theory was believed to be the theory of the ultimate constitution of matter throughout the 19th century. The twentieth century, however, has gone further into the investigation of the nature of an atom, and has proved that an atom, instead of being a hard solid minute indivisible particle of matter, consists of an empty sphere of space, in which exist a varying number of still more minute particles whose minuteness is impossible to describe. These particles are called *electrons*. These electrons are found to be exactly the same in nature from whatever kind of matter they are derived. There are no varieties among the electrons as among the atoms, and the differences in the atoms are only due to the differences in the number of electrons which they contain. In the abovementioned scale of ninety-two different atoms with increasing weights it is believed that each atom consists of one electron more than the atom preceding it. Thus the hydrogen atom would consist of only one electron and the uranium atom ninety-two electrons.

What is then the constitution of these electrons? Modern science has not left it uninvestigated. The electron is found to carry an enormously powerful charge of *negative electricity*, and revolve in a circular orbit round a central nucleus; the atom is represented as resembling a miniature solar system, in that it contains a number of electrons revolving round a central nucleus of attraction. Since these electrons are found to contain only charges of negative electricity and to revolve round a central nucleus, it is assumed that the central nucleus must con-

tain a positive charge of electricity, of an amount equal to the sum of all the negative charges of the electrons; the differences in the amount of the electric charge on the nucleus gives rise to the 92 different kinds of atoms. Thus the conception of matter resolves itself into the conception of an electron and of the central nucleus.

And here we have the crux of the whole problem of matter and energy, namely, whether they are two entirely different things, or two different manifestations of one and the same thing; for we have to consider now how far the inertia of an electron is due to its mass and how far to its electrical charge. The question has been answered: the inertia of the electron is entirely due to its charge and not at all to its mass. Then it means that the electron has no mass, for the fundamental property of mass is that it possesses inertia, and anything that does not possess inertia cannot be mass. Hence we have the ultimate conception of matter as a collection of disembodied unit charges of electrical energy moving with a high velocity in empty space. The distinction between matter and energy is then obliterated and the universe is nothing but a collection of charges of electrical energy manifesting themselves in a variety of forms as matter and energy. This is the direct conclusion at which modern science has arrived after centuries of experiment and investigation.

Ah! we cannot but look with wonder at the same conclusion that had been already arrived at by the ancient Hindus ages ago regarding the conception of the Universe. Col. Peacock in his recent lecture in London made an astounding pronouncement to the above effect and we are indebted to the Editor of the *Hindu* of Madras for his information on the subject published in his issue of the 14th November 1922 under the title,

'Brahmanism explains the atom.' The matter under the above title is:—

"In a recent lecture in London, Col. Peacock related a dashing experience connected with his Subaltern days. Disguised as a holy Fakir from Kashmir, he travelled through Southern India visiting temples and shrines where no European had previously gained admission. For a month he lived the life of a Yogi, eating only twice a day and engaging in long metaphysical discussions with the thinkers of the Brahman religion. Col. Peacock found in Brahmanism an explanation of the meaning of the atom as a 'temporary illusion' and of matter as 'holes in space' or *whirling vortices of energy* which emanated from the Deity, a view which, he asserts, many Western scientists are prepared to endorse."

The Deity referred to in the above paragraph is *Parabrahma* according to the *Hindu Upanishads*, and the Hindus regard this *Parabrahma* as the sub-stratum of all *Prakriti*, i.e., matter and mind put together. Modern Science, too, posits a sub-stratum for all matter which is *ether*, and the electrical charges are represented, in mechanical conceptions as 'strain knots' in the laminiferous ether. Thus a tremendous proof of the unification of Physics and of the simplification of the Universe is brought about by Modern Science and it tends to establish only a kind of *Advaitism*, i.e., monism as the goal of all the various phenomena of the Universe. But what connection this *Advaitism* has with the *Advaitism* of the Hindus is not known. It is doubtful whether Modern Science will ever be able to conceive the sort of *Advaitism* propounded in the *Upanishads*, for the *Upanishads* have based their conclusions upon their observations of the *internal man*, while Modern Science bases all its conclusions upon its observation made on external nature. If by the grace of God, any relation be found to

SOME ASPECTS OF EDUCATIONAL REFORM.

exist between the *Advaitism* of Modern Science and that of the *Hindu Upanishads*, then physics will be absorbed into metaphysics and the latter alone will be the ruling force of the world driving away the former which is now the ruling force of the world. The result will then be that materialism will give place to spiritualism and *Krita Yuga* will once more reign in the world as has been assured in the *Hindu Sastras*. May God speed such a consummation of things!

In this connection it is very interesting to note the further conclusions of Modern Science by Mr. Hugh Elliot. He says: "Things do appear to be moving to a goal. The Universe is not reversible, it cannot move backwards as well as forwards; it seems to approach an end, when both matter and energy shall have reached their final stage of degradation." * * *

Suppose that in course of ages there occurs some retardation in the velocity of the negative electrons, as indeed occurs with planets revolving round a sun. What would happen then? The same as happens in a solar system, where the planets at length fall in upon their central nucleus of attraction. The electrons would fall in upon the positive nucleus, and there would remain nothing whatever, no trace left of either energy or matter. All electrical phenomena would instantly vanish; matter and energy would be extinct, the void which remained would be just as though no energy and no matter had ever previously existed. At the same time all relations of space and time would be gone. The Universe would have gone out more completely than anything we can understand, leaving not even a part of space of which it might be said that here the Universe once existed; not even a period of time during which it might be said that the Universe was a real thing! This is exactly the position of the *Sunyavadi*s of Hindu philosophy, and the conclusions of Mr. Elliot late in the 20th century were not at all new to a Hindu philosopher of even many centuries ago.

D. JAGANNADHA RAO.

"THE old order changeth, yielding place to new." So says the poet. But the truth of this statement has never been felt with greater force than at the present time. Again and again has it been borne in upon our minds that what is, cannot always be; that there should be frequent changes in every department of human activity; that nothing is perfect; and that all things are tending towards a distant goal, the attainment of which demands a constant adjustment of the individual and the society to their environment. There have been numerous instances of this adjustment since the Great War. Since then people have been revising their ideas about Religion, Politics, Philosophy, etc., and everywhere there is a sign of unrest which manifests itself through a desire for reform. This must be looked upon as a healthy sign as it leads to progress. We are glad to think that it is not confined to any particular sphere of human thought, but embraces all, including that of Education. The present article is intended to be a brief survey of the reforms which are urgently needed in Mysore, and the writer will thankfully accept any criticisms or suggestions from the readers as they would undoubtedly help the cause of Education in the State.

THE MEDICAL INSPECTION OF SCHOOLS.

The first and foremost reform needed is the medical inspection of school children. Where this has been effected, a sufficient lack of health has been revealed, and this will be a sufficient argument for its introduction in all the schools of Mysore. So far as we know, this system seems to have been adopted only in a few schools such as the Ursu Boarding School for Boys, and the Central Panchama Institute in Mysore. This consists of periodical inspections by a doctor

PROCEEDINGS OF THE
ELEMENTARY MATHEMATICS
ASSOCIATION AND THE
MADRAS TEACHERS'
GUILD.

25

RESOLUTION ON EXTENSION LECTURES.

A joint meeting of the Mathematics and Science Section of the Madras Teachers' Guild and of the Elementary Mathematics Association was held in the Pachaiyappa's College on Thursday, the 7th December, with Prof. P. V. Seshu Aiyer in the chair. After the adoption of the Minutes of the previous meeting, the following Resolution was moved by Mr. S. R. Ranganathan, seconded by Mr. L. N. Subramanian, and carried unanimously:

"That this joint meeting of the Mathematics and Science Section of the Madras Teachers' Guild and of the Elementary Mathematics Association requests the authorities of the University of Madras to provide and arrange for a course of Extension Lectures on the Fundamental Concepts of Mathematics for the benefit of the Mathematics Teachers of the Schools and Colleges of this Presidency."

Then Mr. S. Balakrishna Aiyar of the Teachers' College, Saidapet, read the following paper entitled

AN ANALYSIS OF THE REPORTS OF EXAMINERS
IN ELEMENTARY MATHEMATICS IN THE
S. S. L. C., 1912—1922:

I

It is a matter for serious consideration that, year after year, Examiners in S. S. L. C. Mathematics have had to report on the performances of candidates in practically the same strain, drawing attention to the same kind of defects and disabilities, the only difference being in the examples of the errors quoted in support of their conclusions. In this paper I confine my attention to the section of the Reports on Elementary Mathematics only,

as this is of more vital and universal importance and application than the special subjects—Algebra, Geometry, Trigonometry and Practical Mathematics.

Next to English, Elementary Mathematics is known to occupy the largest part of a week's attention to school work, and even at this rate over a period of about 10 years of a boy's life, the results are judged to be so very poor and unsatisfactory. It is obvious that no time should be lost in arriving at a definite conclusion regarding the line of work to be adopted to remedy the defects pointed out by examiner after examiner ever since 1912.

I have found it convenient to classify the remarks and conclusions under the broad heads:—*subject* and *faculty*, the former referring to the special rules, operations and principles of Elementary Mathematics and the latter to the mental factors contributing to the paucity of results.

I have to add that only such faults, defects, etc., are included as have been noticed in a large number of instances and the examples quoted, although particular, are typical.

II
SUBJECT.

(1) *The first four simple rules of operation:*

"Failure to add, subtract, multiply and divide correctly in the very simplest cases of such operations." ... (1912)

"Inability to add, subtract, multiply or divide correctly even in very simple cases of such operations was noticeable." ... (1914)

"Extreme carelessness in performing the simplest operations." ... (1921)

Examples.

Q. I (1912) "An astonishing number of pupils got the addition of 14, 8, 3, 13, 13, 16, 12, 4, 10, 12 wrong."

(1921) $4 \times 3 = 7$. "Partial products are taken for complete products," the candidates forgetting to exhaust all the figures of the multipliers.

"Confusion of relations between the various units of measure", e.g., Re. 1 = 20 as.

Q. XV (1912) "Many added the items of income wrongly, many the items of expenditure wrongly. Those who did both correctly went wrong in subtracting one from the other. Others who were right so far went wrong in dividing the remainder by 2."

(1921) $20^2 + 48^2 = 68^2$.

(2) *Fractions, vulgar and decimal.*

Operations with fractions exhibit a greater lack of control than those with integral numbers.

Again, "Most candidates seem to be more at home with vulgar fractions however big and terrifying they might be than with decimals." (1915)

The practical value of the study and employment of fractions is entirely forgotten, and candidates do not feel that unless the fractions are simple and easily grasped like $\frac{1}{2}$, $\frac{1}{4}$, $\frac{3}{4}$, etc., they should be expressed in decimal form to one or two places of decimals. To this we owe the presence of such fractions as $7\frac{103003}{308581}$, $3\frac{7469537}{8280881}$, offered to the examiners.

"Working with decimals is even now repugnant to the generality of candidates." ... (1917)

"Many do not know how to shift the decimal point in multiplying or dividing by powers of ten." ... (1917)

"P exhibit a deplorable 'inability to manage the decimal point.'" ... (1913)

As a consequence we get answers, hundreds of times too large or too small,

E.g., $3.1416 \times 100 = 3.141600$.

"In extracting the square root of a fraction, the easy method of converting it to a decimal and then extracting the root once for all is not adopted." ... (1918)

(3) *Averages.*

The most elementary notions connected with averages which are of such common occurrence in life are not properly grasped.

"Seeing that the Presidency averages in the several subjects of the examination play such an important part in determining the merit of an S. S. L. C. candidate, * * many candidates do not understand what is meant by the Presidency average and much less do they know the method of calculating it." ... (1918)

Q. VIII (1918) The Presidency average was given as 14145'2.

(4) *Ratio and Proportion.*

The idea of ratios is one of the most fundamental in Mathematics, and constitutes a large part of mathematical work in secondary departments. In spite of the attention given to it, we note the candidates' "inability to handle a ratio properly." ... (1912)

One common error is the non-correspondence of the terms of a proportion.

Q. VI (1) (1913) "Greatest confusion of mind is noted in the answers. Those who otherwise got the question right gave the inverse ratio."

Hundreds left the answers in such (unsimplified) forms as

$$(1) \frac{\pi x^2 y}{2} : \frac{\pi x^2 y}{4} \quad (3) \frac{44}{7} : \frac{88}{7}$$

$$(2) \frac{\pi \frac{1}{2} x \cdot \frac{1}{2} x y}{\pi x^2 \cdot \frac{1}{2} y} \quad (4) \frac{22}{28} : \frac{22}{14}$$

We also meet with such meaningless expressions like

"Always when a thing is as stout as it is high, it will be strong."

"The first is two than that of the second."

Q. VII. (1922) "A Δ was to be drawn the length of each side of which was to be in the ratio 7:3 to those of a given Δ ."

"The majority of the pupils made the second triangle smaller, many who made it larger got the length of each side wrong."

(5) Percentages.

The idea that a percentage is a ratio in a definite garb does not find a place in the mathematical content of knowledge.

"Most candidates have not grasped the fact that percentage is a ratio." ... (1918)

E.g. (1918). The percentage in Q I (2) is Rs. 16-10-3.

(1921) The percentage in Q I (2) is Rs. 284916633-5-4.

"The fractional equivalents of 25% , $12\frac{1}{2}\%$, $6\frac{1}{4}\%$, $33\frac{1}{3}\%$ are not remembered." ... (1920)

(6) Closely connected with percentage are problems of a statistical character, e.g., those relating to populations.

Q. I (1913). The number of females to 1000 males was given as 1006 for Trichinopoly and 1064 for Kumbakonam; but it was taken as the number of females in a thousand of population. The following answers resulted under the influence of this mistake:—

- (i) No males in Trichinopoly and Kumbakonam.
- (ii) In Kumbakonam too, the number of females gives no place for the existence of males.

(7) Approximations and contracted methods.

Contracted methods of working with numbers, especially with decimals, have found a place, and rightly so, in the new Mathematics, after the replacement of the old Matriculation Arithmetic by the S.S.L.C. Elementary Mathematics.

How far such work has become a part and parcel of the working knowledge of the candidates can be gathered from the following remarks:—

"Candidates could not give the answers to the required degree of approximation." ... (1917)

"Many did not know how to express a result correct to a definite number of decimal places." ... (1914)

E.g., 9'96 is corrected into 9'9. The equivalent of $4\frac{1}{2}$, is 4'0; but candidates would give only 4 to one decimal place!

"Only very few of the examinees used contracted methods of multiplication and division." (1914)

"Contracted methods were not attempted at all by the candidates even where questions obviously admit of such methods being employed." (1915)

In the case of such few candidates as do have resort to contracted methods, we find that their grasp of the principles underlying the determination of the necessary number of places to be retained for obtaining the required degree of correctness in the answers is very feeble.

The candidates "had not grasped the important principle that if a result was required correct to a number of figures they must retain, in general, two more figures in the course of the working" ... (1915)

Q. III (1914). "Many candidates did not carry the division to the second place for the purpose of correcting the first decimal place."

"Often we meet with interim corrections which lead to incorrect final results". ... (1920)

(8) Generalised Arithmetic.

Correlation among the various branches of Mathematics (Arithmetic, Algebra and Geometry to start with) and between Mathematics and other branches of knowledge (Geography, Physics, Economics, etc.) still seems to be a matter of theoretical value rather than one of practical achievement.

"General principles are not properly taught and Algebra is not begun as *generalised arithmetic* as it ought to be." (1914)

"Correlation of Algebra with Arithmetic was not attended to in many schools." (1915)

As a result we find that "candidates have no grip of symbolic notation and work with letters for numbers." ... (1914)

They are generally "very deficient in expressing general conditions given, in symbolic language. ("This defect," says the examiner, "might be removed only by teaching Algebra as generalised arithmetic and not as mere jugglery in symbols")." (1917)

Qs. III and V (1914) "The arithmetical part was worked correctly. Pupils failed to express in symbols the principles involved". (1914)

Q. IV (1913) "Solving the equations algebraically seemed to present a greater difficulty than drawing the graph." ... (1913)

Such is the scare of symbolic representation and of even the most rudimentary of operations with symbols, that we find that "candidates even fail in substituting numbers for letters."

Q. XIV (1912) is "a simple call for substitution of values for symbols, yet very few of the few that attempted it got it right."

$$(1921). \quad x + y = z, \therefore x = \frac{z}{y}.$$

$$\frac{a+b}{b} = a + \frac{1}{b} \text{ (the grandest of all examples).}$$

(9). Graph.

The full value and importance of the graph as an instrument of mathematical study of relations does not seem to have been as yet thoroughly grasped and realised.

"Graphs seem to be a bugbear even now to most of the candidates." (1915)

"Many pupils did not understand the use of graphs in stocks." (1914)

Among the defects of graphical work presented by the candidates are—

(1). "Unsuitable and inconvenient units on the axes of co-ordinates" (1914)

(2). Omission of the scale adopted.

(3). Too close points.

(4). Omission to give readings close to the corresponding points marked

(of simultaneous equations.)

(5). Graphs in different places giving no inter-sections.

Then again, "many pupils thought that the origin should be a point on the graph. If the origin would not go to the graph, why then they make the graph go to the origin" on the Mahomed vs. mountain principle.

(10). Geometry and Mensuration.

"Figures are very carelessly and clumsily drawn." (1917)

"Candidates do not understand that a scale always means the linear scale."

E.g., Q. IV (2). Scale given as 1 sq. in. = 14400 sq. in. or sq. miles.

Familiar, frequently occurring easy geometrical expressions like "distance of a point from a line," "AB subtends a right angle at C," are not understood by many.

"Geometrical constructions are neither stated nor proved". (1916)

"Even easy calculations (e.g., the length of the hypotenuse of a right-angled triangle given the other two sides) are avoided, measuring (adopted) leading to an approximate result instead of an accurate one being resorted to." (1920)

Distances of points from lines are measured along any obliques; the distance of the vertex of a triangle from the base is frequently along the bisector of the vertical angle or along the median.

As regards mensuration formulæ, difference is not very often made between formulas of area and volume, and even the proper formulæ are quoted wrong. For instance area of a circle is $2\pi r$ or $\frac{4}{3}\pi r^3$, betraying no sense of dimensions of quantities, the volume of a cone is $\pi r l + \pi r^2$.

About 85 per cent. of the candidates who attempted the cylinders question (Q. XII, 1922) gave the length of the common direct tangent of two unequal circles as the sum of the radii.

11. The grammar all through the range of mathematical language is often deplorably bad. Ridiculous expressions like "bisecting AB at C and produce it to 3 cm.," where a perpendicular 3 cm. in length is to be erected at C, "bisecting the line into 5 equal parts," "straight lines touching a point," "draw an angle at A and produce it to 5 inches," are in frequent evidence. Arithmetic and algebra come in for their own share of bad grammar.

The most noticeable is that "the sign of equality is used most meaninglessly." ... (1918).

Candidates often begin their solution of a question or any interim step with this sign with nothing to precede it.

We also have equalities of the type :

$$\text{Other two angles} = 180 - 45 = \frac{135}{2} = 67\frac{1}{2}.$$

III

I shall now pass on to the second heading of classification of remarks and conclusions. These throw much light on the mentality of the candidates presenting themselves for the public examination and the residual effect on the minds produced by about 10 years' teaching of the subject at school.

A. First and foremost is "the appalling carelessness of the pupils." ... (1912)

This carelessness is displayed in the following ways :—

(1) "Carelessness in reading the question" ... (1912.)

"The candidate does not very often understand what is exactly wanted of him. The question is hurriedly and carelessly read and the solution attempted" ... (1916).

"Candidates do not carefully read the question paper, nor the notes given at the head of the question paper, nor do they attend to what is required of them." ... (1918).

"In some cases they do not consider in what form the answer is to be given" ... (Ibid).

E.g., £ s. d. is offered for Rs. as. ps., inches for centimetres, and even kilogrammes for kilometres.

Q. I (1913) asks for the number of males in a number of towns. "Many pupils give the number of females."

Q. VIII (1913). "Many took the inscribed instead of the circumscribed circle."

Q. IX (1913). Volume of cone was required ; area was offered.

Q. XIII (1913). Asked for percentage of profits, the boys gave the gain as actual rupees calculated on an arbitrary value of books.

(2). Failure to attend to specific instructions inserted in the clearest language in the body of the question." ... (1912).

Q. I (1912) "Percentage marks are asked in whole numbers. 50% of the boys gave fractions."

(1914) "Percentage correct to one place is required, but is given in vulgar fractions or decimals to 3 or 4 places."

Q. IV (b) (1912). "The answer is definitely asked for in feet, measurements being in inches. More than 75% of the boys gave their answer in inches, many others in yards."

Q. II (1912). "Answer was required to the nearest anna ; most of the candidates gave pies as well."

Q. II (1914). "Candidates worked the subdivisions in detail in spite of specific instructions not to do so."

(3). "Failure to transfer correctly to the fair work an answer obtained in rough work." ... (1912).

E.g., Rough work gets the correct answer Rs. 275, it is put down as Rs. 257 in fair. The examiner very often sees this only. Numerous instances of this type have been noted.

[Then there is the "carelessness in transferring figures from the question paper," which in my opinion is the less excusable of the two"]

To make matters worse, "working is very clumsy, appearing promiscuously on a page, making it difficult to point out which part of it relates to a particular question" ... (1920).

"In many cases, the working is very clumsy and the steps are not clearly stated." ... (1918).

(4). "Failure to notice whether an answer was in any degree likely, sensible or even at all possible." ... (1912, 1914).

Examples :—

(1) 198 boys are arranged in a circle of 4 inches radius. ... (1912).

(2) The area of a valuable estate was 3 sq. in. ... (1912).

(3) Interest on Rs. 1,264 for 9 months at an ordinary rate is tens of thousands of rupees. ... (1912).

(4) Total income to a proprietor of a school is over 500 boys. ... (1912).

(5) A library of hundreds of books costs '00001 anna. ... (1911).

(6) A goat tied to a post with a rope 15 feet long was able to graze several miles of fence. ... (1911).

(7) A lecture hall 150 feet long and about 60 ft. broad on the average would accommodate 80 million people without injury to health. ... (1911).

(8) Cost of white-washing the walls of a room 40' x 18' x 14' (allowing for openings) was thousands of rupees, at 2 as. 6 ps. per 100 sq. ft.

(9) Population of Madras was put down as 8,777,038,891 in 1912. In 1913 4,302,948 died.

(10) Population of a town in 1914 was 585426*00528. ... (1914).

(11) The value of gold in a sovereign ran to £ 13-17-7. (1915).

(12) The weight of 20 yards of iron wire 1" in diameter exceeded 30 tons. ... (1915).

(13) Machinery depreciated in 4 years at 8% to Rs. 177 from Rs. 32,500. ... (1915).

(14) Depth of a river about the middle is 34 miles. ... (1921).

(15) A rectangle 32" x 20" after a portion is removed and the remainder re-beaten into a similar one of the same thickness becomes 673980 inches long and 4380 inches broad. ... (1922).

(16) The sale price of an article sold at a profit is far less than the cost price.

(5) Failure to mention the units in terms of which the answers are to be given.

Q. V (1914). Cost price = 400.

Q. IX (1914). Diameter of a tube = '3.

Report 1915 goes to the extent of recording the sweeping remark that "most pupils had not a clear understanding of units."

As an instance, we frequently find answers like $x = \text{Rs. } 64-4-0$

(6). Failure to form rough estimates of the answers required and to verify at the end of the solution.

"No rough approximations to the answers to questions were made by candidates, consequently absurdly wrong answers were presented to many questions." ... (1915).

"The habit of verifying the answers arrived at is generally wanting, otherwise one could not understand how wrong answers could be given to such simple questions as I and III." ... (1917).

"Candidates do not take to form a rough estimate of the answers to a question. This omission is responsible for many absurd answers." ... (1918).

"Candidates do not appear to have been trained in the verification of answers. This is easily seen from the absurd answers presented to Q. IV, V, IX (1915) which admit of easy verification of answers."

B. More vitally connected with the intellectual development of the pupils is the formation of habits of correct judgment and discretion.

Already a passing reference has been made to their want of discretion in considering in what form an answer is to be given.

Data are given in Rs. as. ps., candidates give answers in decimals of a rupee.

Candidates effect "simplifications or approximations in decimals at each step without reserving judiciously to the end what ought to be so done." ... (1920).

Judgment is not exercised in the proper choice of scales and the location of the origin (in graphical work) conditioned as they are by the size of the paper and of the data in questions.

On the other hand, "work is also made complicated by not scoring out common factors though quite apparent. This naturally launches the candidate in a most horrible and confused mass of figures from which it is impossible for him to emerge with any semblance of a neat answer." ... (1920).

C. The next important thing to notice is the lack of common sense, contact with actual life and imagination.

"The subject is not being taught by many teachers practically," by which the examiner means, with due regard to actual life and commonsense ... (1912).

"The subject is not taught intelligently and so as to show its application to real life."

Q. IV (1912). "23 inches for each boy" is interpreted as 23 sq. inches for each boy, the pupil not realising that 23 sq. inches is about 5' by 4½", too small for a normal human boy to squeeze himself in. 1921 report complains of the "lack of imagination and want of contact with the practical side of life." The graph for a section of a river is drawn above the horizontal axis resembling a section of a tower, or to face the vertical axis. Want of touch with the life outside is patent from pupils' ignorance of facts connected with depreciation by use, wastage in making jewels, reckoning 20 days as ⅔ of a month for purposes of interest and not as ⅔, ⅔, or ⅔ of a month (1912), rounding off of fractions of a pie in bazaar transactions, *deficit*, a word of frequent occurrence in practical accounts, etc.

"Scarcely any pupil saw when to omit useless details of what they imagined to be accuracy, as for instance, complicated fractions of pies in ordinary bazaar transactions." ... (1912)

"Pupils do not realise that giving fractions of a pie in simple interest (e.g., ⅘ of a pie), and not giving fractions in a case like the cost to the proprietor of a school per boy were both wrong. (In the second case a small difference in the fraction of an anna would make an appreciable difference in the total cost in a school of 540 boys).

Q. I (1913). "Many gave fractions of a man. Many left the answers in the form of huge unsimplified fractions."

"Few pupils seem to have any idea which approximation to use in any given problem for π . A large circle measured roughly in feet or small cone

measured to tenths of an inch call indifferently for $\frac{22}{7}$ or 3.1416". ... (1912).

"Very few pupils seem to have any idea of a commonsense approximation or when to use contracted methods of multiplication or division."

D. We have next to consider the *lack of self-confidence* and *want of initiative* on the part of a large majority of candidates, especially those whose optional subjects are non-mathematical.

The simplest example of this is that "most boys find it necessary to work out on paper the rough processes like

$$\begin{array}{r} 6000 \\ 3 \overline{) 18000} \\ \underline{18000} \end{array} \quad \begin{array}{r} 4 \overline{) 9200} \\ \underline{2300} \end{array} \quad \begin{array}{r} 30 \overline{) 84000} \\ \underline{2800} \end{array}$$

and in very many cases, the results so obtained were transcribed wrongly. Either the pupils are incapable of working such simple things mentally, or have no confidence in their power to do so."

After remarking that "fifty per cent. of the rough work ought not to be necessary," the report continues, "pupils seem to realise this to some extent, for such rough work was in many cases done not right opposite the corresponding fair work, but in some hidden remote corner of the answer-book." ... (1912).

IV

The following are a few hints that may be considered with a view to arrest the decline in the study of Elementary Mathematics in our schools.

1. "The subject is very much neglected especially by the non-mathematics candidates, under the false notion obstinately persisted in that they cannot learn the subject, with the result that they do not possess even a rudimentary knowledge of the ordinary mathematical principles and processes." ... (1920)

The reason for this deplorable state of things is perhaps to be traced, partly at least, to the training imparted to the children at the very outset of their school course, in the elementary classes (Kindergarten).

For a superstructure to be strong and abiding, it must be reared on strong and broad foundations. The teachers in charge of young children should be men of great experience, broad sympathies, enthusiastic and in constant touch with the advancing knowledge of the mental life of their charge. Constant, yet judicious, contact with the concrete and life in general should be the source to be drawn upon to engender and develop mathematical notions, and number and space relations. The tables (integral as well as fractional) should be built up by the children themselves, well imprinted in their minds through frequent, varied and interesting practical applications, developing their constructive and reproductive imagination. Understanding the rationale of the processes (as far as is consistent with the stage of mental development) and proper drill in manipulation should have their due recognition and place in daily work

"Mathematical principles are not taught on any systematised plan, but problems are set and rule of thumb methods are taught." ... (1916).

"Candidates fail in questions whereby their intelligence is tested, while they are attracted by such as are merely mechanical." ... (1917)

2. There should be plenty of *mental and oral work*. The practice of assigning one period a week to such work should be given up in favour of a co-ordination of oral, mental and written work. No time can be specified for any phase of such work. Mental and oral work will mark the preparation of the child for the new principle to come, will permeate the discussion of the main topic of the day, and will be a means of testing whether and how far the pupils have understood the hour's work.

Referring to the inability of the candidates to manage even the fundamental operations with the simplest of figures, Report 1914 says, "Oral questioning and mental arithmetic would go a great way in removing this evil."

"It is clear that in many schools, no mental work is attempted even for very simple calculations." ... (1918).

3. The practice of accepting a solution on the ground of the method being correct, even though the final result is wrong, should be absolutely forbidden. If at all mathematics stands for anything it is *accuracy*. Two or three questions a day, done with great care and thoroughness, would be far more profitable than a volume of inaccurate work done in a slipshod fashion. No teacher ought to rest satisfied if his pupils "know the method." "Knowing the method" is worse than useless in actual practical life, if the results of the subsequent manipulations are wrong.

"The teachers spend far too much time in teaching or rather talking, and far too little in going round to see that pupils are doing accurate work." ... (1912)

"Want of individual attention is responsible for bad work. This is supported by the observation that the bigger the school, the greater is the carelessness displayed." ... (1912)

This hinges on the question of smaller classes, plenty of leisure for the teachers to enable them to exact work from the boys systematically, to keep himself abreast of the modern developments in pedagogy by reading up-to-date books, journals, etc., to prepare himself for the daily work by collecting data and framing real and interesting problems instead of depending on ready-made, cut-and-dry, unreal, arbitrary questions.

4. The phrase "necessary and sufficient conditions" for a problem in arithmetic, algebra or geometry is still Greek to many boys. Boys should be encouraged to gather data and frame questions

on them. Questions so framed should be discussed in the class and the conditions analysed. Much confidence will thereby be engendered. Boys will be encouraged to face new problems and situations with courage and steady nerve, and not with a palpitating heart.

5. The investigation of every problem should begin with an analysis of data, to be followed by a rough approximation of the result; then a mental survey of the chain of manipulations linking the data with the final answer to be sought. The actual work of the details will then proceed with no confusion. The verification of the final result is just as important as any other phase of the work.

All this should be carried on so systematically as to become a matter of routine or habit and would contribute towards economy of time and mental energy, and secure the going to work with self-confidence and feeling of power.

"Candidates have not the habit of verifying their answers even where such verification is easy, nor of revising their solution." ... (1918)

"Pressure of time and nervousness perhaps gave rise to many instances of failure to understand what was implied in a question." ... (1914)

"If only the candidates had done either of these (rough approximation beforehand and final verification), many absurd answers or wrong solutions would not have been presented. Teachers will do well to form in their pupils the habit of invariably checking the answer got." ... (1914)

6. There should be a proper balancing of practical with theoretical work. Practical demonstration, illustration or verification of a number or space relation appealing to the senses can hardly take the place of a proof by argument. The weakness of the former in investigation should be sufficiently realised by the pupils so as to make them rest satisfied with nothing short of the establishment of truths by logical reasoning. A proper training in logical reasoning is one of the main reasons why so much of mathematics is still retained in the school curriculum.

"Any considerable improvement can be looked for only when the elements of geometry and algebra are taught as mathematical subjects and the pupils' reasoning faculty trained." ... (1916)

7. The question of approximations and contracted methods still remains a sore point with most pupils and teachers, and it is even urged with spirit that the chapter on approximations may as well be dropped from the course of Elementary Mathematics. This appears to be an erroneous view of the situation. First there is no such isolated chapter. Then again, we are no longer teaching boys through problems in which the data contain numbers which are absolutely exact. The contact with life and the drawing of problems from environment and experimental work supply us with figures that are approximate numbers, and we cannot pretend to unobtainable accuracy. Hence a faithful realisation of this fact must be followed up with work leading to results subject to varying degrees of accuracy through approximations and contracted work. A recognition of limitations of material, work and intelligent drilling with well chosen examples will go a great way to reconcile the boys to a necessary and important phase of mathematical computation.

8. The correct use of language, whether English or vernacular, is but a reflection of accurate mental grasp. This can be secured by, among other things, greater care on the part of the boys, a systematic scrutiny and insistence on correct statements by teachers, a regular use of good, up-to-date text-books, etc.

Report 1916 complains, "Very few schools use well-written text-books and the phenomenon of students learning mathematics mainly from the teacher's instruction in the class-room has become a common one."

9. More than all these, mathematics should be regarded with a greater amount of seriousness than now, in the matter of promotions from class to class, appearance at the public examination and eligibility to undergo University courses.

"With the majority of candidates, all except those who bring up algebra and geometry for the

public examinations, Elementary Mathematics is not a serious subject." ... (1916)

"The real explanation of the unsatisfactory results is that Elementary Mathematics is being neglected by many students, especially those that take up history or a vernacular under Group C." ... (1917)

"Boys, at least some, grossly neglected the subject and were yet sent up for the examination which, to say the least, is an unwholesome practice." ... (1915)

"The neglect of the subject is due not only to the circumstance that it has not hitherto been 'paying' in the matter of admission to the University classes, but also because it does not receive any scientific treatment." ... (1916)

[As extreme instances of the kind of recklessness on the part of the boys, the "answer book" of a candidate was a neat copy of the question paper; another contained merely some Telugu dramatic songs, and a third a number of verses purporting to be prayers to the Almighty.]

It will indeed be a very useful thing for the Mathematics teachers to discuss with their pupils the reports of the Examiners in S. S. L. C. and explain to them how they can improve themselves by bearing in mind their findings and recommendations."

CONCLUSION.

Then, after a long discussion, in which almost all the members present took part, the Chairman through his advice and views gave the audience the benefit of his experience as a member of the School Final Board in various capacities ever since its inception in 1911. He explained at some length that the defect was not due either to the syllabus or even entirely to the type of question papers set, as some members thought, but to the methods of teaching. He agreed entirely with those that emphasised the importance of Mental Arithmetic and oral teaching and said that the practice of teaching by topics such

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as time and distance, time and work, etc., must be given up. He also agreed that much harm was done by laxity in promotion and selection which was encouraged by the other subject teachers not paying heed to deficiency in Elementary Mathematics.

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FORMATION OF EXAMINATION COMMITTEES.

A joint meeting of the Mathematics and Science Section of the Madras Teachers' Guild and of the Elementary Mathematics Association was held in the Pachaiyappa's College, at 4 P.M. on Saturday, the 24th February 1923, with Prof. K. R. Ramaswamy Aiyangar, of the Engineering College, in the chair. After the reading of the minutes of the previous meeting, Mr. S. R. Ranganathan, of the Presidency College, moved that:

"For each of the subjects, Mathematics, Physics, Chemistry and Natural Science, a Committee consisting of not less than three and not more than five members of the Guild be formed to scrutinise the question papers set in the S. S. L. C. and the Intermediate Examinations and place its comments and criticisms before the Mathematics and Science Section of the Guild." The resolution was seconded by Mr. M. S. Sabhesan of the Christian College, and supported by Prof. P. V. Seshu Aiyar of the Presidency College. The Chairman also commended the resolution and said that a very useful purpose will be served by adopting it. The resolution was carried unanimously.

The following nominations were made to the various Committees.

MATHEMATICS.

- Prof. P. V. Seshu Aiyar, Presidency College.
- Mr. L. N. Subramanian, Christian College.
- " S. Balakrishna Aiyar, Teachers' College.
- " Veeraswami Aiyah, Pachaiyappa's College.
- " G. V. Narayanaswamy Aiyar, Hindu High School,

PHYSICS.

- Mr. J. P. Manickam, Christian College.
 „ P. S. Subramania Aiyar, Presidency College.
 „ P. Venkataramiar, P. S. High School.

CHEMISTRY.

- Mr. U. Mudlagiri Naik, Presidency College.
 „ G. Natesa Aiyar, C. R. C. High School.
 „ Thirumala Aiyangar, Hindu High School.

NATURAL SCIENCE.

- Mr. R. Gopalan, Presidency College.
 „ M. S. Sabhesan, Christian College.
 „ Manavalaramanujam, Christian College.
 Mr. S. R. Ranganathan, the Secretary of the Mathematics and Science Section, will be the Secretary of each of these Committees.*

*It is requested that examination questions set in the ensuing March Examinations on the abovementioned subjects, if open to criticism, should be sent with comments to Mr. S. R. Ranganathan, Assistant Professor of Mathematics, Presidency College, Madras, so as to be placed before the appropriate Committee.

(To be continued.)

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INDIAN WOMEN POETS.*

NO one who knows anything of India to-day can doubt that in all periods of her history—whatever may have been the social laws and conventions—the influence of women was powerful and profound. Even in the assemblies of the Rishis, who gathered in the forests to discuss the meaning of Brahma and the way to immortality, the voices of wise women could be heard. Gārgī comes to Yājñavalkya with two questions, like a warrior, as she says, setting two arrows to his bow and Yājñavalkya does not despise his adversary. So also to Maitreyī, one of his two wives, the same philosopher unfolded some of the subtlest and noblest and most elusive lessons that the Upanishads contain, so subtle and so elusive that many another might well say with this honest woman: “My lord hath brought me to the bound of bewilderment, and I understand it not.” Women, if they have been mystics, have generally in all lands been, like Saint Teresa, practical mystics, no lovers of wire-drawn doctrines for their own sakes, but lovers of a truth to live by. And in India we may be sure that from the earliest days there were unobtrusive, no doubt, and often hidden by the purdah, women of strong character, of robust practical sagacity, the inspirers often, the succourers always, of men. Ahilyabāi yesterday, Pandita Rāmabai to-day—there never, we may be sure, have been lacking such broad-minded, steadfast, capable managers, whether it be of a kingdom or of a household, who spread round about them order and contentment and trust. But it is

* This paper is based upon materials collected for a volume on Indian Women Poets, which is about to be issued in the *Heritage of India Series* under the general editorship of Mrs. N. Macnicol. Specimens of the work of Women Poets, translated by various collaborators, chiefly women, are collected in this volume.

not of the women philosophers of India, nor yet of her practical women of affairs, that I wish to speak to you to-day, but of her women poets, for it is in the poet, man or woman, that we can discover the deepest secret of any people, the ideals that they have hid in their hearts, and the thoughts and dreams by which they have lived.

It is a little difficult to know how to approach this subject, seeing that the women we have to speak of are so widely scattered across the centuries during three thousand years, and so widely scattered across the broad plains of India. They speak a bewildering variety of languages, and belong to a bewildering variety of ages, and yet there is, beneath every difference, a unity of speech that proclaims them all as children of one mother, heirs of a single heritage. When can we say that the figure of a woman poet first emerges from the shadows of the past? Is the earliest of whom we have any certain knowledge the Greek lyrist, Sappho, of whom indeed, we know little enough? We may be sure that there were women from the very dawn of time in whose hearts were the seeds of poetry, whether or not they ever discovered fit expression for their disquieting thoughts.

“Very old are we men. Our dreams are tales
 Told in dim Eden by Eve’s nightingales;”

and these tales could never have been told, nor these dreams dreamed, if there were not an Eve to hearken in whom was a poet’s soul. Already from among the Vedic Hymns, those earliest literary products of the Indian genius, there are some that are attributed to women authors. How far the names traditionally attached to these hymns can be accepted as the names of those who actually composed them is indeed doubtful. It is, however, at least interesting to know that primitive tradi-

tion did not deny to women the right to a place among the Rishis who sang these ancient songs and led the worship of these ancient deities. But the subjects of their poems are not necessarily exalted. It may be estrangement from a husband, the fear of living unmarried, or the desire to be rid of a rival wife, that drives them with prayer and adoration to the gods. Then, as to-day, it is whatever awakens the deepest emotions that creates the poet. What may seem a foolish toy to us may be something that was rooted in the very soul of that far-off Vedic woman, and when the pain moved her to cry aloud that cry became a song. Everything that touches human life in its infinite variety is transmutable into what we call poetry. It may take the form of a nursery rhyme, or it may take the form of an epic. Who will say what wandering wind among the reeds will awaken the eternal harmonies? The first notes that reach our ears from the lute of an Indian woman are parts, humble perhaps in themselves, in the great symphony of those singers who chant their praises and their prayers before the altars of the Vedic gods.

These Vedic women singers are so far off from us, and their voices sound so thin and so remote in our ears to-day, that we need scarcely heed them. We cannot, indeed, be sure whether they really were living women or whether they are no more than personifications. In any case they are to be remembered more for the company in which they are found than for anything that they can be discerned to have been or that they say to us. But when we pass to the next group of women poets, the case is different. Then we feel that we are listening to authentic voices, and that they speak to us what we recognize at

once as the authentic message of this ancient land. Among all peoples, indeed, one of the most fruitful springs of poetic inspiration is the longing to return home from exile, whether the return be to one's own land, or to the loved one's breast, or to the bosom of God. "It is the sorrow of separation," says Dr. Rabindranath Tagore, "that ever melts and flows in song through my poet's heart." And of those three types of exile that I have named, that which India more than any other land has felt in the deep places of her soul is the exile from God, the exile from that which is eternal. This feeling had not awakened, it would seem, at the time when the Vedic Hymns were composed, but from the days of Buddha onward a note of deep soul-longing rings through the poetry of India. This nostalgia, this home-sickness, has been expressed with amazing depth and passion by the Buddhist Nuns, whose poems have been beautifully rendered by Mrs. Rhys Davids in her *Psalms of the Sisters*.

Perhaps the most striking and resonant note of all those that sound in these Psalms is that of exultation in the attainment of release. I think it is Sister Nivedita who has said that the most passionate desire of the Indian soul throughout all its history has been for freedom. This is not, I need hardly say, the *Svarājya* that occupies so much attention to-day. It is deliverance from the bondage of the world and time and *samsāra*. Certainly in those far-off days, when it would seem sorrow and the fear of death and of rebirth "hung like a pall" over multitudes in this land, that desire to escape had become a passion in those women's hearts. Of one, named Mutta, we are told that she was given in marriage to a hunch-backed Brahman, but succeeded in obtaining his permission to

forsake the world and seek for that release that Buddha taught. Here is how she describes her attainment of the goal:

"O free indeed! O gloriously free
Am I in freedom from three crooked things,—
From quern, from mortar, from my crook-backed lord.
Ay, and I'm free from rebirth and from death,
And all that dragged me back is hurled away."

It is not easy to be sure—I daresay she could not have told herself—how far her joy was for an earthly release or for a spiritual attainment. Mutta and her sisters were different enough in their outlook from Lovelace and the English Restoration poets, and yet in the letter at least their claims are closely akin.

"Stone walls do not a prison make,
Nor iron bars a cage."

"If I have freedom in my love,"—the Buddhist sisters would not have used such words as these, for they have abjured the love alike of earth and heaven. Here is a picture of another among them, on her bare and solitary hill-top with the winds—shall we say of life or of death?—blowing about her:

"Though I be suffering and weak, and all
My youthful spring be gone, yet I have come,
Leaning upon my staff, and clomb aloft
The mountain peak. My cloak thrown off,—
My little bowl o'erturned; so sit I here
Upon the rock. And o'er my spirit sweeps
The breath of Liberty! I win, I win
The triple lore! The Buddha's will is done!"

What these poets above all things desire is inward tranquillity, victory over the world, with "its sick hurry, its divided aims," its bondage. Passion must be stilled within them. Here is the way that *Pātācāra* shows as the way of comfort in bereavement:

"Why mournest thou for him who came to thee,—
Lamenting through thy tears, 'My son, my son,'—
Seeing thou knowest not the way he came,
Nor yet the manner of his leaving thee."

By such cool waters their consuming grief

is quenched, and these pale Buddhist sisters pass from our sight, chanting each her hymn of attainment of peace. Who shall decide whether we should call it a dirge or whether we should call it a psalm of victory? In the words of Mrs. Rhys Davids, "If freedom drew, not less did sorrow drive.

Woful is woman's lot, hath he declared,
Tamer and Driver of the hearts of men."

It is not strange that in the poetry of women there should be especially this strain of sadness. To them, more than to any others of the human race, it has been appointed, as to the Madonna herself, that a sword should pass through their souls. But these courageous women of old time have looked into the heart of sorrow, and have plucked thence calm and strength—what Mrs. Rhys Davids calls "an impassioned quietude." And, having attained to such a "forced and despairing peace," they do not rest in it selfishly, but go forth to help and strengthen others. One passes unwillingly from the company of these gracious, dignified figures, "roaming like a dream" the silent spaces of that far-off age.

And when we pass from them we pass into the bewildering confusion of the many tongues of mediæval and modern India. The Hymns of the Rig Veda were written in Sanskrit, the Psalms of the Buddhist Sisters in Pāli, but we have now to turn to the speech of common folks, as it has been spoken for many centuries in the various provinces of the land, and as it is spoken about us to-day. Women had not always the right, and they had seldom the opportunity, to learn and use the sacred language of the learned. But the time came when neither men nor women could any longer be balked of self-expression in the language that they knew best and that spoke

to their hearts. Then began the blossoming of a new literature in Hindi, Marathi, Gujerati, Urdu, Tamil, and all the other tongues that the common people spoke.

It is not easy to pick one's way through the midst of this bewildering variety, or to judge of the qualities of these poets' work through the medium of a very imperfect translation. I propose to select, somewhat arbitrarily from one language or another, what appears to me to be most interesting and most characteristic. Surveying the whole development, we see what we have already had occasion to note, that the heart of the Indian poet, whether he writes in a classical language or in the language of the people, is engaged more with eternity than with time. There are few songs of human love, but many of the divine love. There is little in praise of the world's beauty or of life's joys and affections, but much in praise of the stony path of renouncement. Many of these poets, women as well as men, turn away from the colour and the joy of life and the comforts of earthly love. Their music is for the most part played, as one of them says, on a "stringless lute." The music that they make is indeed only incidental to their worship and their longing. These poet saints are saints first and poets afterwards, and, as we see them, fallen upon the world's great altars, they appear to be among the most austere and passionate of all the world-renouncers.

But it is only of the women among them that I have to speak. I think that the most remarkable of those of whom I have any knowledge is the Marathi poet, sister of the great Jñānesvar, Muktā Bāi. She is a dim figure, and some have resolved her into a

philosophical category, but we may, I think, accept the view that she and her three brothers lived in the thirteenth century of our era. She is a worthy sister of Gārgi and Maitreyī, and moves easily and confidently among terms of Vedānta philosophy that might well make our modern brains reel. The story is well-known of how she and her brothers were out-casted as being "Sanyāsi's children," and how, by their learning and their miraculous powers, they won their way to respect. Tradition says that she died at the age of sixteen, and if, indeed, she did, and wrote her poems before that age, that in itself was a sufficient miracle to convince the most stubborn unbelievers of her superhuman gifts. We find her singing, even as the Buddhist Sisters did, though in language more philosophical and less personal, the same desire for freedom that so moved them, and the same longing for an inward peace. She is a traveller along the lonely road of monism. "Nivritti," she says, speaking of her brother and her *guru* :

"Nivritti, who has torn from out his soul
All seed of passion, certainly declares
That all are one; and Muktā Bāi
With mind firm fixed upon the road
To freedom—road that ne'er can weary one—
Attains the knowledge of the endless one, ●
Who fills finite and infinite alike."

Again she expresses in a beautiful figure, a figure appropriate to one who, though a philosopher, is still a woman, the same desire :

"Sleep calm and still, my child, where far beyond
All talk of form or formlessness,
Thy cradle has been swung within
The very lotus of the heart itself."

She is speaking to the child of her spirit, Chāṅgdev, who is said to have become her disciple. A simpler and more quaint and human interest attaches to a poem said to

have been written by her as an expostulation with her great brother, Jñānesvar, when he was angry with her and shut her out of his hut :

"Graciously thy heart incline,
Open to me, brother mine !
He's a saint who knoweth how
To the world's abuse to bow.
Thou pervading Brahman art,
How should anger fill thy heart ?
Such a poised soul be thine,
Open to me, brother mine."

Muktā Bāi was a Brahman and a philosopher. About 100 or, perhaps, 150 years after her time, another poetess arose from among the Marāthā people of a far humbler origin, but with a more passionate and appealing note in the music that she made. Janā Bāi was a servant woman in the household of the tailor poet, Nāmdev, and gave herself, as he did, to the worship of Vithobā. The God is declared in the legend to have been constantly in her company, grinding corn for her, drawing water, helping her to wash the clothes. "Of God," she says :

"Of God my meat and drink I make ;
God is the bed on which I lie ;
God is whate'er I give or take :
God's constant fellowship have I."

She expresses, as her master Nāmdev did, with extraordinary poignancy of desire, the longing of the human heart for the divine fellowship. The purpose of this paper is not to deal at all with the religious teachings of these saints. It is not as saints that we view them here, but as poets ; but, as I have said already, any worthy or deeply felt emotion lends itself, in a moment when the subject of the emotion is lifted out of himself or herself, to poetic ex-

1. *Psalms of Maratha Saints*, by N. Macnicol, p. 41.
2. *Op. cit.*, p. 50.

pression. Poetry is

"The hand that wrings,
Bruised albeit at the strings,
Music from the heart of things,"

and there is a music that issues from the very heart of the universe in such a cry as this of Janā Bāi :

"Blind one am I, and he that was my staff,
Where hideth he ?
In what strange woodland tarriest thou, my hind,
While I, thy dumb fawn, stray lost and seek my home
in vain ?
Apart from thee what can I do ?
How longer hold to life ?
O let me meet my Mother ! Such the prayer
Thy servant Jani pours before the saints."

Man is a wanderer from his birth, a voyager on the great deep. Whether the poet be Janā Bāi or Dante or Percy Bysshe Shelley, the cry is the same cry in them all :

"The desire of the moth for the star,
Of the night for the morrow,
The devotion to something afar
From the sphere of our sorrow."

It is not easy in the older Indian literature to discover any inspiration that is not a religious inspiration. In long periods of literary history the word saint seems almost to be a synonym of the word poet. If we turn from Marāthi to Gujarati and to Hindi the tale is still the same. Mirā Bāi was a queen and a poet, but she was first and last a devotee of Krishna. The story is well known of how she counted the world well lost for him. At last, according to the legend, she cast herself before the image of the God and besought him to take her wholly to himself. Thereupon, as the tale is told by Tod in his *Rajasthan*, "The god descended from his pedestal and gave her an embrace which extricated the spark of life. 'Welcome, Mirā,' said the lover of Rādhā, and her soul was absorbed into his." It is not easy, one

has to confess, to appreciate through translations either the passion or the poetry in this lady's verse. And yet there must be something there, some tone or accent that escapes us but that appeals to the hearts of many Indian women. It may be the glamour of an old story, waking what Kabir calls "the unstruck music" in their souls, something in them that one of another race cannot recover. However we may explain it, this is how the influence of this poet princess is described to-day by a Gujarati scholar. "In a thousand sweet and homely songs," he says, "the broken heart of Mirā Bāi sung itself out, and the love which the Rānā had claimed in vain was poured upon the divine and invisible ideal of her soul, and her songs live to this day, after 400 years. Pious women in Gujarat sing them in the presence of the same ideal, and feel they are nearer heaven than earth when Mirā's music is on their tongues. Young women sing them at home and in public choruses, for Mira's ideal is held to be the ideal for all women, and the heart of Mirā was pure and innocent and god-fearing, as the heart of woman should be."

In some ways it is a relief to turn from these "God-intoxicated" women to one whose romantic story has passion enough in it, but a passion that is very human and earthly. The story of Rupamati, the Hindu wife of Bāj Bahādur, a Muhammadan and the last independent ruler of Malwa, is well-known throughout the Rājputāna and Central India States, and her songs, though they have never been printed, are widely known and sung among the village people. She is said to have lived with her lord for seven happy years, but the end, when it came, was tragedy. When her husband was defeated by Akbar and became a fugitive, to escape dis-

honour she perished by her own hand. The love for each other of these two has supplied a theme not only for the poet but for the painter, and a charming scene, showing husband and wife riding together, is represented by artists of the Mogul School. Here is one of Rupamati's poems in celebration of her love, as translated by Sir Henry Cunningham:—

"Friend, let others boast their treasure,—
Mine's a stock of true love's pleasure,
Safely cared for, every part,
'Neath that trusty lock, my heart,—
Safe from other women's peeping,
For the key's in mine own keeping,
Day by day it grows a little,
Never loses e'en a tittle;
But through life will ever go
With Bāz Bahādur, weal or woe."

That tale and that charming avowal of affection must suffice to show that the Indian soul, for all its unearthly yearnings, was still capable of very simple and very human love and loyalty.

We have travelled across the plains of India from one province to another, and back through the centuries over two thousand years, and yet we have heard those women, with scarcely an exception, improvising upon one great theme, engrossed with a single subject. If we went to other parts of the country and listened to other voices we would still find them occupied with God and with eternity. If we try Tamil or Malayalam in the south, or go, instead, far north to Kashmir, still we find that, whether it be poet or poetess that sings, it is upon the other world, and not upon this, that their gaze is fixed. Of Āṇḍal, a Tamil Vaishnavite poetess, we are told that, like Mīrā Bājī, she refused to marry any one but Krishna. Lāl Ded, the Kashmirī poetess, was a wandering mendicant. Her verses are more gnostic

than lyric; they have more of *Jnana* than of *Bhakti* in them, but here is one expressing the universal desire with a beautiful simplicity:

"O heedless one, speedily lift up thy foot (and set out).
Now it is dawn; seek thou for the Friend.
Make to thyself wings; lift thou up the winged feet.
Now it is dawn. Seek thou for the Friend."

There is one exception among these groups of poets of the earlier time in India to this engrossment with religion and its imperative demands. Persian is not an indigenous Indian language, but during the period of Moslem rule in India, Persian was the court language and the many poets that frequented the Court naturally wrote in it. Much of this versifying was little more than an elegant accomplishment, but some of those who practised it had a real poetic gift, and among these there were several women. In their company we find ourselves in a wholly different atmosphere. The love they sing is usually a very human and earthly passion, and their wisdom is the wisdom of this world. These ladies belong to a very different class of society from the mendicants and ascetics of whom we have mostly been speaking. One of them, Razia Begum, was herself a powerful and successful ruler. Nur Jehan was exposed when a girl by the roadside to die, but became the queen of the Emperor Jehangir. Zeb-un-Nissa Begum was a daughter of the Emperor Aurangzeb, and there is a legend, which, however, has no authority, that she was imprisoned in a fortress because of her secret love for Shivāji, whom she may have seen when he was himself a prisoner at her father's Court. Nur Jehan describes the prevailing occupation of her poetic gift in this similitude: "The bud may open by the morning breeze which blows in the garden,

but the key to the lock of my heart is the smile of my beloved." Of Zeb-un-Nissa I am able to give an example in a rendering of one of her poems by one who is herself a distinguished Indian poetess, Mrs. Sarojini Naidu. The poem is called "The Song of the Princess Zeb-un-Nissa, in praise of her own beauty:"

"When from my cheek I lift the veil,
The roses turn with envy pale,
And from their pierced hearts rich with pain,
Send forth their fragrance like a wail.
Or if, perchance, one perfumed tress
Be lowered to the wind's caress,
The honeyed hyacinths complain,
And languish in a sweet distress.
And when I pause, still groves among,
(Such loveliness is mine) a throng
Of nightingales awake and strain
Their souls into a quivering song."

How much of this poem is to be attributed to Zeb-un-Nissa and how much to her gifted translator I do not know, but in any case they are both Indian women poets of whom India can be proud.

In modern times, with the entry into India of Western culture and literature, new sources of inspiration have been made available to those who are moved to poetic expression, and a wider variety of subjects has been brought within the poet's scope. One cannot but notice that the beauty of the world about them seldom furnishes a subject to the older poets. The thought that it is all illusion seems to thrust itself between them and the joy that it might bring. It is, as far as I can judge, in the poetry of Bengal especially, that one sees this new birth of Indian inspiration, though it is to be found also in the Marathi poetry of to-day. With Dr. Rabindranath Tagore, Indian poetry has entered into possession of a new and far wider dominion. Of him it has been said that he is "the repre-

sentative man of his time, in touch with the fulness of his intellectual heritage." It would seem that there are several Bengali women poets who share this full heritage with him, and whose poetry displays a new variety of interest. I cannot quote from the work of more than two of these ladies, but a glance at the translations from their works shows how the claims of natural affection and the sights and scenes of the world about them, and, perhaps most notably of all, the duty of service of the poor, and of help for the suffering and the fallen, now furnish their chief themes in a manner that is wholly modern and new. Mrs. Kamini Roy, for example, has these verses in one of her poems: "Lamp in hand he went, not alone; on the way the light went out and so he fell. Will you not in mercy take his hand and raise him up? Will you not pause for him one half moment, friends? Let him kindle his lamp from your own lights. Let him go forward holding your hands. If you pass, leaving him in the mud in darkness, he will always remain plunged in the blackness of night." One other example of the work of modern Bengali women poets must be quoted. It is by Mrs. Sarojabala Dasgupta, and is translated by an Englishman who is himself a poet, Mr. E. J. Thompson:

"Lo, where the bird at rest
Titters in careless ease upon her nest!
Throughout all storm wherewith the loud tree swings
Broods in the sky-flier's breast the pride of wings,
Though soft leaves interlace,
Making a hiding-place,
The sheltered life within does not forget
How strong she is, how free, by Nature's right!
Though nest and foliage fall, her refuge yet
Remains, the boundless heaven's unpillared height!"

What a difference it makes when we have one poet interpreting another!

One is tempted to linger over the poetesses who have broken down the barrier of language and achieved noble expression for India in the English tongue. Of Mrs. Sarojini Naidu's work I have already given an example. Its perfection of finish and technical accomplishment win one's astonished admiration. She expresses herself with complete ease and charm in this foreign medium. To Toru Dutt, however, belongs the honour of being the amazing pioneer in this department of Indian literature—Toru Dutt, that "sleepless soul," that marvellous girl that perished ere her prime. The story is famous of how the great English critic, Edmund Gosse, opened without expectation an unattractive pamphlet of verse, published at Bhowanipore, and read these lines:

"Still barred thy door! The far east glows,
The morning wind blows fresh and free,
Should not the hour that wakes the rose
Awaken also thee!
All look for thee, Love, Light and Song,—
Light in the sky deep red above,
Song in the lark of pinions strong
And in my heart true love."

As a matter of fact, it appears that that poem was not by Toru Dutt, but by her sister, Aru, but it must suffice as an example of the work of this gifted family. Toru's work is by no means faultless, but it is full of spirit and inspiration. In one of her poems she describes three children, herself and her two sisters, listening as their mother sings to them of Sita in the forest. As they listen, "tears from three pairs of young eyes fall amain, and bowed in sorrow are the three young heads." I think that picture of the three Bengali girls and their mother, listening with melting hearts to that old tale, is one with which we may fittingly conclude this review of the work of India's women poets. From the days of

Sita to the days of Toru Dutt there have never been lacking in India women of true and loyal and passionate hearts, who could both live poetry and make it. When Indian women look back upon that long and notable inheritance, they may well be filled with pride in the past and with hope for the future. The spirit of India is still, to use the Bengali poetess's word, a "sky flier," and there "broods in the sky-flier's breast the pride of wings."—*The Young Men of India*: March, '23.

TALISMANS AND CHARMS

For those People to Avoid all Sorts of
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CALCUTTA UNIVERSITY REFORM.

REPORT OF THE COMMITTEE APPOINTED
BY THE SENATE TO EXAMINE THE BILLS
FRAMED BY MESSRS. MALLIK AND BASU.

1. We, the members of the Committee appointed by the Senate on the 10th February, 1923, to examine the provisions of the two University Bills framed by Mr. Surendra Nath Mallik, M.L.C., and Mr. Jatindra Nath Basu, M.L.C., which have been forwarded to the University by the Government of Bengal for opinion, beg to submit our report.

PART I.

THE MALLIK BILL.

2. The purpose of the Bill framed by Mr.

General features. Mallik, as set forth in the preamble, is the double one of (1) widening the constitution of the University and (2) providing for an improvement in the financial administration of the University. An examination of its provisions shows, however, that neither of these purposes will be carried out to any appreciable extent; indeed, the Bill will have an effect of a narrowing rather than of a widening character and will result in the concentration of considerable power in the hands of one person, viz., the Minister of Education. Besides, in regard to all its provisions, financial or otherwise, the Bill seems to us to involve a complete departure from the spirit and letter of the Sadler Commission Report. It will be recalled that the fundamental feature of the recommendations made by the Commission was that they would secure for the University a constitution which would make it a self-governing institution in all matters financial and academic and would leave the decision of academic questions

mainly to persons following the profession of education.

3. Clauses 2 and 5 (1) of the Bill provide for the revival of the office of Rector which is henceforth to be

filled by the Minister of Education in Bengal. Bengal, however, is not the only province which has a Minister of Education, and it cannot be overlooked that no such position has been assigned to the Education Minister in any other province in respect of its University. The history of the position of Rector in this University under the Indian Universities Act 1904, is outlined in the report of the Commission,¹ and need not be repeated here. The chief reason was that as the Government of India and the Chancellor had to be absent from the seat of the University for many months during the year, it was considered desirable to confer the status of Rector on the head of the Provincial Government, so that he might remain in touch with the work of the University. When by Act VII of 1921, which came into operation on the 27th March 1921, the Governor of Bengal became Chancellor in place of the Governor-General, the provisions of the Indian Universities Act relating to a Rector for the Calcutta University were repealed. We are not aware what has happened since the 27th March 1921, which necessitates the revival of the post of Rector; no explanation is to be found in the Statement of Objects and Reasons appended to the Bill. It must also be noticed that this University exercises jurisdiction not only over Bengal but also over Assam, and that, like Bengal, Assam has a Minister of Education who, like the Minister of Education in Bengal, is an ex-

¹ Report, Vol. III, pp. 190-200.

officio Fellow. Why the Education Minister of one province should be made Rector and not the other, it is difficult to understand. We further find that His Excellency the Governor of Assam is the senior-most *ex-officio* Fellow. If the post of Rector were at all to be revived, why the claims of the Governor of Assam should be ignored, it is not easy to appreciate. In no other University has it been considered necessary or desirable to interpose a Minister or Member in charge of Education between the Chancellor and the Vice-Chancellor. In this connection, it may be mentioned that in the University of Delhi, which has a non-resident Vice-Chancellor, provision has been made for the appointment of a Rector *under* the Vice-Chancellor, to carry on his duties and to serve as a Pro-Vice-Chancellor or Principal in a Teaching University. It is further noticeable that no attempt is made in the Bill to indicate the functions, powers and duties of the Education Minister as Rector. These are weighty objections to the proposal for revival of the Rectorship and the appointment of the Education Minister thereto.

4. We pass on to another provision of the Bill which shows what its main consequences will be. Under the existing constitution, that is, under the Act of Incorporation 1857, and the Indian Universities Act, 1904, the Fellows, other than those that are elected, are nominated by the Chancellor of the University (who is Governor of Bengal). Clause 5(2) of the Bill proposes to take away this power from the Chancellor and to vest it in the Local Government, which would mean, in practice, the Minister of Education. There is no parallel for this in any of the other

Indian Universities; and no ground for this departure from what has been the established rule for two-thirds of a century is even suggested in the Statement of Objects and Reasons. The question was considered by the Sadler Commission, and they recommended¹ that the nomination of Fellows should be made by the Chancellor, while the Local Government should nominate only a limited number of their own officers as their representatives. The Commissioners rightly pointed out that "it is the principal duty of the Chancellor to act as an impartial judge between the various interests and communities which must be represented in the University, and to ensure that none of them has reasonable ground of complaint." We are of opinion that there is no reason why the Chancellor should be deprived of his power to nominate Fellows. On the other hand, we feel convinced that the new system proposed involves an obvious danger, as the Minister may be influenced in the appointment of Fellows by party or political considerations. Under the present system, when a vacancy on the Senate has to be filled up, the duty is cast, in the first instance, upon the Vice-Chancellor to advise the Chancellor, who thereupon makes such enquiry and consults such persons as he deems necessary before he makes the appointment. We believe that when education was in charge of a Member of the Executive Council, the Member was as a rule consulted, and since education has been a transferred subject, the Minister has been similarly consulted. The ultimate authority, in our opinion, should, in the main, be vested in the Chancellor and he should be left free to obtain such advice as he considers necessary in each instance.

¹ Report, Vol. V, pp. 221-222, 225-226.

5. We shall refer hereafter to the provisions of the Bill which will have the effect of increasing the control of the Local Government over the finances of the University, and which are, in our opinion, of a thoroughly retrograde character. We shall content ourselves with merely stating at this stage that as control by the Local Government means in practice control by the Minister, those provisions must necessarily result in vesting the Minister of Education with absolute authority to control the University finances.

6. Before we pass on to the next point, we should like to invite attention to Clause 6 of the Bill which states that the present Ordinary Fellows of the University will vacate their seats within six months of the commencement of the new Act and will cease to have any connection with the University. It is interesting to recall that when Lord Curzon's Act of 1904 came into operation and the new Senate was constituted, it was distinctly laid down that such of the former Fellows as had no seats on the new Senate would, under Section 13 (1) of the Indian Universities Act, always continue to remain in touch with the University in the capacity of Honorary Fellows. The Sadler Commission also, we find, recommended that all members of the Senate and all Honorary Fellows of the University, at the date of the commencement of the Act, should be life-members of the Court. The Bill, however, does not deem it desirable that the present members of the Senate should continue to have any association with the reformed University, except of course such of them as may happen to become members of the new

Senate. This provision seems to cast a slur upon the present Ordinary Fellows of the University which they have by no means deserved.

7. We have already indicated that the Bill completely rejects the recommendations of the Sadler Commission as to the most suitable constitution for the University. It is patent to us that the Bill contemplates an enlargement of the Senate by the introduction of what is called the democratic principle, the Senate so amplified to exercise, as at present, both academic and administrative functions. We are of opinion that the reconstitution of the Senate on this basis will be detrimental to the development of the University as an educational institution. Under Section 8 of the Act of Incorporation 1857, and Section 4 of the Indian Universities Act 1904, the Senate, as the Body Corporate consisting of the Chancellor, the Vice-Chancellor and the Fellows, whether *ex-officio* or ordinary (elected and nominated), is charged with the entire management of and superintendence over the affairs, concerns and property of the University. The preamble to the Act of Incorporation and Section 3 of the Indian Universities Act, read together, show that the University is required not only to conduct examinations but also to make provision for the instruction of students and to secure the promotion of study and research. There is thus no escape from the position that the Senate of the University, under the law as it stands—and the law in this respect has been left untouched by the Bill—must discharge academic functions as well as administrative duties incident thereto. In our opinion, if the duties of the Senate continue in future to be what they are at the present

moment, namely, of a dual character, a democratic principle should not be adopted in constituting that body; that principle, however, may well be applied in the reconstruction of the University on a different plan. We realise fully that for the orderly and progressive development of the University, as a powerful factor in the life of the nation, it is essential that the University should be brought into intimate touch with public opinion to a much larger extent than is contemplated by or has been found practicable under the existing constitution. How this can be best achieved is a problem of some complexity which was fully explored by the Sadler Commission. We have not been able to discover why the recommendations of the Commission on this fundamental point should have been ignored by the framer of the Bill; the Statement of Objects and Reasons at any rate is of no assistance here.

8. We may usefully recall at this stage that the Commission recommended that the University should be reconstituted on the pattern of the modern British Universities and should possess what they termed a Court and an Academic Council. The fundamental distinction between the functions of these two bodies is indicated in two passages of the Report which may be quoted here:—

“It is, in our judgment, essential that the Court of the University should be so constituted as to represent every important element in the public opinion of the area specially served by the University, and every kind of expert judgment whose criticisms on the University policy would be of value. A body designed to serve such a purpose should be constituted in a different way from the existing Senate. It should, in our judgment,

consist in part of *ex-officio* members, and in part, of elected members, the nominated element being reduced to subordinate proportions.” (Report, Vol. IV, p. 384).

“The most important of the changes which we suggest in the structure of the University is the creation of a supreme Academic Body, whose duty it will be to direct and review all the academic work of the University, to be responsible for the standards of attainment represented by its degree, and to initiate proposals for academic reforms and advances. We propose to give to this body the name of the Academic Council, in order to indicate that it is, for many purposes, a parallel or co-ordinate body with the Executive Council. No such body has ever existed in any Indian University of the older type. The nearest approach to such a body is provided by the recently established Academic Councils (one in Arts and one in Science) for the conduct of the post-graduate work of Calcutta University..... What is needed is a single supreme and representative academic body which can deal with all the academic business of the University, under-graduate and post-graduate alike. Such a body must not be too large; otherwise it will become unworkable and its discussions will be lengthy and unpractical..... On the other hand, the supreme academic body cannot be small, because it must include representatives of all the chief subjects of study in the University, technical and professional, as well as literary and scientific; because it must include, further, representatives of the colleges, at any rate of those which form constituent elements in the Teaching University of Calcutta; and finally, because it ought to include the most distinguished teachers whose services the Univer-

sity enjoys. Unless it includes all these elements, its judgment will not carry the weight which it ought to carry.” (Report, Vol. IV, pp. 395-396.)

9. It is plain that this vital distinction has not at all been realised by the framer of the Bill. But, even apart from this, it is of fundamental importance to recognize that the Senate, as proposed to be reconstituted, is a far less representative body than the Court as outlined by the Commissioners. This will become manifest, if a comparison is instituted between the Senate as proposed to be amplified and the Court as described by the Commissioners.¹ What is of still graver import, is that the framer of the Bill has not realised that the functions of the Court would be those of watchfulness and criticism and of keeping the University in touch with the movements of public opinion on educational questions. Besides these functions, the Court would have legislative as well as financial powers of far-reaching importance.² The Commissioners distinguish between four different types or grades of University legislation, namely, the Act, Statutes, Ordinances, and Regulations.³ They carefully define the nature of each of these grades of legislation, how and under what circumstances they are to be undertaken and carried out. The Commissioners finally emphasise that their proposals are intended to remedy “one of the greatest defects of the existing system.” The Bill not only does not seek to remedy this defect, but actually contains provisions which will make the situation worse still.

¹ Report, Vol. IV, pp. 384-390.

² Report, Vol. IV, pp. 378-381.

10. Under the Bill, all Regulations, whatever their subject-matter, must come up before the Senate, as enlarged, and must ultimately be submitted to the Local Government, that is, the Minister of Education, for sanction. The gravity of the situation could not have been realised by the framer of the Bill when he drew up Clause 9, which imposes upon the new Senate—a larger and more diversified body than the present Senate—a duty to frame within a period of three months an entirely new body of Regulations for the sanction of the Local Government. This Clause further reserves power to the Local Government to add to or alter the first body of Regulations which may be submitted by the new Senate—this is a noticeable departure from the provision of Section 25 of the Indian Universities Act, which also, as we shall presently see, is proposed to be modified. The Clause finally threatens that if the Senate is not able to prepare the new body of Regulations within the prescribed time, the Local Government will undertake to discharge this duty. It is difficult to imagine what other provision could have been devised, if the intention of the framer had been to bring matters to a deadlock.

11. Section 25 (1) of the Indian Universities Act 1904, provides as follows:

“The Senate, with the sanction of the Government, may from time to time, make Regulations consistent with the Act of Incorporation as amended by this Act and with this Act to provide for matters relating to the University.”

This reproduces the substance of Section 8 of the Act of Incorporation 1857. Consequently, ever since the establishment of the University the position has been

Interference with existing Regulations.

that the Senate alone is vested with authority to make regulations, subject to the sanction of the Government. The Government can veto a regulation submitted by the Senate, but the Government cannot take the initiative. Besides this, when a regulation is submitted by the Senate to the Government for sanction, the Government cannot modify it; the Government either rejects or confirms it. Clause 8 of the Bill proposes to confer a new authority on the Government in the following terms:

"The Government may after consulting the Senate modify the existing regulations or make new regulations consistent with the provisions of the Act of Incorporation as amended by the previous Acts and with this Act, to provide for all matters relating to the University of Calcutta other than those that are purely academic."

We have searched in vain through the Statement of Objects and Reasons for a justification of this dangerous innovation.

12. It is manifest that the framer of the Bill has been driven to formulate most reactionary proposals for increased Government control over University finance, because of his failure to appreciate one of the most important functions of the Court, as proposed by the Commission. To many it will be a matter for astonishment that proposals of the character contained in Clauses 3 and 4 of the Bill, which will result in increased Government control over the finances of the University, should have emanated from a member of the Legislative Council, acting under the Reformed constitution which is claimed to be the symbol of self-government as a legacy of the world-struggle for freedom and democracy. We shall not dwell in detail on this aspect of the matter.

Section 15 of the Act of Incorporation, 1857, is in the following terms:—

"The said Chancellor, Vice-Chancellor and Fellows shall have power to charge such reasonable fees for the Degrees to be conferred by them, and upon admission into the said University, and for continuance therein, as they, with the approbation of the Local Government of Bengal, shall from time to time see fit to impose. Such fees shall be carried to one General Fee Fund for the payment of expenses of the said University, under the direction and regulations of the Local Government of Bengal to whom the accounts of income and expenditure of the said University shall once in every year be submitted for such examination and audit as the said Local Government of Bengal may direct."

As was pointed out by the two Committees of the Senate appointed on the 13th March and 25th March 1922, this provision, which has been in operation since the establishment of the University, authorises the Government to issue "directions and regulations" only in respect of the three classes of fees mentioned. The reason for this limitation is familiar to all who are acquainted with the history of the legislation which culminated in the Act of Incorporation. By Clause 3 of the Bill, it is proposed to extend the authority of the Government by the substitution of "all fees paid to the University and all income of the University subject to any Trust" for the words "such fees" in the second sentence of the Section. The obvious intention is to secure Government control not only over all kinds of fees paid to the University but also over the income of Trust Funds of every description. We have searched again in vain through the Statement of Objects and Reasons for justification of a retrograde proposal of this character. We shall leave it to others to decide whether a provision of this nature may be even euphemist-

ically called a provision for an improvement in the financial administration of the University. After this, the provision for the institution of a Statutory Board of Accounts will not take anybody by surprise. We observe that even the reconstituted and democratised Senate is not to be trusted to elect more than one-third of the Members of the Board, the remaining two-thirds to be appointed in equal halves by the Local Government and the Legislative Council. It is further noticeable that the Senate cannot be trusted even to nominate the Treasurer, who is to be appointed by the Board with the approval of the Local Government. Again, the Senate, though the Body Corporate of the University and though reformed on democratic lines, will have no hand in the preparation of the Budget, which is apparently left in the hands of the Board where the representatives of the Senate will be in a minority. The significance of all these provisions will become obvious when we remember that the Local Government means in practice the Minister of Education.

13. A striking contrast is presented when we examine the provisions for financial control developed by the Sadler Commission in their report. They were strongly opposed to financial control being vested in an individual, however exalted his status, or in a small group of men, however respectable. They recommended the creation of a truly representative University Court, where financial matters might be discussed and adjudicated upon in the full light of publicity. They urged the establishment of a Committee of Reference (to be carefully chosen as a representative body from amongst the members of the Court) which would act in consultation with the Executive Council and would enable the

Court to deal with financial matters in the best interests of the University. The scheme was worked out in great detail by the Commissioners in their Report,¹ and its effect was summarised as follows:—"The Court would exercise a real influence and ultimate control over the policy of the University by the exercise of a real supervision, through the Committee of Reference, over the expenditure of the University. At the same time, the responsibility of the more active governing bodies would not be undermined." No one personally acquainted with the administration of a great University can deny that increased control over finances must ultimately mean increased control over academic activities, and we have little doubt that the provisions for increased Government control over the finances of the University will have this dangerous effect.

14. We shall not examine in further detail the provisions of the Bill framed ostensibly with a view to obtain a wider constitution for the University, because we are convinced that the Bill has been framed on entirely wrong lines and that before a suitable Bill can be drawn up, the angle of vision of those, who are anxious to reform the University, must be completely changed. The object of the Bill, as is made abundantly clear by its provisions, is not educational but political; its effect will be to secure the supremacy of the Minister of Education in University affairs. This, we affirm without hesitation, is a radically wrong ideal. The University should be as isolated as possible from the tide of party politics. The Governor may be expected to be above politics, but a Minister is not; and he will, as popular Government gradually develops, become more and more the mouthpiece of one

¹ Report, Vol. IV, pp. 888-890.

of the parties in the State. The purpose of any new legislation should, in our opinion, be, not to transfer to the Local Government the authority now vested in the Senate, but to devise a constitution, which will bring the University into intimate touch with the community on the one hand and the Government on the other, at the same time preserving, if not enlarging, its autonomy. This, we are convinced, should be our ideal, specially as it is impossible to predict the exact form of government which will be ultimately evolved out of the present constitution, and it would be most unfortunate from the point of view of development of academic work if the University should at this stage be entangled in the meshes of a new constitution which has not yet established a tradition. The danger, we think, can be best avoided by a serious endeavour to frame a constitution for the University on the lines of the recommendations made by the Sadler Commission, liberalised wherever practicable, rather than narrowed down in every possible direction. We would urge our legislators to take for their guidance the following passage from the Report of the Commission¹ :—

"If the University of Calcutta is to be enabled to undertake all these functions with any prospects of success, it must be equipped with a system of government more carefully devised for the purpose than that which it now possesses; a system which will combine a proper representation of public opinion and of all the interests concerned in the healthy development of the educational system, with the maintenance of a proper degree of influence and authority for the best expert opinion; while at the same time the supervisory authority of Government, and its deep concern in the matters with which the University has to deal, must be properly provided for, without imposing upon Government minute and

detailed responsibilities which its officers cannot be reasonably expected to fulfil. . . . Responsibility can only be made real when it is associated with power; and therefore the powers of the various constituent elements in the system must be made real—that is to say, the autonomy not merely of the University as a whole, or of its supreme body, but of its distinctive parts, must be increased. Delegation, and a clear definition and demarcation of functions, are necessary if the complex and varied work which we have described is to be well done."

15. Before we leave this Bill, we feel constrained to draw attention to the Statement of Objects and Reasons. That statement, as we have already pointed out, makes no mention at all of what appears to us to be some of the most objectionable innovations embodied in the Bill. On the other hand, it makes lengthy extracts from a report of the Accountant-General which was considered by the Government Grant Committee. The framer of the Bill had before him a copy of the report of the Committee¹ and has yet deliberately ignored the facts stated therein. Further comment on this aspect of the matter would be superfluous.

PART II.

THE BASU BILL.

16. The purpose of the Bill framed by Mr. Basu is to render the constitution of the University more popular and to introduce a large elective element in the Governing Body, with a view to give effect to the desire embodied in a resolution, which was moved by him in the Bengal Legislative Council on the 4th July, 1921 and was adopted by the Council in a modified form. This Bill does not contain any provisions directly calculated to increase the control of the Government over the finances

of the University. Clause 3 of the Bill however, contemplates the revival of the Rectorship and the appointment of the Minister of Education thereto. The Bill further deprives the Chancellor of authority to nominate Fellows and vests the power in the Local Government, which means in practice the Minister of Education. The Bill finally provides for the abolition of all existing regulations on a prescribed date, as also the preparation of a new body of regulations by the new Senate and in default by the Government of Bengal. No reference is made to these features in the Statement of Objects and Reasons. It is not easy to understand how provisions of this character can help to make the constitution of the University more popular than at present; the objections which may be urged against them have already been stated in Part I of our report and need not be reiterated.

17. Apart from this, it is in our opinion a fatal mistake to attempt to reconstitute the University with one supreme Governing Body which is to satisfy the requirements of the democratic principle and is also to discharge the academic functions of a great teaching and examining University. A comparison of the constitution of the Senate with that proposed for the Court and for the Academic Council by the Sadler Commission, will convince even a superficial critic that the new Senate is far less representative than the Court, while it is far too large and miscellaneous for the efficient discharge of academic duties. There can be little doubt that a suitable constitution for the University cannot be secured by an amendment of the Indian Universities Act and that what is needed is an entirely new Act on the plan outlined by the Sadler Commission. This has been realised by the framers of the new legislative

measures adopted for the reconstruction of the Universities of Madras and Allahabad, both governed, at one time, like Calcutta, by the Indian Universities Act; in each of these cases, an entirely new Act framed in accordance with the report of the Sadler Commission has been found necessary.

18. We observe that in the Bill framed by Mr. Basu, communal representation finds a much wider recognition than in the Bill framed by Mr. Mallik. The question, as is clear from an examination of the evidence adduced before the Sadler Commission, has given rise to much diversity of opinion. We are in general agreement with the view ultimately adopted by the Commission, namely, that while communal representation may be recognised to a limited extent in the constitution of administrative bodies, it has no legitimate place in the constitution of purely academic bodies.

19. It is worthy of note that the question of representation of Assam has been ignored in both the Bills, although the University exercises jurisdiction over Assam as well as Bengal. We feel that in any attempt to reconstitute the University, the claim of Assam to be suitably represented on the new Governing Bodies will have to be frankly faced and generously recognised.

20. One final observation. It may be regarded as a matter of satisfaction that two of the graduates of this University, whose activities have been hitherto confined principally to a sphere other than that of educational work, should not only have interested themselves in the welfare of their *Alma Mater*, but should also have availed themselves of their position as Members of the Legislative Council to initiate proposals for reform. It

¹ Report, Vol. IV. pp. 375-376.

¹ See Statement of Objects and Reasons.

presenting, not different aspects of education, but probably religious bias. It was dangerous. Sir Asutosh then requested the Senate to accept the Report which had already been circulated.

Mr. M. N. Ray seconded the resolution.

Mr. K. K. Chanda said that in 1915, Sir Surendra, then Mr. Surendra Nath Banerjee, moved a resolution in the Imperial Legislative Council for the transfer of control over the Calcutta University from the Government of India to the Government of Bengal. At that time the representatives of Assam in the Council opposed the motion on the ground that Assam was subject to the Calcutta University. So long as the Governor-General was the Chancellor, the Government and people of Assam could approach him easily and place their grievances before him which they could not very well do if the Provincial Government of another Province was in charge of the University. Assam was at present under the Calcutta University and what was the position of Assam in this matter? The Bill had no reference to it.

Sir A. Chaudhuri: Absolutely none.

Mr. Chanda continuing said that the framers of the Bill forgot that Assam was under the Calcutta University at all. How did Assam stand with regard to election or nomination? He did not wish to say anything about communal representation. There was nothing in the Bills about territorial administration. There was no chance of any one of Assam getting elected. He endorsed everything that Sir A. Chaudhuri had said with reference to nomination. If the Bill was passed into law Assam had no chance of getting nomination in the University. The Bills illustrated the maxim "Charity begins

at home." It was inevitable. As Assam was also under the Calcutta University why should it not be granted that privilege? What position would Government take up with regard to the matter? They were going to make the Minister of Education the Rector. Supposing they from Assam claimed a similar right that their Minister also should be made Rector, could they resist it? The Governor of Assam, who was the most important personage, was nowhere. He might tell them that it was not in the power of the Bengal Legislative Council to legislate in the way as contemplated. In 1920 when Lord Chelmsford visited Surma Valley there was an agitation with regard to Bengal. A manifesto was issued which was signed largely by the people of Surma Valley including the present Minister of Education, the present President and the Deputy President of Assam Legislative Council requesting that Surma Valley might not be cut off from the Calcutta University. A Government Communique was issued repudiating the suggestion that Assam would be cut off from the Calcutta University. The Government of Bengal and the Bengal Legislative Council had not the power to cut off Assam from the Calcutta University. With these words Mr. Chanda supported the resolution.

Rai Bahadur Dr. Chunilal Bose said that before the motion was put to the Senate he had to make a suggestion for the consideration of the meeting. Before he did so he should say that he did not subscribe to the observation that fell from the learned mover of the resolution, so far as the activities of men belonging to the profession of law outside the University taking interests in the affairs of the University were concerned. Did he mean that they should subscribe to

his novel theory that any man who belonged to the profession of law had no interest in any matter except matters within the four walls of that profession?

Sir A. Chaudhuri:— I have not said that. That is exactly what I did not say.

Rai Bahadur Dr. Chunilal Bose then proposed an amendment that the last sentence of the report be deleted. It is as follows:— "It is a curious feature of these schemes for the reform of the University that they have found expression in the same or similar objectionable proposals; we need not speculate as to whether these attempts at emendation are due to accidental coincidence or are traceable to a common archetype."

The Hon'ble the Vice-Chancellor:—You cannot move an amendment as you have not given notice.

Dr. Bose said that the Committee had indulged in certain reflections which might be just or might not be just, but he submitted that such things should not find place in the report of an academic body like the Senate of the Calcutta University. He submitted for the consideration of the Senate that the inclusion of the sentence would not add anything to the value of the Report. On the other hand he thought that the incorporation of the passage in the Report would, to a great extent, lower the dignity of the Report. So he moved that the last sentence might be deleted.

Mr. J. R. Banerjee:—It is the last sentence that upholds rather than lowers the dignity.

Dr. Bose:—Do you think so?

Mr. Banerjee in supporting the motion said that a certain poet, who was universally regarded as the representative of his age, said

— "We are wiser than our sires." In both of the Bills there was a distinct departure from the recommendations of the Sadler Commission. He believed that the tendency of the times was distinctly in the direction as indicated by the poet. First of all, the framers of the Bills ought to have experience in the matter of education. They had experience in particular spheres and it did not follow that they were competent to deal with another sphere. The Sadler Commission, which was appointed by Government, went minutely into every detail in connection with the affairs of the University and tried to place the University on a broader basis by certain clear-cut distinctions between the Academic Council and the University Court. Were they to think that the Sadler Commission in their attempt to reconstruct the University simply suggested a scheme which was altogether impracticable or absurd? Were they to take it that the framers of the Bills understood those things better? Perhaps they thought that they understood better. But he did not think that they would carry the people with them. So far as the last sentence of the Report was concerned one of the speakers said that it was not consistent with the dignity of an academic body. But the speaker was of opinion that if anything was consistent it was the sentence that was referred to. The word "archetype" had its legitimate place there.

Dr. Bose:—That is the most objectionable word.

Continuing Mr. Banerjee said that he found it objectionable because he lost sight of the fact that underlay it. The speaker simply said that he need not speculate as to the possible source of it. It might be due to the

accidental coincidence or to a common archetype but as theorists they were bound to speculate. If they read between the lines of the two Bills they would find a common archetype. It might be an accidental coincidence. Then there was another thing which was very significant. He had often thought of the psychology of matters and it was a remarkable psychological problem. What was behind the Bills? One thing was clear and he hoped to get the support of the Rai Bahadur. He spoke from experience and he spoke with absolute confidence. It was simply this. The Calcutta University was a Government institution. The Rai Bahadur would admit that it was a semi-Government institution. What was the psychology? There were two private Bills. If it is a Government institution, should not Government reconstruct it? Why should there be private Bills? The same man, the Minister of Education, he would be omnipotent. On one occasion they found him as the Rector, in another part of the Bill they found him as the Local Government. In another part he appeared as Minister of Education. He simply appeared in different suits of clothes. The speaker was associated with Mr. S. N. Mallik in connection with the National Liberal League. He claimed Mr. Mallik as belonging to the same political party. The Bills which had been framed with a halo of democratic sanctity about them were to destroy the autonomy of the University. They would shut out men qualified to deal with academical matters. What had been done to give in the scheme proper proportion of representation? Surely nothing. If proper proportion of election obtained it would mean in the Senate men who would be European to a very large extent. He had very great respect for the views of European educationists. The University was no longer an examining body. It was doing Post-

Graduate Teaching work. They could have no University where a sharp distinction was not observed between the University Court and the Academic Council. Financial control according to the Bills would be in the hands of the Government. The Report of the Committee should be adopted, first, because it tried to preserve the autonomy of the University; secondly, because it tried to establish for the University the right to deal with academical matters; thirdly, because, it showed that the Bills aimed at concentrating all power in the hands of one man, the Minister of Education, who was to be the Rector as well as the Local Government. Let them not be swayed by political considerations. The views of people like Sir Michael Sadler in educational matters were entitled to great respect, and the recommendations of the Sadler Commission which came from men of his type ought to have precedence over the views of people who had spent their lives as lawyers.

The Hon'ble the Vice-Chancellor:—The Rai Bahadur asks for leave to move the amendment that the last sentence of the Report be deleted.

Leave was refused.

Dr. Bose:—May I ask for an explanation from the Committee as to what the meaning of "common archetype" is. What does it refer to?

The Hon'ble the Vice-Chancellor:—You are not entitled to ask for an explanation. During my experience of 35 years I have never heard of a member of the Senate putting a question to the Chairman of a Committee to explain what the report means.

Principal G. C. Bose:—I want to elicit from the Rai Bahadur certain points which he has not made clear.

The Hon'ble the Vice-Chancellor:—There is no question of clearing anything. If the

members of the Senate began to cross-examine each other, there would be no end to the debate.

Principal G. C. Bose:—Members of the Senate have received copies of the two private Bills and "confidentially" I believe they have got copies of the Government Bills also.

The Hon'ble the Vice-Chancellor:—Nobody knows what we have got "confidentially."

Principal G. C. Bose:—I wish the visitors and the Press-men were not here.

The Registrar:—They are here.

Principal Bose:—On one occasion they were asked by the Senate to clear out.

Dr. Hiralal Halder said that it was difficult to discuss these Bills seriously. Their object was not to reconstruct the Calcutta University, nor to increase its efficiency but to make it over board and foot to the Government of Bengal which meant the Minister of Education. A body formed on the lines of the Bills would be not a University but a monstrosity. There ought to be no place for a degraded body like this in God's world. The country was entitled to know why the recommendations of the Sadler Commission should be set aside. Why not pass a Bill like this:—"Whereas it is expedient to destroy the influence of Sir Asutosh Mookerjee in the University of Calcutta, it is hereby enacted that the said Sir Asutosh Mookerjee shall for ever be disqualified from being a Fellow of the Calcutta University and that in his movements in Calcutta he shall not be allowed to go northwards beyond Bow Bazar Street."

Dr. Halder observed that it would admirably serve the purpose of the framers of the Bills.

The original motion was then put to the vote and carried unanimously.—*The Calcutta Review.*

Reviews and Notices.

RACIAL INTERMARRIAGES: THEIR SCIENTIFIC ASPECT. (THE TIMES PRESS, BOMBAY, 1922).

This pamphlet has been prepared in connection with the question of the conversion of aliens to Zoroastrianism and of their admission into the Parsee community (known as the Juddin question). "Vague ideas of the benefits of crossing and the improvement of race or breed by conversion and inter-marriage, and the importation or transfusion of rich foreign blood, &c., have been put forward now and again in connection with the Juddin question;" and this pamphlet tries to show how groundless these ideas are and how opposed to the true teachings of science. Whether one agrees with the conclusions arrived at in the pamphlet or not, one must admit that a systematic and scientific method of treatment has been adopted and that the pamphlet contains a good collection (with references) of very valuable and authoritative opinion on the several issues connected with the question. We strongly recommend a perusal of this pamphlet by all those interested in the general question of the desirability or otherwise of racial, caste and sub-caste inter-marriages.

ENGLISH CRITICAL ESSAYS (XVI—XVIII CENTURIES). THE WORLD'S CLASSICS SERIES OF THE OXFORD UNIVERSITY PRESS.

When Mr. E. D. Jones brought out some six years back a volume in the World's Classics Series dealing with English Literary Criticism of the 19th Century, he held out a hope that a companion volume dealing with the Renaissance and Neo-classic criticism would soon be published and the volume under consideration is the fulfilment of that hope and the redeeming of that promise, and the publishers and Mr. E. D. Jones deserve to be congratulated on this volume.

It is true that these two books taken together place within the easy reach of the reader a mass of critical material not easily available anywhere else, but they lack a luminous introduction pointing out the significance of the "movements and

counter-movements of English critical thought." An exhaustive history of English criticism as attempted by Saintsbury or even as sketched by Vaughan, may be out of place in this book; but a brief one like Prof. Walker's essay on the short story prefixed to the volume on short stories in the world's classics, surveying historically the rise and fall of the different standards of æsthetic evaluation would have considerably increased the usefulness of the volume; and the average reader does require some guidance when he surveys the whole range of the extracts from the writings of 32 authors from Sidney of the XVI century to Bagehot of the XIX.

We appreciate very much the taste of the author and the skill with which he has chosen these extracts. We are told how besides critics proper, such as Bacon and Johnson, poets like Sidney, Campion, Daniel, Jonson, Milton, etc., write on the principles of their own art.

It must be noted, however, that in his anxiety to make poets talk of their own art and craft the learned editor has been forced to leave out many humbler writers like Gosson, the author of the "School of Abuse," and Puttenham, the author of the "Arts of English Poesie" and Rymer of "The Tragedies of the Last Age Considered," who are historically important and whose works besides throwing into relief, place in their proper historical perspective the works of masters like Sidney and Dryden. Further among the notable names among the XVIII century critics we are sorry to miss that most delightful friend of all, Oliver Goldsmith. If he is great as a poet, comedian, and a novelist, that is no reason why he should be deprived of his place as a critic and the criticism he has given in his essays is, as Prof. Vaughan has shown, of great significance historically, not to speak of its own intrinsic worth. Besides, we would be content with one extract of Hurd if space consideration had compelled the author to leave out Burke, the English Longinus. Lastly we know that Dr. Johnson is at his best in certain passages in his prefatory essay on Shakespeare especially when he discusses the intermingling of the comic and the tragic in Shakespeare wherein we see how his sturdy commonsense enables him to transcend

the limitations of his school and it is a pity they do not find a place in the book. If Johnson is to be shown with his shackles, his remarks on Milton's "Lycidas" would have served the purpose better than his miserable performance on Gray.

With these reservations we commend the volume to all lovers of English literature who may not have access to the bigger collections of such materials by Gregory Smith and Spingarn.

SHAKESPEARE'S RICHARD III, EDITED BY EVANS
AND PUBLISHED BY THE UNIVERSITY TUTORIAL PRESS.

This is a welcome addition to the well-known series of the Selected English Classics published by the Tutorial Press. The general aim of the series, *i.e.*, to give such help to the student as will enable him to intelligently appreciate the poem or the drama edited, is kept in view, and as usual, we find prefixed to the text an excellent Introduction dealing with the questions of the text of the play, its date of composition, source, and how far that authority has been followed, or in what respects departed from and with what justification, and above all dealing with the question of characterisation. One commendable feature of this series of Shakespeare's plays is that in the 'Notes' we find the artistic significance of each scene is discussed, and the Notes themselves are intended to serve more as 'aids to study' than to suppress all initiative on the part of students.

There is a useful section in the Introduction dealing with the place which the play in question occupies in the whole series of Shakespeare's historical plays and it is shown how taken as a whole the series have a unity which is often lacking in individual members of that series and how England is practically the hero as it were of the series, a point well brought out in Mr. Marriott's special study of Shakespeare's historical plays. Another short section on Chronicle plays in general, how they with the Chronicles of Holinshed, Hall and Sterne and the historical poems of Drayton, and Daniel formed a natural outlet for the surging patriotism of the Englishmen during the period 1585—1600 and how Shakespeare was only one of

a number of dramatists who attempted to write this particular variety of the drama and how all these dramas have certain common characteristics, merits as well as defects, as for example, the "epic treatment" of the subject and so on would have added considerably to the usefulness of the volume.

Similarly another paragraph might have been added about the "soliloquy" as handled by Shakespeare, and how through them "the poet desires above all to avoid misapprehension of the main outlines of the action and the characters, to prevent the spectators from confusing the ethical values and from taking pleasure in the vices represented and the situations produced by them".*

The introductory paragraph to the notes on Act V, Scene iii, might be enlarged with a few general

* "Character Problems in Shakespeare's Plays," by L. L. Schucking.

remarks upon Shakespeare's use of the supernatural element if it did not deserve prominent mention in the Introduction itself.

In the character sketch of Richard in the General Introduction the editor has drawn our attention to the influence of Marlowe on Shakespeare and to the resemblance of Richard to Macbeth and Iago. A reference in this connection to villainy having been made almost a fine art by the Machiavellian school of Italy and its influence on English Literature during Elizabethan period when the manners of 'proud Italy' were limped after by "our tardy apish nation" as Shakespeare himself says, would have been very useful.

The book on the whole is very good and is bound to be popular with the student population for whom it is mainly intended.

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The Educational Review.

If the Senate of the Madras University has been more or less completely ignored in the deliberations which have led to the passing of the new Madras University Act, it is not surprising that the Ministry should have been taking its own steps for the organisation of the University without any knowledge of the Senate. Nor has there been any attempt at taking the public into confidence or consulting any expert educational opinion except perhaps such subservient agencies as are available behind the curtain in the *sanctum sanctorum* of communal scheming. It was only incidentally that the public had some glimpse of the intentions of Government in connection with an item in the budget asking for a grant of Rs. 350,000 for the proposed reorganisation of the University. Objection was rightly taken that it was not fair to ask for sanction to this grant without placing any details before the Council and without the sanction of the expert academic authority concerned with the proposal. But what did it matter? The Ministry had made up its mind about it and there were its docile and blind followers willing to vote to order. The Minister of Education then gave the members some notion of what had been intended to be done with the sum of three lakhs and a half of rupees. We were told it was proposed to establish a chair and a laboratory for experimental psychology; a chair for anthro-

**The Madras
Legislative
Council and the
University.**

pology; another for 'geographical research'; an additional chair for Indian History and Archæology and a chair for Dravidian languages. We were also told that it was proposed to create facilities for research in Physics and in the Natural Sciences. All of them are of course laudable subjects, but it is for the new University bodies which are to come into existence to suggest the things best suited to the present circumstances of the Madras University and not for the present party in power in the Legislative Council which will not be given credit even by its best friends for any touch with higher educational ideals or any expert knowledge of educational problems. Educationists can only wait and see without any means of manipulating the situation in the best educational interests of the Province! This is democracy with a vengeance.

We must confess to a sense of surprise at the neglect by the present Ministry of the Scheme of an Andhra University in spite of the fact that the Minister of Education is himself an Andhra. In the old days much of the hostility to the Andhra University Scheme on the part of the Madras Government was due to its conservative instincts, but we imagine that the present lukewarmness towards the scheme is due to a desire to capture the greater glory first, the reorganisation of the premier University in Southern India situated at the metropolis itself. A University for the Andhra districts only

**The Andhra
University.**

does not apparently dazzle the vision and capture the imagination of the Ministers and in any case does not furnish sufficient political capital to make it very attractive. The Andhra University Committee reported on the scheme a year ago, but the Government has kept mum over it like a sphinx and when objection is taken in the Council that nothing has yet been done in the matter, the Minister quietly tells the Council that no grants can be made for the acquisition of land before an Act is passed for the establishment of the University—as if it was any non-official member's fault if legislation has not yet been introduced into the Council. We have no doubt that the Telugu districts have a justification for sore feeling in this matter and we trust that they will make a combined and energetic effort to force the Government to take action in the direction desired. Mr. A. S. Krishna Row, Dewan Bahadur R. Venkataratnam Naidu and Dewan Bahadur M. Ramachandra Rao voiced the public dissatisfaction in the matter when they supported a motion in the Council the other day for the reduction of the proposed grant to the Madras University by Rs. 100 as a protest against the neglect of the Andhra University Scheme by the Government. We trust that the Telugu districts will still receive justice at the hands of the "Justice Party" in Madras.

But for the unfortunate pact which exists between the two sections of the Madras Government to support each other in their doings, enabling the "transferred"

**Extravagance
in European
Education.**

section to obtain undue favours for the Non-Brahmins and the "reserved" section to over-ride political progress and help European interests, a different treatment would have been accorded to the item relating to European education in the recent discussion of the budget. The Hon. Mr. Knapp wanted a grant of nine lakhs for the purpose, a sum utterly disproportionate to the rightful needs of the community. The total grant for Non-European education is only a hundred and thirty-six lakhs and it is for the public to judge whether with reference to the percentage of the European population in the Presidency, the number of European children undergoing instruction, or the number and size of the institutions concerned, the large amount of nine lakhs should be available for European education. Mr. Ranganadha Mudaliar properly protested against the extravagance of Government in the matter of European education and wanted a reduction of Rs. 98,700. He said that the usual Inspectors and Inspectresses of non-European schools can inspect European schools also, though we may mention that this is only one of the directions in which economies are possible. An experienced educationist, Mr. Arpudasawmi Odyar, supported the motion, but the Government promised to consider the matter before the Retrenchment Committee and it was lost by 15 against 40 votes. Besides the persecution of such minorities as Brahmins, one of the worst features of the work of the present party in power is its sacrifice of the larger Indian interests to be

able to retain European support in its activity of communal aggrandisement.

It is an inspiration to read of the enthusiasm for education and science displayed from time to time by various benefactors in the West. One of the latest instances is a magnificent bequest of £100,000 by Sir Alfred Narrow, the famous pioneer in the design and construction of high speed vessels, to the Royal Society, to be used at the discretion of the Council in promoting scientific research. The donor says, in making the gift, "that the future prosperity of this country will be largely dependent upon the encouragement of original scientific research." It is interesting to note that he does not want to fetter the discretion of the Council in any manner, for as he writes: "Conditions alter so materially from time to time that in order to secure the greatest possible benefit from such a fund, it must be administered with unfettered discretion by the best people from time to time available." He is however anxious, without any desire to regulate the discretion of the Council, that "the money be used to aid scientific workers by adequate payment and by the supply of apparatus or other facilities, rather than to erect costly buildings, because large sums of money are sometimes spent on buildings without adequate endowment and the investigators are embarrassed by financial anxieties." If every person blessed with worldly pros-

perity were actuated by a sentiment to which Sir Alfred Narrow has given expression, the cause of learning would advance more rapidly in the world. "In conclusion," he writes, "I should like to record my firm conviction that a patriotic citizen cannot give money, or leave it at his death, to better advantage than towards the development of science, upon which the industrial success of the country so largely depends." We commend these words to the members of the richer classes in this country.

We commend to the attention of our readers the two notable utterances on National Education delivered recently by Sir P. C. Ray at the National Muslim University at Aligarh and at the Guzerat Vidyapeeth at Ahmedabad. The two speeches are full of inspiration for noble and patriotic work and concentrate attention on the *essence* of national education and the development of the national atmosphere without a single word of abuse of the present educational system of the country or the useful work achieved in the past. No patriotic Indian will object to National Education interpreted in the manner of Sir P. C. Ray and much of the energy spent at the beginning of the Non-Co-operation movement on the attempts to withdraw pupils from recognised schools and colleges might have been spent on constructive work of the kind suggested by the distinguished scientist and in the manner observed in

the more recent history of the National Educational movement. To imagine that there was some virtue in the mere non-receipt of grants from Government and lay the flattering unction to one's soul that education superior to the present system is imparted on the basis of merely turning *Charka* and, reading the *Gita* is a fatal error and Sir P. C. Ray's addresses must enable the Non-Co-operators themselves to realise it, though there is no direct attempt made in them to combat the wrong notion.

The dangers of combining the unitary and the affiliating principles in one and the same University are being illustrated already in the case of Allahabad and Agra. The various University bodies have just been constituted on the 'internal' as well as on the 'external' sides and in the very first meetings there have been conflicts between the two and they have parted in no spirit of sympathy and of co-operation. The coming together of the two sets of bodies is only productive of bitterness and strife and it is not edifying to find academic bodies placed in such circumstances. The agitation for a separate University for Agra has therefore again found fresh expression. In response to public agitation and opinion of the colleges on the external side, one of the ablest members of the United Provinces Legislative Council moved a resolution in the Council the other day asking for a transfer of the 'affiliating' side of the University to Agra. The proposal was eminently

reasonable and did not involve financial obligations of a serious kind, but this set up the back of the Minister who had the audacity to tell the Council when the resolution was passed that he did not intend to take action on it, and that if the Council cared, it might pass a resolution of censure against him! It is not for us to speculate on the manner in which this challenge will be taken up by the non-official members of the Council, but this does not seem to be democracy and this kind of irritation of mofussil colleges does not seem to be productive of the conditions necessary for peaceful and efficient intellectual development. The matter will not probably be allowed to rest here, but these facts must be of interest to those committed to the reproduction of similar conditions in the Madras Presidency in connection with the proposed reorganisation of the University.

There is a tendency in some quarters in India to look upon the English Public Schools. The English Public School system as the highest consummation of educational ideals. It is good for such people to know that adverse criticisms are heard against them from time to time. Some years back Sir Oliver Lodge took a prominent part in the criticism and many others joined him in assailing the foundation of the system and questioning its desirability in many directions, especially in directions developing sweetness and grace in character. A writer in a recent number of the *Nation and the Athenæum*

comes back to the same question. Referring to the system he complains that if it encouraged responsibility, it introduced another danger into school-life; the danger of over-organizing; of taking up the whole life of the school-boy into the school time-table. "The Modern Public School sets a tone, a standard. Many boys gain from it but some undoubtedly lose. For there must always cling about the Public School something of the atmosphere of a regiment." It is interesting to note that with the gradual passing of political power and influence from the hands of the aristocracy to other classes, the Public Schools do not seem to be the nurseries of political leaders of the kind required, at least to the extent they were such, only a few decades back. It will be interesting to note how far the Public Schools will adjust themselves in the future to the altered circumstances of the new age.

We have pleasure in extending a cordial welcome to *The Students' Aid and School Magazine*, a new journal published from Bellary in the Ceded Districts. There is no reason why a magazine should not attempt combining an appeal to the teacher with an appeal to the student, as both of them are brought together so intimately in the class-room and it will be interesting to watch the progress which will be achieved by this magazine in this direction. The first number contains many articles of educational

interest besides a section devoted to students' work. Dr. S. Krishnasawmi Iyengar, the learned Professor of Indian History at the Madras University, writes on *Secondary Education*, pleading for a closer and a more effective organisation of the teachers employed in Secondary Education. Mr. K. S. Ramasawmi Sastri writes on a *New Scheme of Education* whose main features according to him should be the following:—

(a) The existing distinction between primary and elementary education should be abolished.

(b) Vernacular should be made the medium of instruction in secondary education.

(c) Manual training should be made compulsory in the middle school course and technical subjects should be provided as optionals in the secondary education.

(d) History, geography and elementary science should be compulsory subjects in the secondary course.

(e) The provision of higher secondary education for two years (corresponding to the present Intermediate course) where necessary training will be given for entering in University degree courses or for taking up higher technological study or for proceeding direct into various practical occupations.

(f) Greater value than at present given should be shown to class work of a candidate in determining his eligibility for admission into the higher stage of education.

(g) Trade schools and technical institutions should be opened to provide vocational training.

(h) A unified system of provident fund for all teachers should be introduced.

(i) There should be two classes of Inspectors whose function will be administrative and tutorial respectively.

We wish the magazine every success.

The agitation for the withdrawal of students from aided schools and colleges in the early days of Non-Co-operation.

Co-operation was such an unwise step that it is not surprising that it was not attended with much success and many of the young men have come back to the institutions wiser and sadder for the experience. Some of the bright youths who were induced to leave the institutions with all sorts of inducements held out to them are no longer grateful to the leaders who saw them out of their educational work and discipline, without any useful consequences. It is surprising that in spite of these facts and the pathetic complaints of deluded boys, an attempt should still be made in some quarters to justify that step. The Editor of *To-morrow*, a new journal started under the auspices of the Guzerat Vidyapeeth, writes complacently in the first number of the journal:—

It is generally taken for granted that the school boycott movement proved a failure. Nothing could be further removed from truth. It is our conviction that the boycott has been thoroughly justified by results. Large numbers of students responded to the call of freedom and made sacrifices that are no less important than those of the lawyer princes which naturally strike the imagination more. We have been so accustomed to order out the lives of our children with reference to their material prospects in life for which the passports of Government University degrees and diplomas have been deemed essential that it is really surprising that we have now scattered all over the land bands of young men who, with or without the

consent of their parents, have sacrificed their material prospects and chosen the thorny path of service and sacrifice. The hope of Indian freedom lies, not a little, in the dynamic energy of the active aspirations of these determined men. They are found in every province in Ashrams, Schools and Colleges in spite of the serious limitations from which most of such institutions suffer. These institutions, in spite of the cheap sneering that many indulge in, at their expense, are the best assets that Congress Committees have to their credit. Will they see to it that they do not languish for want of support?

As we have said on more than one occasion, there is room for such experiments as the present National Educational movement in India but it is idle to disguise the fact that there has been considerable waste of energy and destructive work in this unfortunate agitation which has now been effectively killed out.

In the course of a sympathetic criticism of Indian Universities, in the current number of the *Modern Review*, an American Professor, now in India, draws attention to what he considers to be some of the main defects of Indian University education. According to his own summary at the end of his article, they are the following:—

First. The pernicious effect of making the degree depend wholly upon examinations:

(a) In fostering the purely mechanical memory type of learning;

(b) In fostering negligence of daily work and cramming just before the examinations.

Second. The practical impossibility of a student's obtaining a sufficiently broad and liberal education to serve as a basis either for leadership in modern life or for intelligent specialization.

Third. The impossibility of a student's obtaining introductory and general survey courses in subjects other than the three or four (or in M. A. work one) upon which he concentrates.

Fourth. The wasted time and effort and the discouraging effect of no provision for a continuance of work well done while repeating that in which the student has failed.

Fifth. Standards of proficiency are so low that there is in each class a large proportion of students woefully unprepared for the work in hand.

Sixth. Undue emphasis is placed upon memory in teaching. This is accompanied by traditions of little, if any, home work or original work and a neglect of study until just before the examinations.

It will be agreed generally that there is considerable truth in these observations though improvement is perceptible in almost every one of these directions.

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- XII. BILLS OF LADING.
- XIII. CUSTOMS HOUSE FORMALITIES FOR CLEARING (IMPORTING) GOODS.
- XIV. MARINE INSURANCE.
- XV. COMMON COMMERCIAL TERMS AND ABBREVIATIONS USED IN CORRESPONDENCE—Commercial Terms; Abbreviations.

APPENDIX.—SPECIMEN FORMS.

SELECT QUESTIONS FROM EXAMINATION PAPERS.

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THE THIRD UNITED PROVINCES SECONDARY EDUCATION CONFERENCE.

PRESIDENTIAL ADDRESS

OF

Prof. P. SESHADRI, M.A.

I.

IT must always be a matter of deep satisfaction to one to receive any token of appreciation and confidence from members of one's own calling; my first duty is therefore to render thanks to the organisers of this Conference, for inviting me to preside over this session, and express my great pleasure at the opportunity which has thus been vouchsafed to me of forming more intimate acquaintance with a very important body of the teaching profession in these Provinces. I am conscious I have no special qualifications for the onerous responsibilities of this office and I am further handicapped by the circumstance that I have been summoned to preside over such important deliberations as lie before this Conference within the next three days, practically without any notice. It is only a feeling of professional comradeship and the desire to be of some little service to the great band of fellow-teachers, which have given me the confidence to accept the responsibility, even in these disadvantageous circumstances, and I stand before you relying mainly on the support and co-operation of the members of the Conference for a successful session.

“The great highway leading from the Elementary School to the University,” as it has been called, the Secondary School system is a vital part of the educational machinery and the activities of the Secondary Education Association must therefore be of the most intimate and serious concern to all educationists. While on the one side, “we cannot expect to have good colleges without good schools,” as Lord Curzon once said to an Educational Conference in India, on the other, Elementary education by itself goes only a small way in ensuring the enlightenment so necessary for the average citizen of any country. Much of

“The great highway leading from the Elementary School to the University,” as it has been called, the Secondary School system is a vital part of the educational machinery and the activities of the Secondary Education Association must therefore be of the most intimate and serious concern to all educationists. While on the one side, “we cannot expect to have good colleges without good schools,” as Lord Curzon once said to an Educational Conference in India, on the other, Elementary education by itself goes only a small way in ensuring the enlightenment so necessary for the average citizen of any country. Much of

the success of the great Universities of the West is due to the high efficiency of the Secondary schools in the countries concerned, while the general high level of enlightenment in the population is also due to their good work. It is only a consciousness of the latter truth which has recently led to strenuous attempts in England to keep the average boy and girl at school, long after this elementary stage. Secondary education is thus in a sense the essential "steel-frame" of the educational structure, in a much higher measure of truth than there is in the recent use of the expression in another well-known connection.

The last few years have happily been a period of considerable educational activity and expansion in the United Provinces. According to the recent General Report on Public Instruction in the United Provinces for the quinquennium ending 31st March, 1922, the total expenditure on education in the Provinces has doubled itself during the five years, rising from about a crore and a half of rupees to about three crores. There has been an increase of 22 per cent. in the number of educational institutions, public and private, and an increase of 15 per cent. in the enrolment. The establishment of new Universities has been a marked feature of the activities of the period, while an important change has also been made in the management and control of the secondary and intermediate stages of instruction, by the formation of "The Board of High School and Intermediate Education."

It is probably too early to speak of the purely educational value of the changes which have recently taken place in secondary education, but there are one or two features with regard to the statistics for the last five

years relating to that branch, which must fill the discerning observer with a certain amount of misgiving and curb, to some extent, the enthusiasm created by this record of general progress. In English Secondary schools of all types, there has been a net drop of 3144 scholars at the end of the period, in spite of the addition of many institutions, Government as well as Aided. It is a melancholy reflection that in the district of Benares where this session of the Conference is being held, the decrease in the number of pupils has been the greatest in the Provinces, amounting to 15% of the enrolment in the district in 1917.

It is also not encouraging to find that the expenditure on secondary education is less to-day proportionately to the total expenditure on education in these Provinces, than what it was five years back though there has been an increase in the actual amount of money spent. While expenditure on Secondary education was 27% of the total expenditure on education in 1916-1917 it is only 22.7% of the total during the last year. While many branches of education have shown an increased percentage of expenditure, relatively to the whole, secondary education shows the greatest decrease. It is significant, for instance, that while the expenditure on the Universities was only 1.9% of the total in 1917, it is 10.6% of the total in 1921-22 and is probably even increased further since then, secondary education showing a decrease at the same time of 4.3%. In the light of these figures, is it wrong to draw the conclusion that secondary education has not been favoured to the extent to which some other branches have been favoured and there is no justification for it except perhaps a wrong assumption that secondary education has already reached a high level of effi-

ciency and progress in these Provinces. The encouragement of secondary education may not lend itself to advertisement so easily as the creation of new Universities; nor does it sound so grandiloquent when holding forth from the platform, as the expression used for elementary education, "the education of the masses," but its claims should not be treated as less imperative than those of any other branch and it must be the endeavour of bodies like the United Provinces Secondary Education Association to ensure its legitimate place in any scheme of educational expenditure or expansion.

II.

It must be a source of gratification to all members of the teaching profession in these Provinces, that since 1921 two successful attempts should have been made at educational organisation and we now have the United Provinces Secondary Education Association and the Non-Gazetted Educational Officers Association, each with a membership of about a thousand teachers, though the number is yet only a small percentage of the total strength of the teaching profession in these Provinces. Government reports are usually rather slow to acknowledge the work of organisations of this kind, but though they are only three years old, Government has found it necessary to take note of them in the last quinquennial Report on public instruction, though in terms which certainly err too much on the side of caution. "Each Association publishes a Magazine and holds an annual conference. It is too early yet," says the Report, "to speak of their usefulness, but it is an encouraging sign that while they give a prominent place in their resolutions to questions affecting the professional and material interests of their members, they devote a con-

siderable amount of attention both in their conferences and in their magazines to purely educational matters." This is as it should be, and the thing now necessary is wider organisation bringing almost every teacher within the operation of such Associations and the carrying on of the work through the whole year, instead of stopping with an annual exhibition of speeches and resolutions.

To anybody who is in touch with the progress of similar educational organisations in England through the columns of papers like "The Educational Supplement of the London Times," it is evident how powerful teachers have made themselves in that country by organising themselves into various Associations all merging into the great National Union of Teachers. The national body of teachers count for something in the land; their representations cannot afford to be ignored and all the organisations are up in arms whenever any attempts are made to bring in proposals adversely affecting the interests of teachers. Much of the advancement of the pay and prospects of the teaching profession in England in the last few years is due to the activities of these Associations and on many occasions, the National Teachers' Union has achieved notable victories in its tussles with local bodies and even with the Government.

Even more gratifying is the advancement of pedagogic knowledge and experience which these Associations are able to show in their annual proceedings. Meeting in various sections, all in the course of a single "educational week," in the Head-Masters' Association, the Assistant-Masters' Association, the Head-Mistresses' Association and the Assistant-Mistresses' Association, in addition to the general meetings of all teachers, they are able to record valuable educational ideas

which form a substantial contribution to the pedagogic knowledge now available with regard to the teaching of various subjects in the school-room. It is no wonder that whenever Educational Committees are appointed by Government in England, these Associations are asked to send representatives as witnesses to be examined and often even to serve as members of the Committees. It is worth while putting forth strenuous attempts here also to reach this state of efficiency and this is work which should demand all our attention and energy in the coming years.

May I take advantage of this occasion to give expression to an idea, which has been felt in some quarters ever since the inception of these two Associations in these Provinces? In the present stage of the inadequate organisation of the teaching body of these Provinces, it appears wiser to consolidate our forces and amalgamate ourselves into a single organization, rather than dissipate our energies over two sectional societies. Our forces are weak and do not count for much yet in the educational and public life of these Provinces and it seems wiser to marshal them under a single banner so as to get the maximum benefit out of them. An examination of the objects of the two Associations will show that they are almost similar and there should be no difficulty in uniting them into one. In fact, the aims are the same though stated in slightly different words. We are all members of the same great fraternity of teachers and it should certainly make no difference to us whether we are in institutions managed entirely by Government, or in other recognised and aided schools. There must be a cordial feeling of good-will and comradeship among us in view of our common professional interests as among the members of

the great "Trade Guilds" in England, in the Middle Ages. Attention may also be invited to the fact that in the Presidency of Madras to-day where Teachers' Associations have worked for more than a quarter of a century and have numerous centres of activity there is only a single general organisation called, The South India Teachers' Union, on the lines of the National Union of Teachers in England. In the event of this idea being acceptable to this Conference, it is hoped that something will be done even in this session to bring us nearer the goal of such union. Apart from the gain to the teaching profession as a whole, it is for the mutual improvement of these Associations—it will do good to the non-gazetted officers of the Government to come into contact with the freshness of outlook unhampered by official authority on the part of the teachers in private service, who in turn will benefit by association with the members of a highly-organised Governmental system of education. This combination will not at the same time preclude the Government servants from holding separate meetings of their own when necessary, even about the time of the general conference with a view to representation to Government on matters relating to their service interests. There is no reason to believe that this suggestion for union will not receive the encouragement it deserves from the other side. The occasion may also be taken to throw open the Association to all grades of the educational profession thus giving it a new strength.

III.

It is not surprising that during the last three years of your existence your energies should have been directed, in considerable measure, to various questions relating to the

pay and prospects of the profession and I hope none of you are apologetic about the matter. A decent living wage is a necessity without which no efficient work is possible and in demanding better emoluments, you are not merely seeking fairness and justice to yourself but as it is not always realised, you are striving for conditions which must be ensured before a teacher can give his best to his work. Freedom from financial anxiety, sufficient resources to enjoy good holidays and to pay for intellectual and cultural facilities, a decent standard of physical comfort, provision for the proper up-bringing of children; opportunities for pleasant and healthy social life,—all these are necessary if the institutions of the country are to get the best out of the members of the teaching profession. A perpetual feeling of the want of money for domestic needs; the foregoing of various comforts necessary for a decent standard of living; and the need for having to over-work after school hours to supplement one's slender income, in the way of private tuitions and the like—all these are only calculated to reduce the usefulness and the efficiency of the teacher and all talk of educational progress must be idle so long as these conditions are allowed to exist. The most perfect of educational systems will be barren of good results, if the members of the profession are not in a mood for contented, cheerful and efficient service.

Moving successfully the adoption in the House of Commons of a large grant for the improvement of the salaries of the school teachers in England, the Right Hon'ble Mr. Fisher said in the course of a speech: "The first condition of educational advance is that we should learn to pay our teachers better..... in every large profession you must rely on economic motives to some extent for your re-

cruits, in the teaching profession less than elsewhere perhaps; but even teachers are human. I do not expect the teaching profession to offer great material rewards; that is impossible. But I do regard it as essential to a good scheme of education that teachers should be relieved from perpetual financial anxieties and that those teachers who marry should be able to look forward to rearing a family in respectable conditions. *An anxious and depressed teacher is a bad teacher. An embittered teacher is a social danger.*" Observations of a similar kind have been made by the recent Royal Commission on the Universities of Oxford and Cambridge. "The first danger," write the Commissioners, "is the effect of underpay and the absence of a proper pension system on the quality of the Professors and Fellows..... each University must be placed in a position to offer to all those who do its work a salary and pension prospects enabling a man to marry and bring up a family, with amenities and advantages of education like those of other professional families." The remarks do not apply with less point to teachers in schools. Giving evidence before the Calcutta University Commission, Dr. Brajendranath Seal who cannot be suspected of any want of sympathy with Indian ideals said with reference to the present under-payment of the school-masters: "To appeal to the old Indian virtue of self-denial in a modern organisation would be a futile anachronism. We must provide for the teacher's respectability in the current measure of value and secure for him an assured subsistence adequate to his efficient functioning and with due regard also to that ideal of complete living, of vital breadth and expansion as well as a vital intensity and a free personality which is the very breath of modern

culture and which we must not deny to the purveyors of that culture any more than to other labourers worthy of their hire in the communal or social organism."

It is a matter of great pity that these considerations are sometimes not present even to non-official publicists who are ready to expatiate on the virtues of sacrifice on the part of the members of the profession, forgetting that the High School teacher's demand is only for a decent living wage consistent with his minimum and legitimate needs. Appeals for sacrifice come with little grace specially from those who are rich in ancestral wealth, or are busy piling fortunes for themselves in such lucrative professions as the law and also reserve these exhortations only to other people's children. The High School teacher will not and should not reconcile himself to the dwarfing effects of penury and no wise State to-day will rear its educational system on such foundations.

It need be hardly pointed out that in these efforts for the advancement of the teaching profession, the teacher in private Aided schools is entitled to as much sympathy and support from the Government as the teacher directly employed in Government schools. As Mr. Fisher reminds us the teacher performs "a national function" wherever he may be employed and the State must express a direct interest in his adequate remuneration and be prepared to support it by liberal payments from the treasury. With these observations in view, it is somewhat disappointing to notice the answer given in the Legislative Council of these Provinces the other day to an interpellation by the President of your first Conference on the improvement of the pay and prospects of the teachers in private institutions. The Secretary to the Educational

Department replied: "The Managers of the private schools may be assumed to be alive to the advisability of doing everything in their power to improve the position of teachers in their service." This shows an essentially wrong mentality and defective educational statesmanship. But there is the consolation that the Secretary's answer does not seem to represent the educational policy of the present Government in the United Provinces which is apparently doing better than this official exponent would make us believe.

The thanks of the teaching profession are due to the Government of these Provinces for the efforts made during the last few years to improve the salaries of its members not only in Government but also in private institutions. The last quinquennial report rightly takes credit for this improvement, but much more remains to be done and let us hope the Government will not rest in the matter, taking refuge behind the complacent observations contained in the report that "the teachers are now able to live fairly comfortably" and "public appreciation is shown by the ease with which recruits can now be obtained for all the grades of the profession." Recruits can be obtained, it is true, but only recruits of a kind, as they are obtained to all underpaid professions in a poor country, but statesmanship must ensure the turning of some of the brightest youths sent out by our Universities to educational work, without relying on the missionary spirit which is now the only inducement to superior people to enter the profession.

IV.

It is only natural that a certain amount of anxiety should be felt in some quarters with regard to the security of educational interests under the operations of retrenchment now

proposed by various official and non-official authorities all over the country. Nothing could be more suicidal to a country's interests than attempts to retrench expenditure on such a nation-building department as education. A State's expenditure on education has rightly been called by the Right Hon'ble Mr. Fisher "a form of productive expenditure" and not only an 'investment', but also an 'insurance'. "In such cases," says the ex-Minister whose period of office was marked by wonderful expansion of educational activities in Britain in spite of the ruinous expenditure caused by a gigantic war, "we must ask a supplementary question. We must ask not only whether we can afford to spend the money but whether we can afford not to spend the money." The recommendations of the Bengal Retrenchment Committee have however shown that there is no guarantee in the present state of official and even public feeling in the country that the Department of Education will be immune from drastic and undesirable cuts, having far-reaching effects in stopping progress. In spite of the fact that the Committee did not consist of a single official or non-official who could speak with any authority on matters relating to education, it did not, for instance, hesitate to make the startling recommendation that all training schools should be abolished, adding with an air of oracular wisdom that "they serve no useful purpose." It is a matter of satisfaction however that Lord Lytton said in the Legislative Council the other day that at least in the Department of Education, it will not be possible to carry out all the Committee's recommendations. Education has not escaped the Inchcape "Axe," though it has been more merciful; for the main recommendation is for the abolition of the Educational Commissionership with the

Government of India which is probably not open to serious criticism, though there are also proposals to stop grants-in-aid to many purposes of research and to re-consider the question of the very existence of the Delhi University. We have heard of a Retrenchment committee for these Provinces, but we hope there will be no attempt to lay violent hands on the Department of Education, possible economies being confined to the agencies of supervision and control and the provincialisation of some imperial appointments without touching the real facility for education available for children of the Provinces. It would be criminal folly if retrenchment resulted in the direct or indirect denial of education even to a single child of the Provinces which are already backward in literacy when compared with other Provinces of India and if there is any going back on the present pace of progress which itself is very slow and will take many decades to bring up these Provinces to the level of some of the civilised countries in the West. The fact however that the Retrenchment Committee is presided over by such a staunch friend of education as the Hon'ble Mr. S. H. Fremantle of the Board of Revenue is probably enough assurance, that such proposals will not find encouragement.

With reference to educational expenditure, it is worth while remembering what has happened in England during the last few years. During the war when all available resources were necessary for the successful prosecution of a terrible struggle, the country added millions of pounds sterling to educational expenditure awakening to a sudden sense of the importance of education and the "Geddes Axe" more powerful than the "Inchcape Axe" which came soon after the

war fell most mercifully on educational activities. Ultimately, the Government had to go back on some of these proposals of retrenchment even after committing themselves to their adoption.

Presenting the Educational Budget for 1917-18 in the House of Commons, the Right Hon'ble Mr. Fisher calculated that the total expenditure on education in England and Wales was £40 million in the year, including the amounts from rates, taxes, fees, voluntary contributions and endowments and said: "This makes a large sum.....but it must be taken in the general context of national expenditure. It is eight times the value of our annual importation of oranges and bananas. It is four times the value of the estimated saving which the country has been able to effect through the partial substitution of margarine for butter; it is one and one-third times the value of the annual expenditure on tobacco and it is almost one-fourth of the value of the annual expenditure on alcohol. I have cited articles of luxurious expenditure with respect to which it is always pertinent to ask whether we can spend the money." It is possible to make a similar demonstration of the smallness of educational expenditure in the United Provinces relatively to the general provincial expenditure, in spite of the increased grants which have been made to education within the last few years and it is therefore hoped there would be no appreciable reduction.

V.

It is hoped that no member of this Conference is under the mistaken impression that these educational organisations are only to agitate for the improvement of the pay and prospects of the teachers. Even more important is the stimulation of educational pro-

gress and the raising of the efficiency of the average teacher in Secondary schools. The teacher's influence and the respect he will command from the community will depend ultimately on his own intellectual capabilities and devotion to duty and not on pathetic appeals made for recognition at Conferences of this kind. He must work up to the highest level of the efficiency possible and the usefulness and prestige of the profession will be regulated largely by the success in educational work of each unit. It will be a good discipline for every teacher coming to Conferences of this kind, to resolve solemnly to raise himself to an appreciably higher level of ability as a teacher during the year and review for himself the result of his efforts at the next Conference.

He owes it as a duty to everybody concerned to be keen and alert in his work and keep himself in touch with the latest educational developments in his subject. Educational journals, valuable reports on educational subjects issued from time to time in India and in England and the numerous books of pedagogic interest constantly coming from the press must all demand his attention. What with new experiments in education made all over the world and the ever-growing advancement of knowledge in each subject, the science of education is a highly progressive one and it is not possible for a teacher to do his best unless he combines great mental alertness with unceasing industry. The sad confession must however be made that in some instances, the teacher, far from equipping himself better for his task with the lapse of years, actually deteriorates and is worse than when he entered the profession with some knowledge of educational theory and practice after undergoing a course of training at a Teachers' College. It is hoped that the

Pedagogic Conferences held annually with these general Conferences will serve to keep their minds fresh.

If one may be pardoned for saying so, the great fault of the average High School teacher is his want of confidence in his own abilities to achieve things and nothing can be more fatal to chances of development. There is no reason why in the art and science of teaching children, he should not be able to rise to the highest knowledge possible and why his expert advice and experience would not have to be sought after by all students of the subject. With a Degree in Arts or Science and a Degree in Teaching, with which he usually starts his career, he has a basis for intellectual progress which if he is not able to take advantage of, the blame will be more or less his own. One has only to examine the contributions to educational knowledge and educational literature generally by schoolmasters in England to realise what the High School teacher is capable of doing. It is not denied that there are serious handicaps in the realisation of these aims but a strong determination should be able to shake them off with happy results. It is no use always trying to explain away poverty of achievement on one's part.

It was Goethe's complaint that mankind loved to lie in the old straw of his habits, but the risk is probably greatest in the profession of the teacher. The peaceful and mechanical routine of his life, often away from the bustle of the general world, is often apt to lull him into inertia, but he must strive continually to resist the danger. There is no High School teacher whose capacity is so poor that he cannot, by determined effort, do something useful in educational work even besides his daily teaching in which he should

of course reach the highest level of efficiency possible. A number of useful enquiries suggest themselves to those who are anxious to embark on such work. A few instances should suffice. Considerable attention has been roused in America in recent years, by experiments in the measurement of the intelligence of children, a question fraught with great potentialities for good in the conservation and regulation of educational influences on the child. There is no reason why a teacher in India should not busy himself studying the question here by examining a group of our children in accordance with the tests proposed. One of the best ways of stimulating curiosity in history is to start with the study of the local history of the town and its traditions and the collection of facts for such a purpose is surely within the competence of the average teacher, very little work having yet been done in this direction in India. There is considerable talk, and very properly too, on the need for using the vernaculars as the media of instruction in secondary schools and it is pre-eminently the work of the High School teacher to busy himself with the preparation of suitable books in the vernacular, each in his own subject. To be able to awaken scientific curiosity in the objects and phenomena of nature observed by the pupils around them and to be able to satisfy it in an effective manner, requires a certain amount of correlation of the facts of science to peculiar Indian surroundings and even that work is neglected by the average teacher of elementary science. New educational methods like those of Dr. Montessori in Italy are being continually forced on public attention and what is the answer of the Indian teacher to their applicability to our conditions? A number of subjects like

these can be grappled with by the teacher and it is almost a tragedy to notice the amount of idleness that is possible, in the face of such useful opportunities of work.

The teacher's intellectual progress should not be confined to mere educational theory, as is sometimes wrongly imagined, but should extend to advancement in the department of knowledge itself. The possession of superior knowledge illumines the intellectual outlook and affects, for the better, the teaching of even little children. It is of course not enough that the teacher knows what is required for the school course. He has to know very much more himself to be able to do his work well and to be able to stimulate intellectual inquiry and thirst for knowledge on the part of the pupil. It is not often realised what difference increased knowledge makes in the perception of even the elementary facts of a subject. If time and opportunities permitted, it should be possible to give here a detailed demonstration of this truth.

It may not be possible for all of us to be gifted with superior intellectual endowments by Nature and the scope for usefulness and distinction may be limited in varying measure in each case, but it is certainly open to every teacher to exhibit joy and earnestness in his work and to love the young people whose future development depends so largely on his right discharge of the duties with which he is entrusted. In the midst of his heavy work, he is apt to look upon the pupils as so many mechanical units, like that European Inspector of Schools in India who is said to have declared to one of his Assistants when inspecting a school that one student was like another and having seen many elsewhere, there was no need for him to enter the classrooms, and walked quickly along the corridor.

The teacher is, on the other hand, really entrusted with delicate and responsive souls, subtler than anything yet designed by human ingenuity in the greatest workshops of the world and nothing but human sympathy and love of the highest kind can bring the best in the pupil. The temptations to want of sympathy and harshness in his attitude to children will be many and it is therefore good for him to keep for ever in his mind the immortal words uttered by Roger Ascham in the "Schoolmaster" so early as in the Elizabethan period, that a good teacher teaches "so gently, so pleasantly, and with such fair allurements to learning, that the child thinks that all the time is nothing while it is with him." He will in all circumstances ensure an atmosphere of eager interest and joy in the pupils, for otherwise instruction is not effective. "The whole art of teaching," writes the well-known French writer, Anatole France, in his *Crime of Sylvestre Bonnard*, "is only the art of awakening the natural curiosity of young minds for the purpose of satisfying it afterwards; and curiosity itself can be vivid and wholesome only in proportion as a mind is contented and happy. Those acquirements crammed by force into the minds of the children simply clog and stifle intelligence. In order that knowledge be properly digested, it must have been swallowed with a good appetite."

A common failing in the teacher again is to imagine that he has finished his work by his satisfactory discharge of duties entrusted to him within the class-room. The Headmaster and the management are entitled to expect him to take his share in the full life of the school. Games and athletic activities, the work of debating societies, the development of musical or histrionic talents in the pupil

the Boy-Scout movement and generally all aspects of social life in the school whose educative value is not less than the work of intellectual instruction, should claim the teacher's attention and each should enter enthusiastically into that extra activity of school-life for which he is particularly fit.

In a country like India where the percentage of literacy is so low that the further spread of education has to be carried on with strenuous effort, the teacher enjoying the privilege of education himself, has to play a prominent part in enlightening the community in which he lives. Each teacher should be an intellectual centre, radiating knowledge all round and in any movement for "adult education," his should invariably be a helping hand. As is observed in the preface to the recent Occasional Report on Adult Education issued by the Government of India, "in a country committed to progressive responsible government, the organisation of all the resources available within and without our schools and colleges for the equipment of effective citizens becomes an imperative necessity" and who shall help in this work if not the large body of teachers at various centres, who already possess the special knowledge and experience necessary for the purpose? As Lord Morley observed in his address on Popular Culture, what we see every day with increasing clearness is that not only the well-being of the many, but the chances of the exceptional genius, moral and intellectual, and the gifted are highest in the society where the average interest, curiosity and capacity are all highest. . . . What we can do is by diligently seeking to extend our own opportunity to others to help to swell that common tide on the force and set of whose currents depends the prosperous voyaging of

humanity." If we are to have "a new aristocracy, the democratic elite of talent" in the words of Lord Haldane, the teacher must be up and doing.

Rasselas, in Johnson's Romance, exclaims on listening to a long enumeration of the qualifications for a great poet, "Enough thou has convinced me no human being can be a poet." It is hoped that the responsibilities indicated here for the Secondary school teacher are not so many and so difficult of achievement as to make you exclaim in a similar strain, "Enough thou has convinced us that nobody can be a good Secondary school teacher." All that has been demanded here, has been actually achieved elsewhere, in countries where educational work has made greater progress and the conditions are more favourable for development. There is no reason why with determination and united effort, the happy consummation cannot be reached here in spite of the many disadvantages under which the profession is labouring at present.

VI

Conferences like these will have been held in vain, if they did not enable teachers to go back to their work with renewed energy and fresh hope in the value of the great work they are doing. The mechanical routine of the school life, want of sufficient encouragement from Managers of institutions, want of sympathy from the Department as well as from the public and many other discouraging features of service in Secondary schools, are apt to depress the mind and chill the soul of even the best of the teachers. Mr. A. C. Benson, the well-known man of letters, at present the Master of Magdalene College in Cambridge, who was for twenty-five years a teacher at one of the great public schools of England,

complains plaintively in the following words in his book "From a College Window" about the work he and his colleagues were called upon to do, during that period of service in the institution: "We have an enormous and elaborate machine; the boys worked hard and the masters were horribly over-worked. The whole thing whizzed, banged, grumbled and hummed like a factory; but very little education was the result. It used to go to my heart to see a sparkling stream of bright, keen lively little boys arrive ready to work, full of interest, ready to listen breathlessly, to anything that struck their fancies, ready to ask questions — such excellent material, I used to think. At this other end, used to depart a slow river of cheerful and conventional boys, well-dressed, well-mannered, thoroughly nice, reasonable, sensible and good-humoured creatures, but knowing next to nothing, without intellectual interests and indeed honestly despising them... it is a melancholy picture, but the result certainly was that intellectual cynicism was the note of the place." A similar feeling is likely to come over many a High School teacher when judging the fruits of his work at least on some occasions but these meetings with brother members of the profession and a consciousness of a common united effort in a great cause must go a long way to remove such depression of spirits.

The teacher must in no event be discouraged by the circumstances of the service, or by the thoughtless and sweeping criticisms sometimes made on his work. There may be Managers unresponsive to the best educational ideals, always anxious to tighten their grip on the teacher and very illiberal in their treatment of those whom accident has placed in their power; Inspectors whose capabilities

seem to lie only in the direction of finding fault with the work of the teachers; University men with an air of superiority, trying to foist all the sins of omission and commission in our educational system on the High School teachers carefully avoiding to take any responsibility and blame to themselves; publicists extending their favour to the poor High School master with an air of condescending patronage calculated to leave a galling sense of humiliation behind—a teacher's duty is clear. Filled with a consciousness of the nobility of the work he is doing, he continues his lively interest in the young people entrusted to his charge and takes pride in their development, anxious to do his best in his own humble sphere for the educational advancement of the land. Discerning critics will however realise that he is doing very valuable work for the nation though his branch of education may stand in need of improvement like any other.

The great secret of success as a teacher is to retain a perennial freshness of outlook on life and try to combine the joy and imagination of youth with the wisdom of growing age. "The great advantage of the teachers' calling," says the Right Hon'ble Mr. Fisher, "is that they are under a solemn obligation to keep young. Other people may grow old and dull and stupid, may slide into grooves of humdrum comfort and coddle themselves into invalidism. The teacher of the young must keep young; like the general Head Quarters Staff is a professional optimist." Unfortunately, the teaching profession is among those in which conditions of service are so hard, that people age rapidly in their outlook on life and run great risk of doing less and less justice to the very delicate duties with which they are entrusted. There must therefore be a con-

tinual effort at keeping up buoyancy of spirits, a lively interest in the things happening around us and unbounded faith in the efficacy of educational work.

"To raise the dignity of the profession of teaching in general" is rightly one of the prominent aims which your Secondary Education Association has enunciated for itself and it is hoped, it will be given to every member to do something in that direction in the course of his active service as teacher. The dignity of our profession is in our own hands and in the words of Shakespeare, "the fault is in ourselves and not in our stars that we are underlings." It is a curious irony of circumstances that those belonging to one of the noblest professions on earth should feel shy about their place in life and appear before the public sometimes with an air of apologetic humility. An air of meekness and docility often amounting to subserviency; an undue readiness to be at the beck and call of those in official and public prominence; an attitude of abject helplessness even when the exhibition of firmness of spirit is demanded by the most solemn considerations of duty—these are failings against which we should carry on continual warfare, helping one another with all the confidence of professional solidarity.

What is most surprising is our readiness to abdicate our legitimate function of expert advice and guidance even in matters relating to education with a tameness of spirit, not at all consistent with the knowledge we are expected to possess, or the sense of responsibility we are expected to feel in such matters. "Education is a common into which all cattle think they have a right to stray," said, somewhat irreverently, a distinguished friend of mine who is himself not an educationist, but the fault, to a large extent, is the

teacher's own if he has not claimed ownership of the common and is sometimes even prepared to renounce all influence over it by a sense of inertia and, what is worse, a want of recognition of his own proper status and dignity. If educational organisations like the Secondary Education Association only succeed in mending matters in this direction, they would deserve to be congratulated.

It is however vain to expect the teacher to come into his own in national life, until he gives up his cloistered seclusion and mixes with the world, benefiting himself by the contact with the currents of public life and enriching it with the treasures of his own knowledge and capacity for calm and dispassionate thought for examining things in what Bacon has called the "dry light of reason." He must realise he has not ceased to be a member of a living, progressive, social organism merely because he is clapped for long hours every day within the walls of his school building. The nation and the country are justified in making demands on his services as on those of members of other learned professions. His work does not end with the mere successful pursuit of his own career. He must dedicate himself to national ends—nothing can be nobler than the most unremitting endeavour to be of some service to the land of his birth:—

That sweet Indian land
Whose air is balm; whose ocean spreads
O'er coral rocks and amber beds;
Whose mountains pregnant by the beam
Of the warm sun with diamonds teem
Whose rivulets are like rich brides,
Lovely with gold beneath their tides;
Whose sandal grove and bowers of spice
Might be a Peri's Paradise.

EDUCATIONAL IDEALS.*

MANY difficult tasks have been accomplished in the world by human intelligence, courage and endurance, and occasionally an undeserved prize has been awarded to one of Fortune's favourites. The first attempts to reach the North Pole and the South Pole were failures but experience was gained and ultimately success rewarded the intrepid explorer. It seems quite probable that, in spite of immense difficulties, the summit of Mount Everest will be reached, and that every task within man's power will be performed. These are victories over the obstacles presented by Nature and examples of the triumph of mind over matter. There have been other achievements in another sphere, triumphs of mind over mind, victories won by a dominant personality, able to take advantage of circumstances, to bend the wills of others, and to bring them into line with his own. Such were the historical processes known as the unification of Germany and of Italy.

Sometimes a valuable deposit of gold or a fertile island has been discovered by accident, but even when the element of chance is greatest it was probably not an accident that the discoverers were in the place where the find was made. Columbus was seeking an alternative route to India when he landed on an American island, but at least it is safe to say that he would not have discovered the new world if he had not been guided by intelligence and courage in search of something. The element of luck will probably be still smaller in future in the dealings of men with one another. Cavour could fix the date beforehand on which he would compel Austria to declare war, and certainly the outbreak of the struggle of 1866, and the defeat of France in 1870, were the result of foresight and preparation in which nothing was left to chance. The work of Bismarck was accomplished in the face of enormous difficulties and in

spite of courage and determination he might have failed. But this is certain that success would have been impossible if he had not known what he was aiming at. He knew exactly what he wanted and how to get it. This is not very common in the world, and perhaps it is very rare in the matter of education. Yet it seems clear that if we start out on Monday with a vague intention of climbing a mountain we shall accomplish nothing if we spend a few days at the foot of Everest, and on Thursday turn our faces towards Kunchanjangha, and next week desert it for Nanga Parbat or some other. Educators should make up their minds about what they are trying to do, and the enlightened public should, if possible, come to some agreement about what kind of education they want.

I propose, therefore, in this paper to say something about educational ideals and aims. On another occasion I hope to examine what prospect there is of their partial realization. It may be that there is no consensus of opinion even on fundamentals. If so, I feel sure that it would be better for us to discover and face the fact. I will give my opinions, and am quite ready to hear those of others.

In the early Middle Ages, in ecclesiastical circles, it was believed that the body is the prison and burden of the soul and that about it we need know nothing, and care nothing, except how to escape from it at last. Similarly the mind was often regarded as a dangerous tool, a good servant but a bad master, a weapon which might be useful if it supported revelation, but which must be broken and discarded if it opposed revealed Truth. This attitude towards the world, and these ideas about the activities of mind and body, still linger in our midst. There are those who think that it is useless to attempt to ascertain the facts of history and science, or to distinguish between doctrines that differ, or to reason accurately from premises and to attempt a rational explanation of what we observe. This may be logical enough if

the world has no real existence and human intelligence no permanent value. All is Maya or the result of illusion. *Vanitas vanitatum, omnia vanitas*, I suppose it would be impossible to co-operate with those who hold these views. Their ideal seems to be the reduction of wants, which seems to mean also the diminution of activities, and to end in something closely approximating to atrophy of the physical and mental powers.

I assume that we do not hold these views. I hope that we can agree, that the object of education is to develop, stimulate and strengthen (1) intelligence, (2) imagination and (3) character; to discover and test the capacity and ability of a student, to increase and direct his ability, and to train his taste and judgment. As a means to these ends, and as a result of our operations, we shall also help him vastly to increase his knowledge. I wish to avoid vagueness even at the risk of stating what may be obvious to many. It has been well said, "A truism is a statement which few believe and fewer understand." I shall, therefore, try to define and explain my terms.

By (1) intelligence I mean (a) capacity to see things as they are, to hear what is said, to read what is written; (b) to understand what we see, hear and read; (c) to make use of (alter and improve) what we understand; (d) to adapt means to ends. This includes comprehension and use of our own bodies and minds in the best way; it means to understand difficult ideas and situations, to grasp and retain complicated masses of facts, to be able to re-arrange, produce, explain, expand and summarize them, in any required order, and for any given purpose. The intelligent man should be able to distinguish between things that differ; to detect inaccuracies of fact and fallacies in reasoning; to think clearly and express his thoughts lucidly. If we are intelligent we shall probably be interested in natural objects, plants and animals; we shall try to learn the laws of Nature and understand the sequence of cause and effect. This will inevitably lead to an increasing power to

control and use the forces of Nature, even if that is not our direct object. Intelligence enables a man to guide and influence the minds of others, and to make use of them to further his purposes. Intelligence should enable us to do all these things with speed, grace, versatility and apparent ease.

The simplest application of (a), capacity to see things as they are, is physical. The child or the man of undeveloped mind cannot see clearly, however good his eyes may be. He cannot tell whether a line is straight or not, or a circle round or not. He cannot distinguish one letter of the alphabet from another. He does not distinguish a wolf from a hyena, a Ford car from a Rolls-Royce, a third class railway carriage from a first class; and, in general, is almost blind to differences of shape, size, colour, material, texture and quality. In the case of a young child this will be true of all classes of objects, but an uneducated man, though child-like in many ways, will probably be able to see very clearly objects of a special class with which he has become familiar. The unintelligent man cannot tell which of two objects is the larger, unless the difference is great. He cannot estimate distances with the eye, or the size of openings, or the speed at which objects are moving. As an example of this, consider the movements of unintelligent people when they try to move furniture, to get out of the way of a motor car, etc. The horse generally does not realize that he must make a wider turn round a corner when a carriage is attached to his body, and the man of little sense does not understand that when he places a chair or box on his head the combined heights of the object and himself are greater than the height of himself alone, and that, therefore, he cannot carry it through a door-way which is high enough for himself alone.

If in the purely physical world the man of little sense seems to have defective sight, how much more is this the case in the sphere where we must see with the eye of the mind. If we mistake the

* A Lecture delivered by Prof. W. OWSTON SMITH, M.A., I.E.S., at the Bihar Young Men's Institute, Patna.

thief for the honest man, the intriguing self-seeker for the patriot, the charlatan for the sage or prophet, the coward for the hero, or *vice versa*, we show ourselves to be incapable of seeing things as they are. How often in France, and elsewhere, great harm has been done because a disorderly mob in the bazaar has been mistaken for the People (with a capital P) by purblind politicians, and the clamour of the great unwashed has sounded like the expression of the General Will. What better example of incapacity to see things as they were could we have than that given by Generals and Ministers on the eve of the Franco-German War? "Everything is ready down to the last button on the last gaiter." In reality nothing was ready and there were neither boots, gaiters nor buttons in sufficient quantity.

Closely connected with ability to see things as they are is capacity to understand what we see. In fact I suppose that they are inseparable. Otherwise we might say that a looking glass sees because an image is formed in it. The chemist may show us explosions, coloured flames and liquids, and litmus paper changing from red to blue. But it is clear that we are no better for the entertainment unless we know the reason of what we see. It is useless to read, repeat, or even to learn by heart, a statement of fact, however true and important, if we do not understand it. Great changes have taken place in Japan and in Germany during the last fifty years. It is interesting to read descriptions of the state of these countries in 1867 and again in 1920, but we shall derive little profit unless our observation and our reason can show us why these developments have taken place. Otherwise we shall be like those who think that a lichi can be changed into a mango by twisting the leaves and fruit of one to the branches of the other.

I said that intelligence should help us to make use of, to alter, improve and adapt to our use, what we see and understand. If we begin with our own bodies and minds this implies some know-

ledge of physiology and hygiene, sufficient acquaintance with the nature and functions of our bodily organs, that we may use and not abuse them. It is probable that this and some other branches of education are better imparted at home, unless we think that some parents are not morally and intellectually on a sufficiently high level for this important work. The mind should be able to grasp ideas hitherto unfamiliar, to understand, remember and correlate difficult masses of facts and figures. These will not be stored in the mind like goods in a warehouse, of which the best we can hope is that they will be brought out again in the same condition and in the same order as they went in. The mind will assimilate the ideas and facts and make them its own, so that the student can with these materials, and with the aid of his own reflexions, produce something new, or, at least, something new to him.

On the critical side the intelligent man should be able to detect fallacies and inconsistencies without any formal training in logic and he should be shrewd enough to suspect exaggerations and inaccuracies of fact in many classes of cases even if he is not acquainted with the details of the truth.

Further, superior intellectual capacity is shown by ability to do an old thing, and to learn a new thing, more quickly, gracefully, and with a better adaptation of means to ends.

Under imagination I include capacity to understand situations which we have never experienced; to sympathise with opinions which we do not share; to visualize what we have not seen; to deduce a general principle which will account for isolated facts; to reconstruct the past; to bring distant places near; to put ourselves in the place of others; to get into the skins of other men, (as General Gordon said) without reducing our brains to the level of their brains; to harmonize inconsistencies where this is possible; to be fertile in expedients, to suggest compromises; to be able to see things from different points of view; to

realize how ideas, customs, projects, institutions appeared in the past and will appear in the future to various orders of intelligence.

I think that imagination does not mean capacity to believe what is not true, incapacity to distinguish between fact and fiction, want of ability to distinguish differences, satisfaction with vagueness, foggiess of mind or dwelling in a world of make-believe. If intellect sees things as they are, imagination sees things as they may be when circumstances are modified. Intellect and imagination combined should then teach us how to modify circumstances. Imagination is not inconsistent with clearness of sight, and realism does not necessarily imply concentration of our gaze upon all that is base. In conversation with a Missionary once I made the rather stale remark that "Padres are apt to see their followers and converts through rose-coloured spectacles, and over-estimate their virtues; in fact they don't see things as they are." He replied, "We see things as they are, and also as they may be. No one could be a greater realist than our Lord because He saw everything with infinite intelligence. In the dying thief or the sinful woman He saw not only the actual degradation but the potential holiness, whereas the so-called realist sees only the outside condition, which may be accidental and temporary." This seemed very true and I did not find an answer at the moment. I suppose the answer is that to Omnipotence future and present are as one, every soul is of infinite value, and there is little difference between aspiration and achievement. In the material world this is not so, otherwise every piece of land would be of infinite value. However in education the teacher confronted with the dull student should endeavour to see not only what he is but what he may be, to measure his capacity as well as his ability and knowledge. And the educated man should bring the same type of trained mind to bear upon the problems of life.

We now come to character, or the possession of moral quantities. A man with trained intellect

and imagination may be lacking in these. A good accountant, if devoid of honesty, may use his skill to cover up defalcations; a clever doctor may, through carelessness or malice, use his skill to destroy, and not to save, life. Character seems to imply the possession of first (a) a standard or code of conduct, a spirit in which we try to live, an example to which we think our actions ought to conform, (b) secondly, I think we require sufficient strength of will to overcome all obstacles (generally in ourselves) which hinder the agreement of our actions with the standard. The moral code, usually, is inseparably connected with belief. "A religion," says Benjamin Kidd, "is a form of belief providing an ultra-rational sanction for that large class of conduct in the individual where his interests and the interests of the social organism are antagonistic, and by which the former are rendered subordinate to the latter in the general interest of the evolution which the race is undergoing." This definition is one-sided and would not satisfy a theologian. But if imperfect, it regards religion from the point of view which is ours at present. We want something which will teach the student to prefer the good of his hostel, his class, his college, his neighbours, his country, to his own, and will help him, or enable him, to do so. This help may take the form of an appeal to all that is good in him or it may mean power from above. We need a categorical imperative, someone or something to teach us with certainty what is our duty and to give us the will and the strength to do it. Those who have accepted a Teacher sent from God, or a message revealed by God, have, or should have, this certainty and this strength. Those who have no religious belief are in danger of losing both. Appeals to vague principles such as the "greater happiness of the greatest number" leave us cold. Nor can there be anything very inspiring in a self-made selection of ideas and precepts taken from different (perhaps contradictory) teachers which must be lacking in the authority which the

words of any one Teacher might have when taken in their entirety. However, human nature is very complex, and in practice many people, without professing any belief, seem able to adopt, and even to act upon, the best standards of their age and country, which are based upon some belief. Instead of taking their nourishment direct they are, what has been called, 'parasitic.'

Whatever we think about the foundation of character, we may ask what is the kind of character at which we are to aim? I think we want our students to be honest, (intellectually and morally), to be brave (morally and physically), to be trustworthy and efficient, *i.e.*, able to deliver the goods, as they say in America, *i.e.*, to perform what is expected of them. We should try to be patient, modest, industrious, tolerant, sympathetic, tactful, self-reliant. We aim at intellectual and moral freedom. It may be said that some of these qualities are inconsistent with each other or at least that one cannot be pushed to excess without diminution of others. Let us examine this. The man who is honest will see things as they are and express accurately what he sees. His opinions and thoughts will usually correspond with his words, and his words with his actions. It may be said that this prevents him from being sympathetic or tactful. Not necessarily. It is not always our duty to express our opinions in words, and, however clearly we realize a situation, we need not always sum it up. Sympathy does not mean agreement with every opinion and interest, but only a capacity to understand them. If there is any contradiction, I think I should take these objects in the order in which I have placed them, *i.e.*, first honesty, second courage, third trustworthiness and efficiency; and lastly tact and self-reliance; because these words are sometimes euphemisms for something less desirable.

I have said much about objects but some serious omissions may be noticed. I have not mentioned any attempt to fill the pocket or the stomach, to train and produce deputy magistrates, typists, accountants, chauffeurs and railway magnates. I believe that the man whose intelli-

gence and imagination have been developed, whose character and will have been strengthened, and whose capacity has been translated into ability will probably learn quickly to do anything that is put before him. The word 'Education' may be extended to the acquirement of anything new, such as learning to play ping-pong or to a training in picking pockets. But I use it in a narrower and higher sense. We may include training in scientific method and in the use of apparatus and machinery; but we cannot undertake to teach any particular trade in an ordinary school or college. Games teach boys to use their hands and eyes, to estimate time and distance, to decide and act quickly. Wood-work or iron-work may be a spare-time occupation of boys, as in English schools. Shorthand and typewriting may be taught in special places. They are as much below our sphere on the one hand as the production of inventive genius and organizing ability are above our power on the other.

The highest aim of education is not to fit a man for his ordinary vocation or to improve "his chances of material success: it is to open up to him a vast field of intellectual adventure from which worldly considerations, worldly cares and worldly ambitions can be excluded."

Some will not agree with me here, and will say "If this is education we do not want it". There are men who regard everything from the standpoint of material prosperity and translate everything into terms of rupees. So many lectures attended, so many rupees in the pocket. A hundred pages read, a hundred rupees to be received in future years. The parent ought to think about his son: "If I send him to school and college his intellect and imagination are awakened, and his mind broadened; his ideals are raised and his character is strengthened. He learns to co-operate with others, to become tolerant and unselfish, to prefer the common good to his own narrow ends. Ignorance gives place to knowledge and prejudice is replaced by sympathy and comprehension." He becomes more of a civilized man and less like a savage: we may even say less like a fallible mortal and more like God. Speaking frankly I confess

my fear that we are more practical (or materialistic) in our attitude towards education than people are in the so-called materialistic West. In England, of course, most students intend to earn their living when they leave college. But as far as my own experience goes, the earning of money and the search for a lucrative post, are not an obsession with them as too often they are with us. The need to earn money may come later: spiritual, intellectual, and aesthetic interests rule the present. Students are judged by what they are, by their qualities of heart and mind and body, and not by what they possess, or what their fathers possess. They are in pursuit of learning, an effort in which the success of one does not involve the failure of another. The stock is not limited, so the increase of one man's share does not diminish another's. Students may think themselves very fortunate that their work is co-operative rather than competitive, and that each by helping others helps himself.

These objects are to be obtained by testing and teaching, example and guidance, control and discipline, stimulation and co-operation, and at the beginning or end of every stage, testing and teaching again. I have to speak separately of examinations and tests next month in another place and so may dismiss them with a few words here. I will only say that in examinations as in other branches of our work it is very important that we should know what we are aiming at, *i.e.*, what we want to discover, test, and certify, and with what objects. These ought to be a preliminary test before a student enters any class or department, with a view to ascertain what are his capacities and tastes, with the object of putting him to the work for which he is fit. There should be a test at the end of every stage or period to see how far the results of the first examination are confirmed or need correction, that is, to what extent the student has fulfilled expectations, has profited by the education, instruction and guidance given, and what he is fit for next. Leaving the development of this subject for another time, I come to teaching. If there are any trained teachers here they will probably perceive that I am not one of them, so I

may as well admit it. I do not hold the view that a child needs no control and a student no teaching. There seems to be a school which carries *laissez-faire* to an extreme. Human beings are compared with plants and animals. The sapling grows upwards towards the sun, the little donkey knows by instinct how to eat grass and the tiger cub how to suck blood. The child is more really intelligent than its parents, and better understands its own needs and capacities than its teachers. There seems to be some exaggeration in this view, or perhaps in my presentment of it. The tiger and the ass are in the same condition and live the same simple life as their ancestors a hundred generations ago. Man is an artificial complex, containing, as we suppose, three creatures or beings in one skin:—the soul, the mind and the animal body. Each child has to learn to live in this very complicated state which we call civilization. Even the animal, when artificial, the bulldog or the race-horse, needs careful training and control or it will soon revert to some hardier and simpler type. So I suppose every child is a potential savage and we have to spoil him and distort him into the civilized man. This is called the tragedy of education.

I assume that we are not trying to produce the noble, simple savage, whatever his virtues may be, but the many-sided, complex, artificial, civilized man. If, on the fingers of one hand, I were to enumerate our ideals I should say that they were the same as those required for a successful democracy, (1) Truth, (2) Justice, (3) Liberty, (4) Equality, (5) Fraternity. These are great words. Many books have been written about them and many crimes committed in their names. For them men have died and have also killed others. First in teaching we aim at truth. In a paper in this place some weeks ago, I tried to show how hard it is to find it. The scientist relies on observation, calculation, measurement, comparison, experiment. His study is objective. He has no axe to grind, no cause to serve, no thesis to prove; at least it may be hoped so. He can isolate the precise point which he studies and should be able to approximate very closely to truth, even if it be only a very little unimportant truth. In

Economics and History Man is both the student and the subject of study. It is very difficult to exclude the subjective element. I need not dwell on this point. It has recently been treated in a paper which will appear in the first number of the *Journal of the Bihar and Orissa League of Educationists*. On small points dealing with physical acts, such as movements of the hands, we can give the evidence on each side (if there are two or more sides) and leave it at that. Did Akbar strike Hemu with a sword after the battle of Panipat. Ahmed Yadgar tells us one thing; the court historian, Abul Fazl, another. Which is more likely to be right? So with Shivaji with his waghnaikh and scorpion's tail, and other apparatus. We only want to know what happened. Sometimes the way in which a hand moved is not very important. We knew what was the result. The only unpardonable thing is to argue in this way: "Indian students have always been taught to reverence Akbar: therefore we must not believe that he ever did anything of which in 1923 we or some of us, disapprove." Generalizations are much more difficult. At best they are only approximations to truth and are a mixture of fact and opinion. However my subject is not the use of historical evidence, so I must pass on. In the humanities the attainment of truth is most difficult. There taste and genius are required,—things which education cannot supply or teach, can seldom discover or guide, and sometimes stifles and stunts.

In his very valuable little book on "Problems of Higher Education," Mr. H. R. James points out the inevitable clash between the new and the old which is one of the features of higher education. In any country there will be opposition from time to time between the ideas of the college, approximating to the truth, and those of the general public, the village and the back street containing a larger admixture of the false. This is especially the case in India where we try to push the students on, in four, six or eight years, through a series of intellectual and moral stages which in Europe men took centuries to traverse. Mr. James says: "To put the difference succinctly, in Europe we attain the end by adjustment. In India we can only attain the

end by re-adjustment—perhaps we ought even to say disadjustment.... This is only to say that the education we try to impart in our colleges and higher schools is unavoidably out of harmony with the circle of ideas and habits to which the Indian child is at present born and bred.... His education is not a uniform development but involves somewhere a break and a new beginning." That is, different, and it may be hoped higher, moral standards should be set before the student, different, it may be hoped more scientific, views of the world around him, different and truer teaching about the past and about "contemporary posterity." This opposition between what is supposed to be true, and that which, though partly false, is not without value may first be illustrated from English life. When the prevailing view of the value and authority of the Scriptures was that of dictation or literal inspiration, a conflict was sure to arise from time to time between two forms of truth, that revealed and that discovered. But when inspiration is understood to mean what, according to etymology, it ought to mean, this is not so likely. I remember as recently as 20 years ago meeting a medical student whose theological views were very old-fashioned. I found that he had no belief in the theory of evolution. He understood it, and could explain the ideas; he could pass an examination which required a knowledge of it, but he did not believe it. It was in one compartment of his brain and his ideas about creation were in another. If this can be so in England how much more is it likely to be found here. The student with his village ideas about eclipses, or his half-understood, half-remembered Vedic geography and Puranic history, is brought into contact with the truth. For a time I think he keeps his old traditions and his new knowledge in different boxes, and does not co-ordinate the two. But before long if he makes progress in Science the old ideas will gradually be driven from his mind and one day he will discover that he no longer believes them. In the sciences that deal with man it will take longer. We sometimes see an essay written by a Hindu boy in which he says that when all the world was covered by the clouds of ignorance, the bright sun of knowledge shone in

every corner of his favoured land, and he and his ancestors discovered all the planets, the shape of the earth, the chemical elements, the manufacture of glass, the mariners' compass, America and aeroplanes. If you looked over the shoulder of a Japanese or Chinese, Egyptian, Greek, Armenian or Syrian boy you might find him writing that when all the world of outer barbarians was lying in the caverns of the dragon, Ignorance, the bright sun of knowledge was obedient to the virtues of his ancestors, who discovered all the planets and other stock-in-trade, according to the catalogue. It is hardly possible that all these claims can be well-founded. It takes a very long time for the study of history to correct this self-laudatory spirit, because, perhaps, boys study that of other countries where they do not find this list of goods and services. This will only confirm their belief that they had discovered them all. Or if they read the history of their own country and find most of these things not mentioned that is only negative testimony and has little effect. After a long time perhaps they begin to understand that the world is peopled by human beings, not by demigods and monsters, heroes, and villains. The truth is often painful. If we have courage to open our eyes to the light we shall learn that we have not taken out a patent for the discoveries (whether real or imaginary) of people who lived 2000 miles away, or 2000 years ago; and that we have no copyright in their books, even if they know how to write. There is a striking passage in the Revelation where God is represented as sending this message to a self-satisfied and degenerate church: "Because thou sayest I am rich and have gotten riches, and have need of nothing: and knowest not that thou art the wretched one, and miserable and poor and blind and naked, I counsel thee to buy of me gold, refined by fire, that thou mayest become rich, and white garments that thou mayest clothe thyself, and eye-salve to anoint thine eyes that thou mayest see." The truth is not always pleasant, but we must have courage to hear it. I remember when I had expressed an opinion with foolish self-confidence and ignorance, when I was a student, I was told by one of my teachers that if I continued in that frame of mind I should be not only untaught but

unteachable. No doubt it did me good. We must not be offended when a high standard of conduct and attainment is set before us and we are told that we have not reached it.

If truth often lies between two errors and is almost unattainable, it is better at least that the teacher should not be in the same error as the taught. Let him be free from error if possible: in any case, if he must be ignorant or prejudiced on some points, he should not share the ignorances or prejudices of the students. However difficult it may be, what we need is to know the truth so that we may not call evil good or good evil, or be at the mercy of any charlatan who tries to deceive us.

In what departments of education is justice required? What is justice? I said here some weeks ago that it is very hard to define. But there must be some such thing or why do we so commonly use the word? We must think that we know what it is. When a number of people live together in a State or in a college there must be some rules or some customs which are generally observed, or else some one or more persons invested with absolute power, who do whatever they like, changing hours, places, and other conditions from day to day. When there are rules I think that 'Justice' means the rigid or mechanical application of the letter of the law to individual cases. If we have caste rules, then it is just that the son of the mochi should always be a mochi, and the son of the darzi, a darzi. The man who does not like a rule will always think it unwise or unjust. We hear that some of the new republican governments in Europe intend to pay off their debts in their depreciated paper money. The man who lent 100,000 marks (Rs. 75,000) will receive 100,000 marks, which are now worth some fifteen rupees. This is an extreme case, and serves to show that the application of the letter of the law, or the latter of an agreement, often produces a result opposed to our moral sense. This creates a need for equity which means the decision of a case by an authority armed with power and freed from the restraints of law, except such as he imposes on himself by following his own example. We like the rule of law in theory, but in practice we are always protesting against it. Whatever the age-

limit, percentage or time of arrival may be we want exceptions to be made. Well in a school or college, where the Principal is supposed to be older and wiser than the students, it ought to be possible to leave him discretion within wide limits, and thus approximate more nearly to equity or flexible justice than is possible in the State.

In work and games we aim at equality. All students enter a college at the same time, or should do so. They thus start fair. They have, or should have, the same teaching from the same persons, access to the same library, and as far as possible stand on the same level. This is equality of opportunity. It is not expected to produce equality of results or to demonstrate equality of ability. The latter is a mischievous fiction and the former could only be obtained by reducing the activity and performance of all to those of the weakest. One imbecile, accidentally admitted to a college, would reduce all to imbecility. Yet there are some persons who wish to see 100% of passes in a large examination list. This can only mean that the standard is fixed below the level of the lowest intellect among the candidates which obviously would make examinations meaningless and misleading. When we think of the inequalities of real life, and the difficulties of starting fair again after one mistake, we ought to feel how lucky students are who can start afresh in every game and in every part of each subject.

Life in a college or hostel tends to make us feel that our interests are the same, or at least that the forces tending to union are stronger than those which divide. Completely absent is the fierce and inevitable competition which rules in the world of business, politics and war. The prizes which the clever and industrious student obtains by surpassing all his rivals are of little importance compared with the value of the work done and the efforts made. These are common to all competitors. I think also that one does not mind being beaten if one feels that the decision is fair and is made by a competent judge. It is the sense of unfairness which causes so much bitterness in the world. The man whose crop is ruined by hail just before harvest, or whose son dies on

the eve of his wedding day, feels that he is the sport of fate. And so with most of the rewards which Government or public favour gives or withholds, titles, salaries, reputation, we resent the decision when we think that it is not based on honesty and intelligence. All the influences which separate men outside, those of sect, party, caste, race and social class, should be absent from the hostel, and equality and fraternity should prevail. If unfortunately they do not, justice, of the personal and flexible type, must step in to protect the minority or the unpopular.

The last word is liberty of thought and action, moral and intellectual and physical. One way of being free is to sit on a desert island in a wide sea far from our fellow-men and ignorant of God. We are then exempt from all interference or control from above or around. Much better it is when our will happens to coincide with the will of God, and our desires to harmonise with those of our fellows. Fortunate is the man who corresponds with his environment, or is just a very little ahead of others. Students are similar in age and pursuits. They ought not to be much in one another's way. Their teachers do not want to repress or exploit them. There will, therefore, be no hindrance from above except such as the student's own good sense would impose upon himself. Intellectually he moves towards freedom as his reasoning power grows stronger, and he gains the power of thinking clearly and judging independently. Morally he gains freedom as he acquires the robust virtues, public spirit, honesty, sincerity, and the moral courage to act upon rational conviction. Rules do not limit his freedom if he perceives their necessity, wills to obey them, and recommends them to others. Discipline, of course, is necessary and there can be no national strength without it. But it is not felt to be irksome, when its necessity is realised. The student himself makes some of his own rules, and, as a prefect or captain, helps to maintain some which he has not made. When he has freed himself from superstition, from fear, from intellectual subjection to obsolete modes of thought, and, most important of all, when he can overcome temptation, and resist everything that would sap his physical and moral strength, he becomes really free. This is not slave mentality but its direct opposite. College life aims at the production of this intellectual liberty and moral strength.

REALISM AND UNREALISM IN "DR. JEKYLL AND MR. HYDE."

A PROPER understanding of the problem of good and evil in human character is calculated to be of great help to all students of creative art in literature. This problem is perhaps nowhere so dramatically presented as in the very strange story of Jekyll and Hyde, by Stevenson, offering a study of the dual personality of man. Stevenson was a weird dreamer and has knit together strange dreams in the story of Jekyll. But with the weirdness is organically compounded a spiritual or moral interest. The same success of making the unreal real which we associate with Coleridge or with Kipling in his 'Jungle Book' is to be remarked in Stevenson's story. The 'incidents' and 'actions' in the story seem to be of the very stuff of dreams and nightmares and are subservient to the spiritual significance of the story. This spiritual significance is deep and tragic, the career of Jekyll having sufficient similarity to that of Marlowe's *Faustus*. Like Marlowe's story, Stevenson's is essentially a chronicle of inward transformation and external incident is to serve but as an index to this. The story is the story of the degradation of the soul of Dr. Jekyll from stage to stage till self-murder is resorted to in despair as the only solvent for the growing assertion of the monster in him. Mr. Hyde who personifies the lesser self of Jekyll fills every one who looks at him with an infinite sense of horror, because, unlike the ordinary man, he is the embodiment of pure evil. The love cherished by Jekyll for Hyde is proof of man being the parent of evil as much as he is of good. The freeing of the lesser self from the compound of man is the signal to wallow in sensuality or to indulge in every secret pleasure and it is also letting loose the pure spirit of wickedness. That a man should trample under feet,

quite unprovoked, a little girl of ten, or murder with equally no justification a respectable citizen in cold blood is sufficiently illustrative of the pure spirit of wickedness. Yet it is strange that in the still but lamp-lit streets, a child of ten should chance to be exposed to the wickedness of a passer-by at the unusual hour of three in a winter morning in London. The cross-movements of the girl and the wicked man, concluding in the trampling of the girl, seem to belong to a pantomime or a dream. Similarly at a later stage, when the maid narrates the story of the murder of Sir Danvers Carew, as she saw it committed in moonlight while she stood on the terrace, we seem listening to the details of a nightmare. Sir Carew asks of another man in the street the way to some house. The stranger fumes in impatience and brandishes his cane in sheer brutality. The knight moves away a little but does not escape being clubbed and thrashed and thrown down and trampled to death. The maid is all the length of time looking on presumably helpless and unable to raise an alarm. She swoons and rises again only at 2 a.m. while the murder took place about four hours earlier.

The way in which minute details imparting realism are woven into the story is remarkable. There is no mistake about the real London streets with their characteristic figures in them. What is more, from the pure act of unhuman wickedness of Mr. Hyde at three in a winter morning we are brought back to a modern bank where the cheque written down by Mr. Hyde in the name of Jekyll is honoured without hesitation and the injured child's family is consoled with the present of a hundred pounds.

Realism is again introduced as the leaven in the Carew murder. The police officer and Mr. Utterson visit Hyde's quarters in Soho and the police officer's professional zeal is

tickled to find Hyde's broken cane and his burnt cheque book. Once again, when Jekyll in the gradual degradation of his soul discovers that he is doomed to assume his lower self without the power to regain his better self, and cannot walk up to his locked cabinet without being betrayed by his own household as a murderer, he resorts to a cab in the street and escapes to a hotel. There he writes letters to Dr. Lanyon and to his own servant to arrange to obtain his powers to Lanyon's chambers where he might use them for himself. To ensure the certain despatch of his letters we are told that he sent them by Registered Post! What a detail in a fantasy on the dual personality of man which recalls to us Satan, original sin and the formative power of the human soul!

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POPULARISING LIBRARIES IN HIGH SCHOOLS

By MR. D. NARASIMHAN, B. COM. (Bom.),
High School, Hassan (Mysore State).

It has been a constant complaint that students in High Schools do not put in much extra reading and that they always confine themselves to their text-books. While this is true of most of the schools, no successful attempt has been made to remedy the defect. All the teachers have on an average 20—24 periods of work per week. Therefore, they cannot be expected to do much unless one or two are given some relief from the general work. Moreover a certain knowledge of Library Technique and Organization is also necessary.

In Western countries, especially the United States, the task of popularising libraries is undertaken by other agencies. The Library Movement, as most of the readers are aware, has made phenomenal progress in the States. The librarian of the local library visits the school and persuades the boys to resort to the library. Boys are thus made aware of the use they have to make of the books.

If, as suggested above, one of the teachers is placed in charge of the School Library and he remains there for an hour or two every day, the students of each form can meet him in turn and seek his advice for taking out the best books suited to their requirements and capacity. When they return the books they must be asked to show their Book Record.

The object of such a record of books may be briefly stated as follows:—

1. To foster a love of reading.
2. To cultivate the power of appreciation of literary beauty.
3. To help the boys to write good English by imitating the style of the authors read.

4. To increase the boys' vocabulary.
In this connection it is necessary to know how to keep the Book Record.

The rules for the same may now be set down.

"1. In bold lettering set out the name of the book and its author.

2. Write a brief and comprehensive account of the subject-matter of the book.

3. Copy out exactly the description that seems to you most beautifully expressed.

4. Try to write a description modelled on the beautiful one you have selected. Do not change the style; but change the subject.

5. Write out ten new words that you have met in the book and at the same time write their dictionary meanings. Then write out the phrase or sentence in which the new word occurs."—*Times Educational Supplement*.

Every member of the staff must exhort the boys to borrow books from the Library. Frequent appeals may also be made in the form of short notes or by quotations from great authors. A few examples of each are given below. Teachers may devise similar appeals or quote from authors.

(i). Why should students borrow books?

Students will be making a serious mistake if they think they can get all the necessary information from their text-books. These books are the basis on which they must build their structure of knowledge. Therefore, they must freely resort to the Library and take out books.

(ii). How to make the best use of the Library.

It is not unusual for students who cannot find out what extra reading would be profitable, to borrow books which have no bearing on their studies, or, which are too high for their standard. They must read the books suited to their standard. A careful selection

is therefore necessary for which the advice of teachers must be sought.

(iii). Need for using the Library.

If the students in High Schools do not cultivate the practice of using the Library, they will be at a great disadvantage when they go up to the college. There the professors and lecturers will often refer them to important books without reading which little or no progress is possible. If boys do not learn how to use books, much of their time will be lost. Therefore, they must work on proper lines in High Schools.

QUOTATIONS.

(a) "Reading sets men thinking."—*Newman*.

(b) "But of all the diversions of life there is none so proper to fill up the empty spaces as the reading of useful and entertaining authors."—*Addison*.

(c) "Nothing can supply the place of books."—*Channing*.

(d) "And now I commend you again to your books. Books are delightful society. Value them much. Endeavour to turn them to good account."—*Gladstone*.

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AIMS AND IDEALS OF VISWA-BHARATI

BY DR. RABINDRANATH TAGORE.

INDIA has her renaissance, she is preparing to make her contribution to the world of the future. In the past she produced her great culture, and in the present age she has an equally important contribution to make to the culture of the New World, which is emerging out of the wreckage of the Old.

This is a momentous period of her history, pregnant with precious possibilities. Being strongly impressed with the need and the responsibility, which every individual to-day must realize according to his power, I have formed the nucleus of an International University in India, as one of the best means of promoting mutual understanding between the East and the West. This institution, according to the plan I have in mind, will invite students from the West to study the different systems of Indian philosophy, literature, art and music in their proper environment, encouraging them to carry on research work in collaboration with the scholars already engaged in this task.

The Western Universities give their students an opportunity to learn what all the European peoples have contributed to their Western culture. Thus the intellectual mind of the West has been luminously revealed to the world. What is needed to complete this illumination is for the East to collect its own scattered lamps and offer them to the enlightenment of the world.

ASIA'S DUTY.

There was a time when the great countries of Asia had, each of them, to nurture its own civilization apart, in comparative seclusion. Now has come the age of co-ordination and co-operation. The seedlings that were reared within narrow plots, must now be transplanted into the open fields. They must pass the test of the world market, if their maximum value is to be obtained.

But before Asia is in a position to co-operate with the culture of Europe, she must base her own structure on a synthesis of all the different cultures which she has. When, taking her stand on such a culture, she turns towards the West, she will take, with a confident sense of mental freedom, her own view of truth from her own vantage-ground, and open a new vista of thought to the world. Otherwise, she will allow her priceless inheritance to crumble into dust, and trying to replace it clumsily with feeble imitations, of the West, make herself superfluous, cheap and ludicrous. If she thus loses her individuality and her specific power to exist, will it in the least help the rest of the world? Will not her terrible bankruptcy involve also the Western mind? If the whole world grows at last into an exaggerated West, then such an illimitable parody of the modern age will die, crushed beneath its own absurdity.

In this belief, it is my desire to extend by degrees the scope of this University on simple lines, until it comprehends the whole range of Eastern cultures—the Aryan, Semitic, Mongolian and others. Its object will be to reveal the Eastern mind to the East herself and to the rest of the world.

Of one thing I felt certain during my travels in Europe, that a genuine interest has been roused there in the philosophy and the arts of the East, from which the Western mind seeks fresh inspiration of Truth and Beauty. Once the East had her reputation of fabulous wealth, and the seekers were attracted from across the sea. Since then, the shrine of wealth has changed its site. But the East is famed also for her storage of wisdom, harvested by her Patriarchs from long successive ages of spiritual endeavour. And when, as now, in the midst of the pursuit of power and wealth, there rises the cry of privation from the famished spirit of man, an opportunity is offered to the East to offer her store to those who need it.

Once upon a time, we were in possession of such a thing as our own mind in India. It was living.

It thought, it felt, it expressed itself. It was receptive as well as productive. That this mind could be of any use in the process, or in the end, of our education was overlooked by our modern educational dispensation. We are provided with buildings and books and other magnificent burden, calculated to suppress our mind. The latter was treated like a library-shelf solidly made of wood, to be loaded with leather-bound volumes of second-hand information. In consequence it has lost its own colour and character, and has borrowed polish from the foreign carpenter's shop. All this has cost us money and also our mind, finer ideas, while our intellectual vacancy has been crammed with what is described in official reports as Education. In fact, we have bought our spectacles at the expense of our eye-sight.

IDEALS IN EDUCATION.

In India our goddess of learning is Saraswati. My audience in the West, I am sure, will be glad to know that her complexion is white. But the signal fact is that she is living and she is a woman and her seat is on a lotus-flower. The symbolic meaning of this is, that she dwells in the centre of life and the heart of all existence which opens itself in beauty to the light of Heaven.

The Western education which we in this country have chanced to know, is impersonal. Its complexion is also white but it is the whiteness of the white-washed class-room walls. It dwells in the cold storage compartments of lessons and the ice-packed minds of our school-masters. The effect which it had on my mind when, as a boy, I was compelled to go to school, I have described elsewhere. My feeling was very much the same as a tree might have, which was not allowed to live its full life, but was cut down to be made into packing cases.

The introduction of this education was not a part of the solemn marriage-ceremony which was to unite the minds of the East and the West in mutual understanding. It represented an artificial method of training specially calculated to produce

the carriers of the white man's burden. This want of ideals still clings to our education-system, though our Universities have latterly burdened their syllabus with a greater number of subjects than before. But it is only like adding to the bags of wheat the bullock carries to market; it does not make the bullock any better off.

Mind, when long deprived of its natural food of truth and freedom of growth, develops an unnatural craving for success; and our students have fallen victims to the mania for success in examinations. Success consists in obtaining the largest number of marks with the strictest economy of knowledge. It is a deliberate cultivation of disloyalty to truth, of intellectual dishonesty, of a foolish imposition by which the mind is encouraged to rob itself. But as we are by means of it made to forget the existence of mind, we are supremely happy at the result. We pass examinations, and shrivel up into clerks, lawyers and police inspectors, and we die young.

Universities should never be made mechanical organizations for collecting and distributing knowledge. Through them the people should offer their intellectual hospitality, their wealth of mind to others, and earn their proud right, in return, to receive gifts from the rest of the world. But in the whole length and breadth of India there is not a single University established in the modern time when a foreign or an Indian student can properly be acquainted with the best products of the Indian mind in a full measure. For that we have to cross the sea, and knock at the doors of France and Germany. Educational institutions in our country are India's alms bowl of knowledge; they lower our intellectual self-respect; they encourage us to make a foolish display of decorations composed of borrowed feathers.

This it was that led me to found a school in Bengal, in face of many difficulties and discouragements, and in spite of my own vocation as a poet, who naturally finds its true inspiration only when he forgets that he is a school-master. It is my hope that an indigenous University of our own

land will find its natural growth, a University which will help India's mind to concentrate and to be fully conscious of itself; free to seek the truth and make this truth its own standard, give expression to its own creative genius, and offer its wisdom to the guests who come from other parts of the world.

LOSS OF INITIATIVE.

Mau's intellect has a natural pride in its own aristocracy, which is the pride of its culture. Culture only acknowledges the excellence whose criticism is in its inner perfection, not in any external success. When this pride succumbs to some compulsion of necessity or lure of material advantage, it brings humiliation to the intellectual man. Modern India, through her very education, has been made to suffer this humiliation. Once she herself provided her children with a culture which was the product of her own ages of thought and creation. But it has been thrust aside, and we are made to tread the mill of passing examinations, not for learning anything but for notifying that we are qualified for employments under organizations conducted in English. Our educated community is not a cultured community, but a community of qualified candidates. Meanwhile, the proportion of possible employments to the number of claimants has gradually been growing narrow, and the consequent disaffection has been wide-spread. At last the very authorities who are responsible for this, are blaming their victims. Such is the perversity of human nature. It bears its worst grudge against those it has injured.

There are belated attempts on the part of our governors to read us pious homilies about disinterested love of learning, while the old machinery still goes on working, whose product is not education but certificates. It is good to remind the fettered bird that its wings are for soaring; but it is better to cut the chain which is holding it to its perch. The most pathetic feature of the tragedy is that the bird itself has learnt to use its chain for its ornament simply because the chain jingles in fairly respectable English.

In India, a vague feeling of discontent has given rise to numerous attempts at establishing national schools and colleges. But, unfortunately, our very education has been successful in depriving us of our real initiative and our courage of thought. The training we get in our schools has the constant implication in it that it is not for us to produce but to borrow. And we are casting about to borrow our educational plans from European institutions. The trampled plants of Indian corn are dreaming of recouping their harvest from the neighbouring wheat fields. To change the figure, we forget that, for proficiency in walking, it is better to train the muscles of our own legs than to strut upon the wooden ones of foreign make, although they clatter and cause more surprise at our skill in using them than if they were living and real.

But when we go to borrow help from a foreign neighbourhood we are apt to overlook the real source of help behind all that is external and apparent. Had the deep-water fishes happened to produce a scientist who chose the jumping of a monkey for its research-work, I am sure he would give most of the credit to the branches of the trees and very little to the monkey itself. In a foreign University, we see the branching wilderness of its buildings, furniture, regulations and syllabuses, but the monkey which is a difficult creature to catch and more difficult to manufacture we are likely to treat as a mere accident of minor importance. It is convenient for us to overlook the fact that among the Europeans the living spirit of the University is widely spread in their society, their Parliament, their literature, and the numerous activities for their corporate life. In all these functions they are in perpetual touch with the great personality of the land which is creative and heroic in its constant acts of self-expression and self-sacrifice. They have their thought published in their books as well as through the medium of living men who think those thoughts, and who criticise, compare and disseminate them. But, to our misfortune, we have in India all the furniture

of the European University except human teachers. We have, instead, mere purveyors of book-lore in whom the paper-god of the book-shop has been made vocal.

A most important truth which we are apt to forget is that a teacher can never truly teach unless he is still learning himself. A lamp can never light another lamp unless it continues to burn its own flame. The teacher who has come to the end of his subject, who has no living traffic with his knowledge, but merely repeats his lessons to his students can only load their minds; he cannot quicken them. Truth not only must inform but inspire. If the inspiration dies out and the information only accumulates, then truth loses its infinity. The greater part of our learning in the schools has been wasted because, for most of our teachers, their subjects are like dead specimens of once living things, with which they have a learned acquaintance, but no communication of life and love.

UNIVERSITY IDEALS.

The educational institution, therefore, which I have in mind, has primarily for its object the constant pursuit of truth, from which the imparting of truth naturally follows. It must not be a dead cage in which living minds are fed with food artificially prepared. It should be an open house, in which students and teachers are at one. They must live their complete life together, dominated by a common aspiration for truth and a need for sharing all the delights of culture. In former days the great master-craftsmen had students in their workshops where they co-operated in shaping things to perfection. That was the place where knowledge could become living, that knowledge which not only has the substance and law, but its atmosphere subtly informed by a creative personality. For intellectual knowledge also has its aspect of creative art in which the man who explores truth expresses something which is human in him—his enthusiasm, his courage, his sacrifice, his honesty and his skill. In merely academical

teaching we find subjects, but not the man who pursues the subject; therefore the vital part of education remains incomplete.

For our Universities we must claim, not labelled packages of truth and authorized agents to distribute them, but truth in its living association with its lovers and seekers and discoverers. Also we must know that the concentration of the mind forces scattered throughout the country is the most important mission of a University which, like the nucleus of a living cell, should be the centre of the intellectual life of the people.

The bringing about of an intellectual unity in India is, I am told, difficult to the verge of impossibility owing to the fact that India has so many different languages. Such a statement is as unreasonable as to say that a man, because he has a diversity of limbs, should find it impossible to realize life's unity in himself, and that only an earth-worm composed of a tail and nothing else could truly know that it had a body.

Let us admit that India is not like any one of the great countries of Europe, which has its own separate language; but is rather like Europe herself, branching out into different peoples with many different languages. And yet Europe has a common civilization, with an intellectual unity which is not based upon uniformity of language. It is true that in the earlier stages of her culture the whole of Europe had Latin for her learned tongue. That was in her intellectual budding time, when all her petals of self-expression were closed in one point. But the perfection of other mental unfolding was not represented by the singularity of her literary vehicle. When the great European countries found their individual languages, then only the true federation of cultures became possible in the West, and the very differences of the channels made the commerce of ideas in Europe so richly copious and so variedly active. We can well imagine what the loss to European civilization would be if France, Italy and Germany and England herself had not, through their separate

agencies, contributed to the common coffer their individual earnings.

FOREIGN CULTURE AND LANGUAGE.

There was a time with us when India had her common language of culture in Sanskrit. But, for the complete commerce of her thought, she requires that all her vernaculars should attain their perfect powers, through which her different peoples might manifest their idiosyncracies; and this could never be done through a foreign tongue.

In the United States, in Canada and other British colonies, the language of the people is English. It has a great literature which has its birth and growth in the history of the British Islands. But, when this language with all its products and acquisitions, matured by ages on its own mother-soil is carried into foreign lands, which have their own separate history and their own life growth it must constantly hamper the indigenous growth of culture and destroy individuality of judgment and the perfect freedom of self-expression. The inherited wealth of the English language, with all its splendour, becomes an impediment when taken into different surroundings, just as when lungs are given to the whale in the sea. If such is the case even with races whose grand mother-tongue naturally continues to be their own mother-tongue, one can imagine what sterility it means for a people which accepts, for its vehicle of culture, an altogether foreign language. A language is not like an umbrella or an overcoat, that can be borrowed by unconscious or deliberate mistake; it is like the living skin itself. If the body of a draught horse enters into the skin of a race horse, it will be safe to wager that such an anomaly will never win a race, and will fail even to drag a cart. Have we not watched some modern Japanese artists imitating European Art? The imitation may sometimes produce clever results; but such cleverness has only the perfection of artificial flowers which never bear fruit.

If we were to take for granted, what some people maintain, that Western culture is the only

source of light for our mind, then it would be like depending for day-break upon some star which is the sun of a far distant sphere. The star may give us light, but not the day; it may give us direction in our voyage of exploration, but it can never open the full view of truth before our eyes. In fact we can never use this cold star-light for stirring the sap in our branches, and giving colour and boom to our life. This is the reason why European education has become for India mere school-lessons and no culture—a box of matches good for the small uses of illumination, but not the light of morning, in which the use and beauty, and all the subtle mysteries of life are blended in one.

NEED OF ASSIMILATION.

Let me say clearly that I have no distrust of any culture because of its foreign character. On the contrary I believe that the shock of such extraneous forces is necessary for the vitality of our intellectual nature. It is admitted that much of the spirit of Christianity runs counter, not only to the classical culture of Europe, but to the European temperament altogether. And yet this alien movement of ideas, constantly running against the natural mental current of Europe, has been a most important factor in strengthening and enriching her civilization, on account of the sharp antagonism of its intellectual direction. In fact, the European vernaculars first woke up to life and fruitful vigour, when they felt the impact of this foreign thought-power with all its Oriental forms and affinities. The same thing is happening in India. European culture has come to us not only with its knowledge but with its velocity.

Then again, let us admit that modern science is Europe's great gift to humanity for all time to come. We, in India, must claim it from her hands, and gratefully accept it in order to be saved from the course of futility by lagging behind. We shall fail to reap the harvest of the present age, if we delay.

What I object to is the artificial arrangement by which foreign education tends to occupy all the

space of our national mind, and thus kills, or hampers, the great opportunity for the creation of a new thought-power by a new combination of truths; it is this which makes me urge that all the elements in our own culture have to be strengthened, not to resist the Western culture, but truly to accept and assimilate it; to use it for our sustenance, not as our burden; to get mastery over this culture, and not to live on its outskirts as the hewers of texts and drawers of book-learning.

INDIA'S MYRIAD-LINED CULTURE.

The main river of Indian culture has flowed in four streams, the Vedic, the Puranic, the Buddhist and the Jain. It has its source in the heights of the Indian consciousness. But a river, belonging to a country, is not fed by its own waters alone. The Tibetan Brahmaputra is a tributary to the Indian Ganges. Contributions have similarly found their way to India's original culture. The Mahomedan, for example, has repeatedly come into India from outside, laden with his own stores of knowledge and feeling and his wonderful religious democracy, bringing fresher after fresher to swell the current. To our music, our architecture, our pictorial art, our literature, the Mahomedans have made their permanent and precious contribution. Those who have studied the lives and writings of our mediæval saints, and all the great religious movements that sprang up in the time of the Mahomedan rule, know how deep is our debt to this foreign current that has so intimately mingled with our life.

So, in our centre of Indian learning, we must provide for the co-ordinate study of all these different cultures,—the Vedic, the Puranic, the Buddhist, the Jain, the Islamic, the Sikh, the Zoroastrian. The Chinese, the Japanese and the Tibetan will also have to be added; for, in the past, India did not remain isolated within her own boundaries. Therefore, in order to learn what she was in her relation to the whole continent of Asia, these cultures too must be studied. Side by side with them must

finally be placed the Western culture. For only then shall we be able to imitate this last contribution to our common stock. A river flowing within banks is truly our own, and it can contain its due tributaries, but our relations with a flood can only prove disastrous.

OUR RENAISSANCE HAS COME.

There are some, who are exclusively modern, who believe that the past is the bankrupt time, leaving no assets for us but only a legacy of debts. They refuse to believe that the army which is marching forward can be fed from the rear. It is well to remind such persons that the great ages of renaissance in history were those when man suddenly discovered the seeds of thought in the granary of the past.

The unfortunate people who have lost the harvest of their past, have lost their present age. They have missed their seed for cultivation and gone begging for their bare livelihood. We must not imagine that we are one of the disinherited peoples of the world. The time has come for us to break open the treasure-trove of our ancestors and use it for our commerce of life. Let us with its help make our future our own and not continue our existence as the eternal rag pickers in other people's dust-bins.

PERSONALITY IN EDUCATION.

So far I have dwelt only upon the intellectual aspect of education. For, even in the West, it is the intellectual training which receives almost exclusive emphasis. The Western Universities have not truly recognized that fulness of expression is fulness of life. And a large part of man can never find its expression in mere language of words. It must therefore seek for its other languages—lines and colours, sounds and movements. Through our mastery of these we not only make our whole nature articulate, but also understand man in all his attempts to reveal his innermost being in every age and clime. The great use of education is not merely to collect facts, but to know man and to make oneself known to man. It

is the duty of every human being to master at least to some extent, not only the language of intellect, but also that personality which is the language of Art. It is a great world of reality for man—vast and profound—this growing world of his own creative nature. This is the world of Art. To be brought up in ignorance of it is to be deprived of the knowledge and use of that great inheritance of humanity, which has been growing and waiting for every one of us from the beginning of our history. It is to remain deaf to the eternal voices of man that speaks to all men the messages that are beyond speech. From the educational point of view we know Europe where it is scientific, or at best literary. So our notion of its modern culture remains within the boundary lines of grammar and the laboratory. We almost completely ignore the æsthetic life of man, leaving it uncultivated, allowing weeds to grow there. Our newspapers are prolific, our meetings are vociferous; and in them we wear to shade the things we have borrowed from our English teachers. We make the air dismal and damp with the tears of our grievances. But where are our arts, which like the outbreak of spring-flowers, are the spontaneous overflow of our deeper nature and spiritual magnificence?

Through this great deficiency of our modern education, we are condemned to carry to the end a dead load of dumb knowledge. Like miserable outcasts, we are deprived of our place in the festival of culture and wait at the outer court, where the colours are not for us, nor the forms of delight, nor the songs. Ours is the education of a prison-house, with hard labour, and with a drab dress cut to the limits of minimum decency and necessity. We are made to forget that the perfection of colour and form and expression belong to the perfection of vitality that the joy of life is only the other side of the strength of life. The timber merchant may think that the flowers and foliage are mere frivolous decorations of a tree; but if these are suppressed, he will know to his cost that the timber too will fail.

During the Moghul period, music and art in India found a great impetus from the rulers, because their whole life,—not merely their official life,—was lived in this land; and it is the wholeness of life from which originates Art. But our English teachers are birds of passage: they cackle to us, but do not sing,—their heart is not in the land of their exile.

MUSIC AND ARTS.

Construction of life, owing to this narrowness of culture, must no longer be encouraged. In the centre of Indian culture which I am proposing, music and art must have their prominent seats of honour and not be given merely a tolerant nod of recognition. The different systems of music and different schools of art, which lie scattered in the different ages and provinces of India, and in the different strata of the society and also those belonging to the other great countries of Asia, which had communication with India, have to be brought there and studied in comparison with those of the West.

I have already hinted that education should not be dragged out of its native element, the life current of the people. Economic life covers the whole width of the fundamental basis of society, because its necessities are the simplest and the most universal. Educational institutions, in order to obtain their fulness of truth, must have close association with this economic life. The highest mission of education is to help us to realize the inner principles of the unity of all knowledge and all the activities of our social and spiritual being. Society in our early stage was held together by its economic co-operation when all its members felt in unison a natural interest in their right to live. Civilization could never have been started at all if such was not the case. And civilization will fall to pieces if it never again realizes the spirit of mutual help and the common sharing of benefits in the elemental necessities of life. The idea of such economic co-operation should be made the

basis of our University. It must not only instruct, but live; not only think, but produce.

Our ancient Tapovanās, or Forest schools which were our natural Universities, were not shut off from the daily life of the people. Masters and students gathered fruit and fuel and took their cattle out to graze, supporting themselves by the work of their own hands. Spiritual education was a part of the spiritual life itself, which comprehended all life. Our centre of culture should not only be the centre of the intellectual life of India, but the centre of her economic life also. It must co-operate with the villages round it, cultivate land, breed cattle, spin cloths, press oil from oil-seeds; it must produce all the necessities, devising the best means, using the best materials, and calling science to its aid. Its very existence should depend upon the success of its industrial activities carried out on the co-operative principle which will unite the teachers and students and villagers of the neighbourhood in a living and active bond of necessity. This will give us also a practical industrial training whose motive force is not the greed of profit.

Along with this, there should be some common sharing of life with the tillers of soil and the humble workers in the neighbouring villages; studying their crafts, inviting them to the feasts; joining them in works of co-operation for communal welfare; and in our intercourse we should be guided, not by moral maxims or the condescension

of social superiority, but by natural sympathy of life, for life and by the sheer necessity of love's sacrifice for its own sake. In such an atmosphere students would learn to understand that humanity is a divine harp of many strings, waiting for its one grand music. Those, who realize this unity, are made ready for the pilgrimage through the night of suffering and along the path of sacrifice, to the great meeting of man in the future, for which the call comes to us across the darkness.

Life, in such a centre, should be simple and clean. We should never believe that simplicity of life might make us unsuited to the requirements of the society of our time. It is the simplicity of the turning fork, which is needed all the more because of the intricacy of strings in the instruments. In the morning of our career our nature needs the pure and the perfect note of a spiritual ideal in order to fit us for the complications of our later years.

In other words, this institution should be a perpetual creation by the co-operative enthusiasm of teachers and students, growing with the growth of their soul, a world in itself, self-sustaining, independent, rich with ever renewing life, radiating life across space and time, attracting and maintaining round it a planetary system of dependent bodies. Its aim should lie in imparting life-breath to the complete man who is intellectual as well as economic, bound by social bonds, but aspiring towards spiritual freedom and final perfection.—*The Mysore Economic Journal*.

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THE PLACE OF CINEMA IN THE PRESENT SYSTEM OF EDUCATION.

BY BABU MAHADEO PRASAD VAISH, B.A.

IT goes without saying that the introduction of out-door excursions and tours are much more desirable in all quarters for their educational value, so much so that they are the leading factor in the Boy Scouts' movement and in geographical lessons, and yet on account of various difficulties of finance and arrangement, their progress has not been quite satisfactory. Hence it has led some ingenious minds of artistic taste to bring the outside world within the class-rooms at a much less cost. The mechanism used for such a purpose goes under the name of 'Cinematograph'. It shows the objects in their natural condition and though it cannot claim reality yet comes very near to it.

But there are certain conditions which must be fulfilled before an adequate advantage may be derived from it. First of all, one ought to be able to have a fairly clear knowledge of perspective, an ignorance of which would, otherwise, mean, in certain cases, a loss of much useful information. Secondly, the boys must be able to read out the maps and pictures quite well, *i. e.*, they should understand the significance of various marks, signs, colours and scales, etc., and these, if supplemented at intervals with films of dialogues and scenery, would make the whole performance a complete and sure success.

Having given the above conditions, the problem, then, is to see in what various ways it can lighten the school-master's work; for its practical utility will not be watched with little interest in educational quarters. It would not, therefore, be out of place to consider its

specific applications to the particular branches of the curriculum.

(a) *English*.—It is agreed on all hands that lessons in English Text are well impressed when accompanied by illustrations or dramatic action; therefore, stories such as "As you like it" and objects, *e. g.*, an ancient Greek chariot, a shield, and German guns or aeroplanes may be fully illustrated and dramatically represented, to great advantage, through the Cinema. Thus, while it is a fit substitute for both, it also adds much life and interest to the teaching. Besides, a fresh stock of English vocabulary may be picked up, by the way, by learning such words and phrases as may be used to denote new objects and scenes, for example, harbour, anchor, doure, cathedral, light-house and concert, etc.; and these may serve a useful purpose in translation exercises. Many films may afford much useful material for composition, especially for the story and descriptive essay-writing: thus "a voyage to London" will provide with the following objects for their fine description: a harbour, a ship, a pyramid, and the Suez Canal.

(b) *Mathematics*.—Only geometrical figures of solids, for instance, pyramids in Egypt, can be shown, and a clear idea of their exact height should be given with reference to the scale. If sea units, *i. e.*, fathoms, nautical miles or knots, are explained and duration of voyages—say a week from Bombay to Suez Canal—with the average speed of a ship given, calculation of the distances would give exercises in arithmetical work, and may subsequently be verified by measurement on the maps.

(c) *History*.—Battle plans and consequent horrors of wars as well as the persons of various chiefs and rulers like Akbar, Shah

Jehan, Vikramaditya and Asoka, with their coinage and courtiers may be fully characterized by means of a magic lantern. Important monuments and architectural beauty of Asoka's pillars at Allahabad and Benares, Qutab Minar and Jama Masjid at Delhi and the Taj at Agra may be brought home to the boys very easily and a lot of dull and unnecessary cramming may safely be avoided.

(d) *Geography*.—Lessons in Geography may be treated more scientifically and rationally with a particular charm and pleasure with the help of the Cinema than in the old humdrum memorizing fashion. "A voyage to London" would give a better idea of all the sea-ports and harbours, capes and gulfs at or through which the ship would touch or pass in sailing from Bombay to London without taxing the memory a great deal. All the natural phenomena peculiar to any locality may be illustrated in the best manner. The Amazon Valley, the Niagara Falls, the Delta of the Mississippi, Brazilian Forest, Tundras, Prairies, Coral Islands, human and animal life of Polar and Equatorial regions, if suitably intro-

duced, may form undying links in the student's chain of thought. Over and above, every peculiar characteristic of a definite place or country may be presented in the clearest possible mode. Lumbering in Canada, Coal mining in Bengal, Weaving-mills in Manchester, Tata Iron Works in Bombay, would prove the most delightful sources of much useful information. We see, therefore, that its utility in the geographical world is immeasurable.

(e) *Drawing*.—Exercises for object drawing from memory and with different perspective would be plentifully supplied and can always be had in abundance. It is needless to repeat here the long list of objects, already mentioned under "English."

In conclusion, though it may be urged that the first-hand observation through excursions or tours is the best means of practical acquaintance with objects, yet where it is not feasible, the Cinema comes the second best and stands to the teachers in good stead for its practical help. I hope, therefore, that it will not fail to receive a favourable attention in the proper quarters.—*Education, Allahabad.*

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CALCUTTA UNIVERSITY.

LORD LYTTON AND SIR ASUTOSH MOOKERJEE.

A 'T to-day's (4th April '23) meeting of the Senate of the Calcutta University a member asked Sir Asutosh Mookerjee, the retiring Vice-Chancellor, if the report that he had been offered the Vice-Chancellorship on certain conditions was true and, if so, why he refused it. The Vice-Chancellor in reply said, although these questions placed him in a difficult position, he could not decline to answer them. He had declined the offer to the Vice-Chancellorship made on certain terms and to enable the Senate to judge whether he had acted in the best interests of the University or not, he would place before them the correspondence on the subject. Sir Asutosh then read the letters which passed between Lord Lytton and himself.

GOVERNOR'S LETTER TO THE VICE-CHANCELLOR.

Towards the end of the last month, on March 25, the Governor wrote to Sir Asutosh stating that he was anxious to retain his services as Vice-Chancellor, because he felt that his powers and attainments were of great value to the University and the cause of higher education in Bengal. But if they were to be used in opposition to the Government in the belief that he was thus serving the University his continued occupation of the post would be impossible. His Excellency continued:—'You have seen our Bill. You have heard from me on more than one occasion that in framing it we are anxious to retain the largest measure of academic independence which can be secured for the University, which is bound to the Government in its origin and in its constitution and

which is at present in need of financial assistance. I have asked for your suggestions, and I should welcome your criticism, provided it is offered as a fellow-worker and not addressed to outside bodies. A continuance of the course you have followed during the last few months would entirely preclude my favouring your re-appointment. Hitherto you have given me no help. You have, on the contrary used every expedient to oppose us. Your criticisms have been destructive rather than constructive. You have misrepresented our objects and motives and instead of coming to me as your friend and Chancellor with helpful suggestions for the improvement of our Bill, you have inspired articles in the press to discredit the Government. You have appealed to Sir Michael Sadler, to the Government of India and the Government of Assam to oppose our Bill. I invite you to assure me that you will change your attitude of opposition for in this lies the only chance of securing public funds for the University without impairing its academic freedom. If you will do this, if you will work with us as a colleague and trust to your power of persuasion to get what you consider defects in our Bill amended, if you can give an assurance, that you will not work against the Government or seek the aid of other agencies to defeat our Bill, then I am prepared to seek the concurrence of my Minister to your re-appointment as Vice-Chancellor and I am confident that we can produce a Bill which will both secure the approval of the Legislative Council and be a lasting benefit to the University. If you cannot conscientiously do this you must make yourself free to oppose me by ceasing to be the Vice-Chancellor.'

REPLY OF SIR ASUTOSH MOOKERJEE.

Sir Asutosh Mookerjee replied on the 26th stating that he would speak without reserve

and hesitation as Lord Lytton had made most unjust and unmerited imputations on his conduct. He complained that before the views of the University on the Government's University Bill and the Secondary Education Bill could be communicated the Governor adopted an absolutely indefensible course. 'You forwarded', he said, 'the Bills to the Government of India with a view to obtaining its sanction to introduce them into the Legislative Council. I and my colleagues on the Senate made a desperate effort to convince you that as the Bills were open to grave objections they should not be adopted as Government measures before full and searching enquiry. Our appeals and protests were totally disregarded. You now make a grievance that I have used every expedient to oppose your Government to arrest the progress of the measure.' You complain that I have appealed to the Government of India and the Government of Assam. You will be surprised to hear that what I have done, has been perfectly constitutional. In your letter dated the 11th January 1923, you stated explicitly that I would be free to take what steps I pleased to discuss the Bill with the members of the Senate. In my reply, dated the 14th January 1923, I stated that in view of the importance of the questions raised I had decided to give an opportunity to every member of the Senate to discuss the provisions of the Bill. The Senate, it may not be known to you, included His Excellency the Governor of Assam, the Member of the Council of the Governor-General in charge of the Department of Education, the Minister for Education in Assam and the Director of Public Instruction in Assam. The papers were forwarded as confidential documents to each of these gentlemen. You also make a grievance

that I appealed to Sir Michael Sadler. Your Government, notwithstanding my advice and the advice of the Senate, unceremoniously rejected the recommendations made by the Commission over whose deliberations Sir Michael Sadler presided. If I have intimated this fact to Sir Michael Sadler I did it in the best interests of the University and of the country.

A LIBEL.

Again you do not hesitate to assert that I have inspired articles in the press to discredit your Government. This is a libel, and I challenge you to produce evidence in support of this unfounded allegation. You complain that my criticisms have been destructive rather than constructive. Yes, the criticisms have been destructive of the provisions of the Bill which appeared to me and to my colleagues on the Senate to be most objectionable, framed from a political and not an educational standpoint. You have never cared to invite the University to frame a constructive scheme for the benefit of your Government. I have on more than one occasion, offered to draw up a Bill with the assistance of my colleagues on the Senate and representatives of your Government, but I have received no response. I maintain that I have constantly offered you my help and advice which, for reasons best known to you alone, you have not accepted. You charge me with having misrepresented your objects and motives. I most emphatically repudiate this unfounded charge.

'NEVER TRIED TO PLEASE YOU.'

Sir Asutosh proceeded to deny that he was an applicant for the post of Vice-Chancellor, and said the Governor was apparently unacquainted with the traditions of the Vice-Chancellorship. He stated that Lord Minto,

Lord Hardinge and Lord Ronaldshay had all expressed appreciation of his independence and he had scrupulously adhered to the cherished traditions of his office. 'It has never entered my mind during the last two years,' he continued, 'that I was seriously expected to adapt myself to the wishes of your Government. Surely my attitude towards the policy adopted by your Government in the matter of University legislation has been quite familiar to you for some months past and you never before this ventured to convey the suggestion to me that my action as Vice-Chancellor has been unworthy of my office. I quite realise that I have not in the remotest tried to please you or your Minister. But I claim that I have acted throughout in the best interests of the University, notwithstanding formidable difficulties and obstacles and that I have uniformly tried to save your Government from the pursuit of a radically wrong course. I am not surprised that neither you nor your Minister can tolerate me. You assert that you want us to be men. You have one before you who can speak and act fearlessly according to his convictions and you are not able to stand the sight of him. It may

not be impossible for you to secure the services of a subservient Vice-Chancellor, prepared always to carry out the mandates of your Government and to act as a spy on the Senate. He may enjoy the confidence of your Government, but he will not certainly enjoy the confidence of the Senate and the public of Bengal. We shall watch with interest the performances of a Vice-Chancellor of this type, creating a new tradition for the office. I send you without hesitation the only answer which an honourable man can send, the answer which you and your advisers expect and desire. I decline the insulting offer you have made to me.'

Lord Lytton replied on the 27th stating that he had never forgotten the burden thrown upon Sir Asutosh by his great bereavement and by the dual nature of his work as a Judge and Vice-Chancellor and he would not forgive himself if he had carelessly or unnecessarily added to that burden. He only hoped that Sir Asutosh's recent ill-health was a passing defect and said he must look for a Vice-Chancellor who would deserve the respect of Sir Asutosh and the University.—*The Leader*.

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**PROCEEDINGS OF THE
ELEMENTARY MATHEMATICS
ASSOCIATION AND OF THE
MADRAS TEACHERS' GUILD**

26

(Continued).

Then, the Chairman called upon Mr. V. Thiruvengkatachariar, M.A., L.T., of the Saidapet Teachers' College, to read his paper on "A Criticism of the Sequence of Theorems in School Geometry."

SECTION I.

It is proposed in this paper to criticise the sequence of theorems as is obtaining in the schools of the present day. The revolt against teaching Geometry according to Euclid has not yet spent its energy; the foundations on which Euclid built his wonderful edifice have been seriously discussed as a result of which we have the non-Euclidean Geometries, though the reformers of High School geometry have satisfied themselves by effecting slight modifications here and there more to suit their convenience than to satisfy logic. But now geometers desire to effect reform in High School geometry approaching the ideal nearer than it has ever attained. This is evidenced from the Presidential Address of Dr. T. P. Nunn, a summary of which is published in the May issue of the "Mathematical Gazette" of last year. He gives out a plan which in this paper will be considered in the proper place. The author of the present paper has conceived of some such plan but on altogether different lines one year back; but not being sure of the plan he has contented himself by showing it to some two or three of his well-wishers.

In such a paper as this it is but necessary to refer to the treatise on "The Foundations of Geometry" by Hilbert. The axioms on which any geometry could be built are divided there into five groups, and they are:—

- (a) Axioms of connection which establish a relationship between points, straight lines and planes.

- (b) Axioms of order which define the idea expressed by the word "between."
(c) Axioms of parallels—of which everyone is aware—the main object of this paper.
(d) Axioms of congruence.
(e) Axiom of continuity or the Archimedean Axiom.

It is under the Congruence group that the concept of angles and other topics connected therewith will come. The definition of an angle will be taken up now and the congruence of triangles will be dealt with later on.

Hilbert's definition of an angle is as follows:—
"Let h and k be two half-lines lying in a plane α and emanating from a point O , so as to form a part of two different straight lines. The system so formed is called an angle." Then he defines adjacent angles and supplementary angles as two adjacent angles whose exterior sides are in a straight line. But this also defines indirectly a straight angle, though Dr. Coolidge defines explicitly a straight angle as one formed by two opposite half-lines. Subsequently a right angle is defined as being congruent to its supplement.

Some modern text-books on Geometry basing their definitions of an angle on Hilbert's give various incorrect definitions, a criticism of which will more fittingly belong to a discussion on angle concept. Now-a-days the definition of an angle based upon rotation is more universally accepted as satisfying all the needs of logic and psychology.

This definition at once suggests the unit of measurement, a condition not satisfied by the others, and which I consider a serious objection in incorporating Hilbert's definition in school text-books, though it may more fittingly be a basis for a philosophical dissertation. The reason for Hilbert not basing his definition of an angle on rotation is due to the fact that an idea of continuity is implied in rotation. It was his purpose to show that the five groups of axioms are mutually independent and compatible with each other; and it will not serve his purpose if any one of the axioms be made

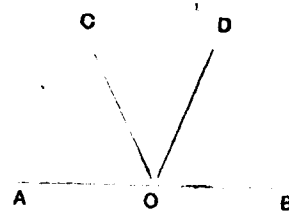
dependent upon another. There is nothing in the idea of continuity that prevents us from incorporating this definition in school text-books. A child is thoroughly conversant with the idea of continuity from his birth; there is continuity in his growth, in the life around him and, in short, continuity is the order of God's creation. As such, the rotation definition of an angle may, without the least objection, be introduced in school text-books. Having accepted this definition, it is easy to obtain by postulating or otherwise that a straight angle is half the angle of complete rotation and a right angle is half a straight angle and that all right angles are equal.

Dr. Hilbert has taken cudgels against Euclid for postulating that all right angles are equal. He proves that all right angles are equal in a manner, — I make bold to say, — which is not logical considering his postulates. To start with, he defines supplementary angles as those which when placed with a common vertex and a common side have the other two sides in a straight line. This means that all such pairs of angles, each of which is supplementary to the other, must be unique. All such pairs of angles which are supplementary must be equal. In other words all straight angles are equal.

Again let us consider his definition of a right angle. He postulates that a right angle is congruent to its supplement. I think that this statement is nothing more than an implication that a right angle is half a straight angle. Dr. Coolidge in his book on "Non-Euclidean Geometry" says in a foot-note: "Many modern text-books prove that all straight angles are equal, hence right angles are equal as halves of equal angles. This is not usually sound, for it is not clear by definition why a right angle is half a straight angle. Others observe the angle of a fixed and rotating line and appeal either to intuition or to a vague continuity axiom." So saying he gives a proof of the theorem that "two straight lines cannot be drawn perpendicular to the same straight line through a given point in it." In

the proof (*loc. cit.* page 36) it is assumed that a right angle is congruent to its supplement; and the proof leads us to the question whether the word 'congruent' is different from the word 'equal.' He has not expressed anything definitely on this point and I am not sure whether this difference between "congruence" and "equality" is correct when angles are concerned. Thus we see that there has been much beating about the bush regarding the proof of the above-mentioned theorem.

I am afraid I have taken a good deal of your time in reviving a controversy which is considered to be closed by such eminent geometers as Coolidge. This is only in connection with the group of theorems relating to angles at a point. If a straight line stands on another the sum of the adjacent angles is equal to two right angles." Recall the proof:—



Here it is postulated that a straight line OC can be drawn at right angles to AB, and it is presumed that $\angle AOC + \angle BOC = 2$ right angles. In the proof it is also postulated that the straight line OD lies in either of the two right angles. As such why should there be this business of addition and subtraction to confuse the minds of the boys? The whole is illogical and unconvincing. Unsatisfactory definitions of angles have led to a faulty proof. It is Carson and Smith alone who have omitted this absurd proof in their book and have taken this theorem as a necessary corollary to the definition of an angle. But here the conclusion is lacking in logic and lucidity. The converse is not proved here, which is a serious set-back in the whole system.

Lack of time and space forbids me to discuss the theorem that vertically opposite angles are

equal. The next group of theorems that I take up are those that have as their basis the parallel postulate, *i.e.*, the theorems which are as a consequence of the parallel postulate.

The present-day books on Geometry can be roughly divided into four schools:—

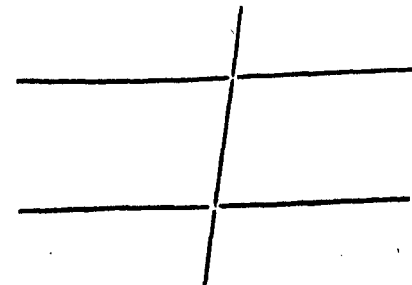
- (a) Potter's Type.
- (b) Godfrey and Siddons and Dobbs' Type.
- (c) Barnard and Child's Type.
- (d) Carson and Smith's Type.

Each of these schools have tried in their own way to make the theorems more presentable and clear to pupils than they were in the Euclidean order. To effect this, they have thrown overboard Euclid's parallel postulate and have invariably used an equivalent of this postulate, the Playfair's axiom.

In all these books, Playfair's axiom is of secondary importance, in that it is not used to prove the properties of parallels but is brought in only as a last resort to prove the converse of the theorem; so much so the student is not in a position to understand the importance of this postulate, nay, the importance of any postulate at all. The whole is a sort of hum-drum work, having no spirit in it.

(a) Potter has proved the properties of parallel st. lines by defining them as those which are of the same direction. The objection to this is that direction is not defined and as such the whole is untenable. This definition will greatly confuse the minds of the boys who learn in their geography classes that longitudinal lines which point to the same direction, *i.e.*, North, are not parallel but are intersecting. This definition further leads us to define an angle as the difference in the directions of two st. lines, which is untrue. Direction has no magnitude, and as such the difference in the directions of two straight lines cannot have any magnitude, whereas an angle has a magnitude.

(b) The Godfrey and Siddons and Dobbs' Type. How do they prove the theorem on the angle properties of parallel st. lines?



The principle of congruence is applied here to show that two infinite portions are congruent; and if the two st. lines meet on one side they also meet on the other, and subsequently it is shown that they cannot meet on either side.

The objections to this proof are as follows:—

(i) The congruence of infinite portions are brought in and we cannot dabble with infinities on the analogy of finite quantities; and the principle of superposition is itself to be questioned.

(ii) How are the parallel st. lines drawn? While drawing these there is at the back of the mind an idea of the angle property of the parallel st. lines. If it is argued that we can postulate the existence of such lines as do not meet however far they are produced, how to verify this to the beginners without using their properties? How shall we draw them? We cannot draw any two st. lines and ask the pupils to imagine that they are parallel, and then deduce the whole thing. The pupils must be able to see what are equal and then alone will the mind begin to work to give the proof required. This is based more upon the psychological bent of the pupil than upon his logical acumen.

(iii) Playfair's axiom is brought in to prove the converse. In this I presume what cannot be proved must be verified. Can we verify this axiom? To satisfactorily verify this we must utilise the properties of parallel st. lines. Thus the whole system is built by begging the question —utterly illogical and unsatisfactory.

(c) With regard to the third school:—The same criticism applies as regards the drawing of parallel st. lines and the use of Playfair's axiom. The angle property is proved by first showing that in a triangle the exterior angle is greater than the interior opposite angle. Then the properties of parallel st. lines are proved and lastly the angle sum property of a triangle is deduced.

There is a lot of redundancy in this; to effect a reform in geometry a system is brought into existence in which chaos reigns supreme. There is much circumlocution; and I felt that the beginner's mind was at a loss to understand why the exterior angle property should be proved first, when naturally one might expect the angle sum

property to be proved first and then as a corollary it ought to be deduced that the exterior angle of a triangle is greater than either of the interior opposite angles.

(d) *Carson and Smith*:—In this it is first proved that two st. lines perpendicular to the same st. line do not meet; then the general case is deduced. As a result of this method, the number of theorems become too many; and the whole becomes an intricate maze; as such this cannot be safely recommended for class use.

To satisfy all these criticisms and to effect a reform approaching more the ideal condition, Dr. T. P. Nunn has suggested a different axiom to be considered. He has taken up the postulate of John Wallis that "similar figures exist" as a better substitute for the Playfair's axiom. In his words the reasons for taking up this postulate are as follows: "That figures of very different sizes may yet have exactly the same shape is a fact borne in upon a child from his earliest hours....it requires no argument or persuasion to make him recognise the cat and the pin in his picture-book; at a later stage he accepts maps and plans as the most natural things in the world. Hence we must give similar figures a conspicuous space in the heuristic stage of geometry." For this he postulates the following:—

- (1) That a given figure can be exactly reproduced elsewhere.
- (2) That a given figure can be reproduced anywhere on any enlarged or diminished scale.

The first postulates the existence of congruent figures, and the second that the space is Euclidean.

"Armed with these axioms" let us follow the proofs.

Let us take two triangles ABC and $A'B'C'$ in which $\frac{AB}{AC} = \frac{A'B'}{A'C'}$ and $\hat{A} = \hat{A}'$. Then it is required to prove that $\hat{B} = \hat{B}'$, $\hat{C} = \hat{C}'$ and $\frac{B'C'}{BC}$

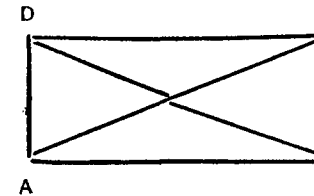
$= \frac{A'B'}{AB}$. Take any line $A''B'' = A'B'$. By the axiom there can be drawn on it a $\triangle A''B''C''$ similar to ABC . In that $\triangle A''B''C''$, $\hat{A}'' = \hat{A}' = \hat{A}$ and $\frac{A''C''}{A''O} = \frac{A''B''}{AB} = \frac{A'B'}{AB} = \frac{A'C'}{AC}$. Hence $A''C'' = A'C'$. It follows that the triangles $A''B''C''$ and ABC are congruent so that $\angle B'' = \angle B = \angle B'$, and so on. It cannot be denied that logical geometry built up in the way proposed would gain greatly in clearness and symmetry."

Do you consider this to be clear and symmetrical? The success (in the class-room) of the proof depends on the pupil's thorough knowledge of ratio and proportion, a subject which is generally taken late in the course. The number of relationships are many and the proof is very artificial. The introduction of $\triangle A''B''C''$ does not possess any natural grace.

Again though the pupils appreciate the principles of similarity yet when they come to the mathematics of it, there is a lot of confusion. They are able to say that all circles are similar, all spheres are similar, and so on. But when they come to scalene triangles and rectangles and quadrilaterals, the difficulty becomes more palpable; to a beginner's mind, the co-existence of proportionality of sides and equality of angles does not properly appeal. Psychologically this is built on a rickety basis.

As an alternative I suggest the introduction of Saccheri's postulate in a modified form, that "a rectangle exists". As a piece of practical work the truth of this is verified in the lower forms. A carpenter ignorant of our conceptions of angles and parallels understands this as clearly as we do. We are satisfying the needs of psychology as well as logic. The beginning is as follows:—

Let AB be a st. line and BC and AD equal $\perp$ s to AB .



We can prove by congruence that $AC = BD$.

Again we can prove that $\hat{C} = \hat{D}$ and we can prove nothing more. Let us assume that $\hat{C} = \hat{D} =$ a rt. angle and $CD = AB$ which the pupils are ready to grant.

As a corollary we obtain that the sum of the other two angles of a rt.-angled triangle is equal to a rt. angle. It requires only a step more to deduce that the sum of the angles of a triangle is two rt. angles. Hence it follows also the exterior angle is greater than the interior opposite angle in a triangle. And the proof of the theorems on parallels follows immediately.

The advantages of introducing this postulate are as follows:—

(a) The steps which lead to the angle sum property of the triangle are easy and simple, being merely the application of the principles of congruence.

(b) The nature of a postulate is brought out more forcibly to the pupils. All the school books are lacking in this.

(c) The bridge between the Euclidean and non-Euclidean geometries is engulfed, as may be seen by considering the cases when $\hat{C} = \hat{D} <$ a rt. angle and $\hat{C} = \hat{D} >$ a right angle. In the former case it can be easily shown that two parallels can be drawn to a given st. line through a given point, while in the latter case it can be shown that no parallel st. lines exist. (By this I do not mean that non-Euclidean geometry should be taught in High school classes).

AREAS.

As regards the theorems dealing with areas there is not much to be said. Greater correlation

can be effected between these theorems and the principles underlying those that are taught under sq. measure in Arithmetic. There will be greater simplicity in the work.

The first theorem will be "A parallelogram is equal to a rectangle on the same base and between the same parallels." The area of a parallelogram = base $\times$ altitude. Having arrived at this, it is easy to deduce as a corollary that the areas of parallelograms on the same or equal bases and between the same parallels are equal. Similarly with the triangles.

Then the problem of finding the locus of the vertex of a triangle on a given base and of given area will introduce some elements of co-ordinate geometry, which can be amplified under circles.

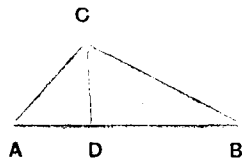
The method of expressing the area of a triangle as half the rectangle contained by the base and the altitude will be of very great advantage when we come to ratio and proportion. It will be necessary here to define the area of a rectangle when the sides are incommensurable. This difficulty could be easily got over by defining the product of two incommensurable numbers by the method of successive approximation.

[If we want to multiply $\sqrt{2} \times 3$, it can be shown to pupils that this product lies between 1.4×3 and 1.5×3 or 1.41×3 and 1.42×3 and so on. In it, it can be shown that the difference between the upper limit and the lower limit gets narrower and narrower and tends to zero. This is quite sufficient to make them understand what $\sqrt{2} \times 3$ means. This can be easily extended to $\sqrt{2} \times \sqrt{3}$ and also for $\frac{3}{\sqrt{2}}$ and $\frac{\sqrt{8}}{2}$ or $\frac{\sqrt{8}}{\sqrt{2}}$].

Now it is very easy to prove that (a) "The areas of triangles of equal altitudes are as their bases and conversely." (b) "If a st. line be drawn parallel to one side of a triangle, the other two sides are divided proportionally."

The foregoing theorem introduces similar triangles, in a very natural manner,

The theorem of Pythagoras can be taken after proving that the areas of similar triangles are as the squares on the corresponding sides.



Let ABC be a $\triangle$ right-angled at C. Draw CD $\perp$ to AB.

Now $\triangle ACD$ and $\triangle CBD$ are similar to $\triangle ABC$.

$$\therefore \frac{\triangle ACD}{AC^2} = \frac{\triangle CBD}{BC^2} = \frac{\triangle ABC}{AB^2}.$$

$$\therefore \frac{\triangle ACD + \triangle CBD}{AC^2 + BC^2} = \frac{\triangle ABC}{AB^2}.$$

$$\therefore AC^2 + BC^2 = AB^2.$$

Various attempts have been made by geometers to give simpler proofs of this than that given in Euclid, and Dobbs gives some of the methods in his book on "School Geometry". But these proofs are not, I think, simpler than that of Euclid; each step does not prepare us for the next step and the constructions are plainly speaking laborious.

I shall next take up the theorems on circles. Some of the theorems can be safely bought under congruence theorems as exercises, reducing the number of the theorems.

For example:—In equal (or the same) $\odot$ s equal chords subtend equal angles at the centre and so on.

Again symmetry can be introduced to prove some of the theorems.

"That the common chord of two intersecting circles is perpendicular to the line of centres" follows very elegantly from the symmetric properties of circles.

As a corollary it can be got that when two circles touch, the line of centres passes through the point of contact.

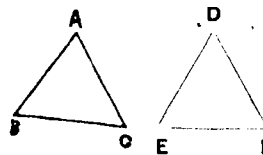
Symmetric properties of $\odot$ s help us a good deal in proving that two tangents can be drawn

to a circle from a point outside the circle and that they subtend equal angles at the centre and they are equally inclined to the line joining the point to the centre.

Finally the theorems on congruence will be considered.

All geometers have objected to the principle of super-positions which has been freely used by Euclid. Mr. Bertrand Russell asserts that "it strikes every intelligent child as a juggle." His criticisms can be summed up as follows:—

Let two triangles ABC and DEF be constructed from the same data in two different places.



The fact, that DEF when superposed over ABO exactly fits into the space occupied by ABO, does not prove that DEF (in its position) is congruent to $\triangle ABC$. It is on account of a consideration of this kind that the method by super-position ought to be given up. And in its place the congruence axioms are brought in by Dr. Hilbert.

They are (a) the postulate that a figure occurring anywhere can be repeated exactly anywhere else.

(b) That such elementary constructions as drawing a line through two given magnitudes can be carried out in only one way.

(c) If in two triangles $A'B' = AB$, $A'C' = AC$, and $\angle A' = \angle A$, then $\angle B' = \angle B$ and $\angle C' = \angle C$.

These three axioms are sufficient to prove all the congruence theorems.

The order in which it is proposed to take these is as follows:—

(a) Triangles are congruent if an angle of the one is equal to an angle of the other and the sides about the equal angles are equal, each to each.

(b) Isosceles triangle and the converse.

(c) Two triangles are congruent if three sides of the one are respectively equal to the three sides of the other.

Then the Saccheri's Postulate will be taken up.

(d) Congruence of two triangles when a side of the one is equal to a side of the other and any two angles of the one are respectively equal to the corresponding angles of the other.

(e) Congruence of right-angled triangles.

N.B.—The congruence group is taken last to secure unity.

1. If two adjacent angles are such that their sum is two right angles, then their exterior arms are in a st. line.

2. Vertically opposite angles are equal.

CONGRUENCE.

3. Two triangles are congruent if two sides of the one are respectively equal to two sides of the other, and their included angles are equal.

4. If two sides of a triangle are equal, the angles opposite to these are equal.

5. Converse of 4.

6. Two triangles are congruent if three sides of the one are respectively equal to three sides of the other.

7. Saccheri's Postulate.

8. Sum of the angles of a triangle is two right angles.

9. Two triangles are congruent if two angles and a side of the one are respectively equal to two angles and a corresponding side of the other.

10. Two right-angled triangles are congruent if a side and the hypotenuse of the one are respectively equal to a side and the hypotenuse of the other.

PARALLELS.

11. When a straight line cuts a pair of st. lines if (a) a pair of alternate angles are equal, (b) a pair of corresponding angles are equal, (c) a pair of interior angles on the same side of the transversal are together equal to two right angles, then the pair of straight lines are parallel.

12. Through a given point outside a given st. line one and only one st. line can be drawn parallel to the given st. line.

13. Converse of (11.)

14. One st. line and one only can be drawn from a point outside a given st. line perpendicular to it.

ANGLE-SUM PROPERTY OF POLYGONS.

15. The sum of the interior angles of any convex polygon of n sides is $(2n - 4)$ right angles.

16. If the sides of a convex polygon be produced in order then the sum of the exterior angles so formed is equal to four right angles.

INEQUALITIES.

17. In a triangle the greater side has the greater angle opposite to it.

18. Converse of (17).

19. The perpendicular is the shortest distance of a point from a given st. line outside it.

20. Any two sides of a triangle are together greater than the third side.

21. If from the ends of a side of a triangle two st. lines are drawn to a point within the triangle, these two lines are together less than the sum of the two sides of a triangle but contain a greater angle.

LOCI.

22. The locus of points equidistant from two given points is the perpendicular bisector of the line joining them.

23. The locus of points equidistant from two intersecting st. lines is the pair of bisectors of the angles enclosed by the st. lines.

CONCURRENCE.

24. The $\perp$ bisectors of the three sides of a triangle meet at a point.

25. The bisectors of the three angles of a triangle meet at a point.

26. The three perpendiculars from the vertices of a triangle meet in a point.

PARALLELOGRAMS AND INTERCEPTS BY PARALLEL ST. LINES.

27. The st. lines which join the ends of equal and parallel st. lines are themselves equal and parallel.

28. The opposite sides and angles of a parallelogram are equal and a diagonal bisects the parallelogram.

29. The diagonals of a parallelogram bisect each other.

30. If there are three or more parallel st. lines and the intercepts made by them on any st. line be equal, then the corresponding intercepts on any other st. line that cuts them are also equal.

31. The st. line joining the mid. points of two sides of a triangle is parallel to the third side and equal to half of it.

32. Converse of (31).

33. The three medians of a triangle meet in a point.

AREAS.

34. A parallelogram is equal to a rectangle on the same base and between the same parallels.

35. A triangle is half the parallelogram on the same base and of the same altitude.

36. Triangles on the same or equal bases and of equal altitudes are of equal area.

(Introduction of some elements of co-ordinate geometry).

37. The complements of parallelograms about a diagonal of a parallelogram are equal in area.

38. Areas of triangles of equal bases are to one another as their altitudes and *vice versa*.

39. Geometrical proofs of $(a + b)^2 = (a^2 + 2ab + b^2)$, $(a - b)(a + b) = (a^2 - b^2)$ and so on. A Chapter on Symmetry.

CIRCLES.

40. (a) A circle is symmetrical with regard to a diameter.

(b) The perpendicular bisector of a chord of a circle passes through the centre.

(c) The perpendicular from the centre of a circle to a chord bisects it.

(d) The join of the centre of a circle to the mid. pt. of a chord is perpendicular to a chord.

41. A st. line cannot meet a circle in more than two points.

42. In equal (or same) circles equal arcs subtend equal angles at the centre and conversely.

43. In equal (or same) circles equal chords subtend equal angles at the centre and conversely.

44. In equal (or same) circles equal chords cut off equal arcs and conversely.

45. Equal chords are equidistant from the centre and conversely.

[43 and 45 may be done as exercises under congruent theorems.]

ANGLES IN A CIRCLE.

46. The angle which an arc subtends at the centre of a circle is double the angle which it subtends at the circumference.

47. Angles in the same segment are equal.

48. Converse of (47).

49. An angle in a semicircle is a right angle, in the major segment an acute angle; in the minor segment an obtuse angle.

50. The opposite angles of a cyclic quadrilateral are supplementary.

51. Converse of (50).

TANGENTS.

52. A tangent at a point is perpendicular to the radius through the point.

53. A st. line $\perp$ to the tangent through the point of contact passes through the centre of the circle.

54. The line of centres of two circles is their axis of symmetry.

55. If two circles touch, their line of centres passes through the point of contact.

56. Two tangents can be drawn to a circle from a point outside it.

57. The two tangents are equal. They subtend equal angles at the centre and are equally inclined to the diameter through the point.

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SIMILAR TRIANGLES.

58. If a st. line be drawn parallel to a side of a triangle, the other two sides are divided proportionately.

59. Converse of (58).

60. If two triangles are equiangular, their corresponding sides are proportional.

61. Converse of (60).

62. If two triangles have an angle of the one equal to an angle of the other, and the sides about the equal angles proportional, the triangles are similar.

63. The bisectors of the vertical angle of a triangle divide the base externally and internally in the same ratio as the sides.

64. Converse of (63).

65. Areas of similar triangles are to one another as the squares on the corresponding sides.

66. Extension of the above to similar polygons.

67. If a perpendicular be drawn from the right angle of a right-angled triangle to the hypotenuse, it divides the triangle into two triangles similar to the original triangle.

68. Theorem of Pythagoras.

69. Converse of (68).

70. Extensions of the theorem of Pythagoras. Co-ordinate geometry.

A paragraph on the principles of trigonometry.

CIRCLES.

71. In equal (or the same) circles, the greater chord is nearer the centre than the one that is less than it.

72. The angle between a chord and the tangent at one of its ends is equal to the angle in the alternate segment.

73. If two chords AB and CD of a circle intersect in a point P, then the rect. AB.PB = CP.PD = the square on the tangent from P to the circle.

74. Converse of (73).

75. Mean proportion and some applications of it.

76. If P be a point outside a circle and if PAB be a secant and T a point on the circumference such that PA.PB = PT², then PT is a tangent to the circle.

MAXIMA AND MINIMA.

77. If M be a point in a st. line AB and P and Q are points on the same side of it, then MP + MQ is minimum if MP and MQ are equally inclined to AB.

78. If AB be a st. line and M a point on it, then AM.MB is maximum when M is the mid. point of AB.

79. Given two sides of a triangle, the area is greatest when the included angle is a right angle.

DISCUSSION.

In the course of the discussion that followed Prof. P. V. Seshu Ayyar thought that in elementary formal geometry too much emphasis on logical thoroughness was not desirable and that if the subject is first presented in the psychological and the historical order, at a later stage, the student would be able to appreciate the foundations. He further remarked: "No doubt Hilbert and others have exposed the hollowness of the so-called logical thoroughness of Euclidean geometry; but it was not possible to get over such hollowness at the beginning. The child learnt only in this way." Mr. S. Muthukrishnan, of the Teachers' College, doubted if the similarity postulate would appeal to children and said that after all the success of a postulate depended on the appeal it made.

CHAIRMAN'S SPEECH.

In winding up the proceedings, the Chairman remarked that these modern methods were suited not for children but only for expert mathematicians. When going into a class-room the most effective method was that of intuition. Postulates were ideas about which children had only a vague notion. It is only later that they could go back and realise these ideas. Euclid's axioms and postulates were meant only for adults. He finally pointed out that there was a great necessity to urge for a uniform sequence of theorems to be used in all schools and it may be practicable only if our own countrymen began to write text-books and it was very desirable for a competent body like the Teachers' Guild to arrange for the publication of suitable text-books.

EDUCATIONAL TOPICS.

Difficulties in the Path of Vocational Training.

Various are the difficulties of the adjustment of vocational training to national and communal needs. Some of these which crop up in Indian schools and schemes are thus enunciated by a writer in *The Mysore University Magazine* :—

How far can vocational subjects be introduced into the present curriculum? This is already over-crowded, and it would be inhuman to tax further the intellectual resources of pupils groaning already under the heavy burden of innumerable subjects. Perhaps a safe way out of the difficulty would be to replace some old subjects by vocational subjects.

To give practical shape to a scheme of the kind providing for vocational training for a specific period, say in the two highest classes of the high school, it appears necessary that drawing and drill as leading to the acquisition of manipulative skill, a necessary pre-requisite for vocational training, should be compulsory in the lower classes. For the two years during which regular instruction in vocational subjects is to be imparted, four periods out of 34 or 35 periods in a week should be devoted to a vocational subject, such as agriculture and gardening, carpentry, smithery, spinning and weaving, tailoring, sewing, music, domestic economy.

The financial aspect of the problem also has to be considered. Besides the financial help, however little, that the Government or the management can render to institutions where vocational subjects have been introduced, money might be obtained by treating the vocational subject department as a commercial concern. The capital might consist of shares to be purchased by the students. With the capital thus raised, work such as preparing ink, exercise-books, benches, stools, tables could be attempted. The articles thus turned

out by the class could be sold at a reasonable profit, either to the authorities of the school or to outsiders. At the end of the year, a balance-sheet should be prepared by the boys, a part of the profit being credited to the reserve-fund to meet the initial cost of implements, etc., and the balance being declared as dividends. This would be merely an extension in principle of the 'co-operative societies now being run by some schools for the supply of books and stationery to pupils.

Another question that often attains importance is what vocational subjects should be introduced in different localities, whether those suggested by local faculties or those likely to supply local wants.

Again, certain practical difficulties, however, have arisen in schools where carpentry has been attempted. The present writer is put in mind of a school where carpentry has been taught with little success. This disappointment is due partly to the fact that it is not an examination subject. It may be necessary to elevate the vocational subject to the rank either of an optional or of a compulsory non-examination subject, demanding from the students the production of a certificate signed by the Headmaster to certify that the student has done satisfactory work. And the products turned out should be sold so as to make the students feel interested in the concern.

Education and Sex.

The Report of the English Board of Education on the differentiation of curricula between the sexes in Secondary schools, which was recently published is thus commented upon in the last number of *The Journal of Education*.

The main difficulty of differentiation for sex lies not so much in the curriculum, or in the subjects which compose it, as in the assumptions which underlie it—what is its objective? What is secondary education? A definition once given by Mr. J. L. Paton may be offered. "Secondary education is a liberal education in that it is not specialized with a view to particular vocations. It aims at a broad culture which enables a man to

be at home in literature and history, acquaints him with the underlying laws and principles of the universe in which he moves, gives him sufficient knowledge on which to build higher education in its various branches, and trains him in body and spirit to take his part efficiently in some branch of public helpfulness."

This is as true for the girl as for the boy, if the 'branch of public helpfulness' includes preparation for home duties. Unless home is the background of girls' education and the very air it breathes; unless girls' education at least "harms not distinctive womanhood" it must be accounted a failure. Whether later on a girl is to marry—as more than nine-tenths do—or to enter a profession, or take up some wage-earning avocation, she still needs this background for the realization of her own personality; but she will not retain it, if, in the years when children take their ply, the school has ousted the home from her affections. The modern tendency to put the student on a higher level than the woman—bad for individual and community alike—is largely due to girls' secondary schools and to the mistresses to whose opinions girls are peculiarly susceptible. The committee has not faced this issue; nor, from its constitution, could that be expected. The views of married women on differentiation are indeed notable by their absence from the Report. Yet, without these, no findings can be convincing. Like boys, girls must be trained for life as well as for livelihood, and, in this respect, the committee merely skirts its problem.

In this connexion, the committee seems to have taken a very narrow interpretation of its terms of reference: "curriculum" has been interpreted as meaning that actually in use, which is for boys and girls almost yet identical. Yet even so, what are the underlying assumptions? Is school, as some private school-mistresses maintain, 'the reversed side of the dress of home—the side on which the stitches show'? Or, as most public school-mistresses practise, an institution in which marks,

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examinations, and any career but that afforded by home, are the objectives? The trend of the committee's opinion towards the latter view may be gathered from the mild answer it makes to its own query—How far should girls' education be influenced by home duties during school life and afterwards? "We do not think it desirable," the answer begins, "to attempt to divorce a girl's education from her home duties and her home opportunities." "On the other hand," continues the passage, "there is real danger now of her energies being exhausted by home duties." A note attached to one of the recommendations points in the same direction. "The committee desires to express a hope (it cannot in the nature of the case make a recommendation) that the parents of girls in secondary day-schools will not expect them to perform an excessive amount of domestic work in the house." The assumption here, surely, is that the curriculum and examinations taken by girls should not differ materially from those taken in boys' schools: if so, the disclaimer against girls being handicapped is right, and even inevitable.

The Ruskin College, Oxford.

Founded in 1899 by two American citizens, Mr. and Mrs. Vromans, the College stands not merely for working-class education, but avowedly for the Labour movement. The following, taken from "The Journal of Education" for February, gives an idea of the working of the College:—

At Ruskin College they give no time to the classics, but concentrate on economics, history, social and political, public administration, with special reference to local government, book-keeping, English literature, trade unionism, industrial law, the co-operative movement, and foreign languages. The second-year course goes more fully into some of these subjects, with the addition of psychology. It is a feature of the tuition that each member of the tutorial staff is responsible for

so many students and each student receives half an hour of individual teaching per week. Usually the time is spent on an essay written by the student; he is carefully advised as to his reading. The work is eminently practical and is carefully related to modern developments in various fields. Discussion is full, open, and much encouraged. When students in pre-war days attended the lectures of professors in the constituent colleges of Oxford University, it was usually found that when any modern interesting topic was approached, it was guided, with professional skill, into some safe back-water of vague generalities, and it was the opinion of Labour students that this was the result of a fixed purpose. Forty men receive their education in Ruskin College, and twenty women. The women are housed in Queen's Gardens, a handsome private house with an extensive and lovely garden; the hostel was acquired in 1919, and is already full. It was the opinion of one of the College officials that women often bring a more open mind to the questions of reform, are less in bondage to pre-conceived ideas, and less entangled under the compulsion of existing conditions. Their presence is distinctly beneficial, recognizing as it does, that the essential interests of the sexes are the same.

The first half of the morning, which begins somewhat late, 9-30, is devoted to lectures; the second half, the students are divided into small classes, each of which is taken by a tutor who is thus in close personal touch with the students. This plan has been adopted because many students, with an admirable practical education in life, have only an elementary school education as foundation for college work. After mid-day dinner, students are free until 5-30 P.M., the afternoon being usually spent in out-door amusements, as is the Oxford fashion. A three hour spell of work precedes supper, and some students put in another hour before bed.

Students come from many branches of industrialism, sent by the miners, potters, textile industries,

amalgamated engineers, &c. Since the College exists for the Labour movement, it is governed by representatives of the Trades Union Congress and General Federation of Trade Unions, the Co-operative Union, the Working Men's Club and Institute, and Organizations of Miners and Engineers. Twenty-four scholarships are available, but these are only for small amounts, and as the College fees are now £100 yearly for board, lodging and tuition, there is a good deal of complaint that the Trade Unions do not help enough. A penny levy would support two Ruskin Colleges with 100 students each. This apathy towards education is by no means limited to the higher education of the working classes. The Government subsidizes the College with a beggarly £600; one feels inclined to ask the Chancellor of the Exchequer to give another cipher at least. A term of eight weeks is enough for the older colleges; Ruskin's is eleven. It consents to take students for a term, and in addition conducts a large number of correspondence classes for men and women who need help at home at modest cost. Six hundred men have passed through the College, and more than 14,000 have had their correspondence work at home directed by the able and zealous staff of Ruskin. Working officials in their Unions and Co-operative Societies often need help and direction at their posts, and the correspondence classes afford it. The Principal, Mr. H. Sanderson Furniss, resides in the building; two sides of the College quadrangle are now built, and this arrangement will allow it to be extended easily in the future. The terms of admission are wide and easy. Some of the great national working-class bodies, such as the Trades Union Congress and the Co-operative Union, always maintain a student at Ruskin College, and these bodies are therefore entitled to have a member on the Governing Council. The staff are earnest believers in raising the leaving age of the elementary schools to sixteen; at present only a few education authorities have accepted the option Government permits, and retain the children to the age of fifteen.

The Teaching of Elementary Economics.

The following is an account of a round-table discussion on the teaching of elementary economics held recently under the auspices of the American Economic Association.

The points on which emphasis was laid at this Conference are the following:—

(1) The elementary economics course must be concrete and descriptive to give the student some familiarity with our economic institutions as well as with the terms and concepts of the science. Such a text-book as Laussig's *Principles*, Mr. H.L. Lutz does not recommend for the beginners.

(2) The student must be taught the method and character of economic reasoning.

(3) Mr. Collins suggests the conduction of lecture and recitation side by side. He insists on the text-books being changed every year and on the dealing of one subject every week both by lecture and recitation method.

(4) Mr. Ruggles says that some study of elementary economics should be introduced into the secondary schools and that the lecture method is found by experience to be defective with very large classes.

(5) Professor Day says that, from his own experience in Harvard University, the progress made by the second year college students is more satisfactory than that of the first year students. He advocates the case or problem method in the teaching of economics—a concrete case being made the basis of discussion of important economic factors.

The deliberations of this Round Table Conference will be interesting and suggestive to people connected with the Economics branch in the Indian Universities. Economics is one of the subjects whose study begins in the B.A. class in the Indian Universities. The study of this subject may be begun even earlier in the Intermediate course with

advantage. The method of teaching economics in India is generally the lecture method. Professor Ray's case or problem method may also be introduced in India.

Child-training through Kindergarten Methods.

The following is the critical appreciation of Mrs. W. J. Longley's book on the subject, published in the last number of *The Christian College Magazine*:—

The elementary school world owes a debt of gratitude to Mrs. Longley for bringing out a book dealing with child training through kindergarten methods, and setting forth in a simple way some of the principles of child psychology for those who are to teach the children of the masses who are to-morrow to be citizens of a great empire.

At present we are trying to reconstruct education for the new world after the war, and so it is convenient to regard the days in which we live as a transition period, during which time the education of the young child is gradually changing. Already there have been certain marked phases that, apparently insignificant in themselves, have marked stages of progress in thought. Perhaps the most significant and most important of these is the effect of the child-study movement on the formal and external side of kindergarten work, and Mrs. Longley is to be congratulated in enlightening the elementary school teachers on this important phase of education.

The child-study movement has even in a short time resulted in the slow but sure death of formalism. And we hope that the village school-master will try to learn as much as he can from this book, and kill that formalism which unfortunately exists still in his schools.

The book is an attempt to gather together certain recognized principles and to show, in the light of actual experience, how these may be applied to existing circumstances.

The day is coming when all teachers will seek to understand the true value of play, of spontaneous activity in all directions. Its importance is emphasized in nearly all educational writings of the day, as well in the senior as in the junior departments of the school, but we need a full and deep understanding of the saying that 'Man is man only when he plays.' It is easy to say that we believe it, but it needs strong faith, courage and intelligence to weave such belief into the warp of daily life at school. Mrs. Longley's book tells us in a very simple way how this may be done, and we therefore recommend it to all teachers of young children.

We are glad to know that arrangements are under way for the publication of translations of Mrs. Longley's book in the vernaculars of South India, thus greatly increasing the scope of its usefulness.

The Teaching of History in Schools.

History teaching in the higher forms of the school-course is coaching for some public examination—coaching being easy to the teacher and gratifying to the student. Teaching in the lower forms is not even so good as coaching; it is either routine or chaos. Reform, according to a writer in *The Mysore University Magazine* (Sep. 22) must begin from the bottom; and the teaching in the lower classes needs a system and an aim. He says:—

'It is clear, then, that the teacher's aim must be to get his pupils within the cordon of interest and to create in them an irrepressible liking for the subject. Let them look forward to the history-hour with unmixed delight. This is easier said than done. It means effort, zest, sincerity. It means a well-thought-out plan and thorough preparation. Personalities must grow and incidents must take place in the teacher's hands. It is the function of books to narrate; that of the teacher is to vivify and dramatize. How often does the story of Asoka fail to touch a responsive chord in

juvenile hearts! Ten to one it is rendered drab and dull. But the present writer knows that the Asokan story has material admirably suited to evoke the enthusiasm of the young. It will not do for the teacher to make a sudden dive into the depths of the past, and there to dwell on Asoka bookishly and artificially, if he has the welfare of his wards at heart. He should, on the other hand, take them along with him for a ramble through avenues of modern worthies of the Asokan type, and endow them with the necessary *apperceiving mass*. Further he has got to raise himself to the altitude of that monarch's piety or *dharma*, and feel as he felt so many centuries ago. His success is then assured. He will then be equal to the occasion and come off victorious.

We must now ask what historical "portions" should be prescribed for the young and how they should be handled in the class-room. The undercurrent of causes and consequences in history, its vast problems and constitutional evolutions, are manifestly above their heads. Even with regard to political history much care has to be taken in the selection of the suitable material. Children do not take kindly to lessons chokeful of dates and names. They want history with flesh and blood in it. They want heroes and heroic deeds. The matter-of-fact and jejune is invariably lost on them. For them is the storied past with its giant personalities striding across the historical stage. Give them stories, more stories and still more stories. That is the golden rule for the history-teacher of the young.

He would prefer modern stories to ancient ones and urge the greatest possible care in their selection.

'Again, there is a plethora of stories and a judicious selection is of the greatest importance. There are good stories and bad stories, moral, unmoral and immoral ones. They are found scattered broadcast in Indian history, and it is while teaching this subject that the worst sins are committed. Prithvi Raj's somewhat adventurous abduction, Padmini's daring trick, Mubammed bin Taghlak's insane excesses, Akbar's match-making activities, such stories are certainly unsuitable for the young,

not only because of their indifferent morality but also because of the almost irresistible inclination of teachers to overdo them. At best they can only afford a sort of amusement that is unhealthy and by no means true "enjoyment." Not a few are the instances which the present writer can cite of much harm caused by historical stories of little educational value and dubious moral appeal. The stories selected therefore must be stories of chivalry, heroism and patriotism.

Again on the subject of the medium of instruction we are told:—

'Before concluding, it would, perhaps, be well to add a word or two on a great subject and a big bother—the medium of instruction. That the vernaculars of India should attempt to set themselves against the English language is not merely unfortunate but also painful and petulant. If an all-India language is not mere moonsbine, the honour of aspiring to that exalted position falls to English alone. Even to-day when English cannot, as yet, be said to have made much headway in uniting linguistically the whole of this vast land, it is the only channel that affords a means of communication between one Indian and another living in a different part of the country. No reasonable person will stand in the way of encouraging the study of vernaculars, but few indeed will subscribe to the contention that their encouragement is to be effected by the discouragement of English. Such a view, to put it mildly, is perverse and detrimental. It is not easy to exaggerate the amount of benefit that the Indian vernaculars have received through their contact with English. Yet one finds rivalry between them instead of goodwill and respect. And not a few try to fan it into flame. The tendency is petty and parochial. The study of English must be vigorously pursued both for the good of the vernaculars and for the good of India.

The Dalton Plan of Education.*

This new type of school organisation attempts to get into sufficiently close touch with the indi-

* Taken from *The Journal of Education and School World*.

vidual pupils to secure adequate results and it is bound to be a good solution of the problem of individual work with large classes.

THE WORKING OF THE PLAN.

'In brief the plan is as follows: the staff draw up schemes of work for each class or form suitable for a year's course. In doing so many staff conferences should be held so that the different subjects may be properly correlated and so standardized that the claims of the various elements in the curriculum may be adequately recognized. The year's work is broken up into monthly assignments which are worked out in some detail and helpful notes given to enable pupils to attack each subject in the best way possible, and information is given as to text-books and books of reference to be consulted. The success or otherwise of the scheme will largely depend on the care and efficiency with which the assignments are prepared. Good assignments are vital elements in the plan. From year to year the assignments will undoubtedly improve as the result of experience gained of their adequacy and the time necessary for their fulfilment.

The pupil, after a careful study of these assignments, contracts to do the work involved, and with a full knowledge of what is before him he settles down to his month's work with a definite sense of his responsibility and a vastly increased interest in school affairs.

For more than half the school time, frequently the whole of the mornings, the pupil is free to work at his subjects in the order he prefers, always keeping in mind that within the month it is necessary for the completion of his assignment, that in each subject he must satisfy his teacher that the necessary work has been carried out. The clever child may, however, complete his assignment in less than a month and the dull backward child may take more than this time. Thus in the same class or form the backward child may complete only eight assignments whereas the super-normal child may complete as many as fifteen. Each child goes at his own natural pace and should he be absent from school for days or weeks he, on his return, goes on with his assignment from the point at which he left off and there is

therefore no gap in his knowledge as is frequently involved in a similar case under the old system.

Under the Dalton Plan the class-room becomes a laboratory and to emphasize this Miss Parkhurst prefers to call it the Dalton Laboratory Plan. It is a special feature of the new organization that the children doing history, for example, should carry on their work in the history laboratory; their geography in the geography laboratory, and so on. In the history laboratory will be found the text-books, books of reference, illustrations of historical interest of various kinds and, above all, the history specialist ready to answer questions and give what Froebel called "the necessary guidance," which he considered to be the true function of the teacher. The pupils can thus get solutions of difficulties they have encountered, or better still obtain indications of how they may find the solutions themselves. A child having decided that he will now give some time to geography goes quietly to the geography laboratory, where he finds the geography specialist, maps, globes, books of reference, and any material he requires for the study of this subject. This freedom of the child to pursue the studies in the way his interest suggests is a most valuable element in the Dalton Plan and is rarely abused. To waste time would be sheer folly as the requirements of the assignment in each subject are ever before him. The knowledge, moreover, that to get on with the subject in which he is most deeply interested can only be done when he has satisfied his teacher in the less favoured studies before passing on to the next assignment is a powerful incentive to give sufficient attention to his weak subjects.

It is absolutely necessary for the successful working out of the plan to secure adequate means of testing the progress made by the children. For this purpose each child has his own progress graph for each element of the assignment as estimated by the teacher. The teacher has also his own graph for showing the progress made and thus he can not only see at a glance how a particular pupil is getting on but also how he compares with others taking the same assignment. The method of testing varies from school to school and also

with the state of development reached. The younger are naturally more liable to over-estimate the progress made than the older children and the personal equation of the child is taken into consideration. The more intimate knowledge of the child acquired by the teacher under the Dalton Plan reduces considerably the necessity for frequent examinations on which time might otherwise be wasted. A high standard of efficiency in recording the progress of pupils will, however, always be required as any failure in this direction would invalidate the new method.

The number of lessons for oral discussions or definite class instruction which all members of the class or form are required to attend vary with the subject and the stage of progress. These meetings afford excellent opportunities for dealing with points in which difficulties have been frequently experienced and also in opening up new branches of a subject and emphasizing any important principles involved. The subjects of the curriculum which are not Daltonized also give occasions for the class to meet as a class or in larger groups.

THE POSITION OF THE TEACHER UNDER THE DALTON PLAN.

The most important change, especially in elementary schools, is that the teacher gives practically the whole of his time to the subjects which he is specially qualified to teach. This not only is far more interesting for the teacher, but it also enables him to concentrate his reading and to study the bearing of his particular subject on other related subjects in the curriculum. The fact, moreover, that the assignments for which he is mainly responsible represent a definite whole, and that there need therefore be no overlapping or want of continuity such as that which so frequently arose under the old system, is a gain the extent of which it would be difficult to over-estimate.

The attitude of the teacher to the pupil is completely changed. His lecturing is reduced to a minimum and there is far less definite teaching. The children do the work and simply come to him for assistance and advice. The teacher no longer pursues the child; on the contrary the child

Reviews and Notices.

PRACTICAL CHEMISTRY, BY LYMAN C. NEWELL, PH. D. (D. C. HEATH & Co., 39-41, PARKER STREET, KINGSWAY, W.C. 2. LONDON). Price 6s.

This is a text-book intended to meet the requirements of the first year students. It is styled "Practical Chemistry" because it is practical in several ways. The facts and principles are illustrated by an appropriate application to daily life. The use of carbon dioxide in fire extinguishers and beverages, of chlorine in bleaching industry, of oxygen in pulmotors and rescue apparatus, of hydrogen in welding processes, and purification of water are only a few instances out of many described in the book.

The arrangement of the topics deserves special mention. The study of carbon and some of its compounds, *e.g.*, fuels, illuminants, food products, etc., with which every one ought to be familiar is begun early in Chapter III. At the end of each chapter are also placed exercises and problems. They are intended to serve as test questions and can be used to drill the students in fundamental principles of chemistry.

The author has not overlooked the importance of a historical development which at every necessary place finds adequate and accurate treatment. The figures, too, used to illustrate the manufacturing details of some processes really "tell a story which is more complete than verbal description."

More than all these, the style is very clear with 'short sentences, brief paragraphs, explanatory examples and instructive topical headings.' Such topics as symbols, formulæ, equations, etc., which are difficult for the beginners have been wonderfully made clear. But it is doubtful if anything is gained by substituting the term 'chemical conduct' for the more familiar 'chemical properties.'

The get-up of the book is attractively neat.

now pursues the teacher. This change of relationship results in a much healthier attitude of the pupil to the teacher, to whom he goes as a friend to ask for assistance. This more intimate acquaintance on friendly terms is of great value and is fully recognized by teachers who have had experience in working under both systems.

In the early days of the introduction of the Plan life certainly becomes more strenuous for the teacher. The preparation of the assignments, if they are to be really effective, make serious demands upon him. He has the satisfaction, however, of knowing that the more energy he expends in making them thoroughly efficient the less expenditure will be needed in the work of preparation of future assignments.

One of the advantages is the greatly improved sense of comradeship with his pupils so that when they become genuinely interested in their work there will be no difficulties in the matter of discipline and entries in the punishment book will be very rare occurrences.

The subnormal child has great advantages under the Plan, because he can work at his own pace and the supernormal child can travel at his own rate.

The chief advantages of the Plan are:—

- (1) The natural cultivation of the will-to-learn.
- (2) An increased interest in school life due to the children taking a more active and intelligent part in their own education.
- (3) The development of a greater sense of responsibility in consequence of the children's possession of freedom to work along lines determined by themselves.
- (4) The more harmonious and intimate relations between teacher and pupil and the disappearance of any necessity for the employment of disciplinary methods.
- (5) The special opportunities offered to children of widely different types of mental ability.
- (6) The social effect of children organizing their own work, forming sound judgments, cultivating resourcefulness, and co-operating with others as a preparation for after-school activities.
- (7) The solution of the problem of the child absent from school for a period.

ELEMENTARY ORGANIC CHEMISTRY, BY W. H. BARRETT, M.A. (CLARENDON PRESS, OXFORD, 1922). Price 4s. 6d.

The book has been specially prepared by the author for candidates appearing for the Scholarship Examinations at the Universities in England. It is elementary and is written primarily for use in schools where organic chemistry is taught for beginners. Unfortunately in this Presidency, organic chemistry is not taught in schools and even in colleges, it is taught only for B. A. students whose main subject is chemistry. To such students, the book is too elementary.

But the book will be found very useful to those who wish to get an elementary knowledge of the subject in a short time. The experiments are such that each can be carried out in a short period of one to two hours. The arrangement of the topics will appeal to youngsters. A chapter is devoted to organic analysis, qualitative and quantitative. There are 11 small chapters on aliphatic saturated hydro-carbons, 3 on unsaturated hydro-carbons, 9 on aromatic compounds, and one on elementary stereo-chemistry. The book ends with a short description of the general methods of synthesis and analysis and it covers only 252 pages.

The get-up of the book is particularly neat and attractive.

SRI RAMAVANAM IN TAMIL, BY SOW. R. K. RANGA-NAYAKI. SECOND EDITION. F'cap 8 vo. 120 pages. Price 8 as.

We welcome this addition to the numerous editions of the great epic already in the field, as such books cannot be too many in view of the perennial source of inspiration the story of Rama has been to countless generations of Hindus. The author, scarcely 13 years old, is the daughter of the well-known Sanskrit scholar and Pandit R. V. Krishnamachariar, of the Govt. Arts College, Kumbakonam, and she has with marked success and in easy and flowing language, been able to condense the story, teeming with interesting episodes, in the short space of 120 pages without in any way breaking the continuity of the story. The book is an example of how home influence and environment is of paramount importance in the bringing-up of young boys and girls during the most impressionable period of their lives; and the girl author gives unmistakable proofs of the training she has received in her orthodox home under her cultured parents. The author's work is yet another instance to disprove the theory that our Indian sisters are incapable of undertaking literary work. Given suitable opportunities and proper education our women are capable of becoming the equals of the best women of other nations in literary output. Lastly we would add that the education of our sisters should be on such lines as those in which our author has been brought-up, turning for example and guidance to our Puranas and Itihasas for invaluable traditions and ideals imbedded therein. We strongly recommend the book for use by pupils in our Elementary Schools as it has also been approved by the Text Book Committee as a suitable text-book for class use. We await further publications from the pen of this gifted author. Copies of the book can be had of the Manager, Munitraya Mandiram, Kumbakonam.

RUDIMENTS OF ALGEBRA

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The Educational Review.

All educational opinion in India will be strongly against the attitude assumed by Lord Lytton and Sir Asutosh Mookerjee. Lord Lytton against our distinguished countryman responsible for all the progress of the University of Calcutta in recent years, Sir Asutosh Mookerjee. If Lord Lytton's Government committed the folly of encouraging the detractors of the Calcutta University and wanted to foist on the University reactionary legislation in the name of reform, it is no wonder that Sir Asutosh offered strenuous opposition as the devoted Vice-Chancellor of the University. It was very unwise—to put the matter mildly—of Lord Lytton to have written an insulting letter to Sir Asutosh, offering to nominate him as Vice-Chancellor for a further period if he gave up his opposition to the Government in matters relating to the University and co-operated in getting through the Legislature certain bills of 'reform' on which he and his Minister had set their heart. Lord Lytton apparently forgets that Sir Asutosh is there as Vice-Chancellor, not for making himself agreeable either to the Minister or to the Governor, but for serving the best interests of the University and advancing the cause of higher education in Bengal and in India generally. Sir Asutosh gave the only reply possible in the circumstances; he declined the offer in a letter which will rank as one of the best documents enshrining manly independence. We wish the country had more sons of the type of

Sir Asutosh ready to teach bureaucrats of the type of Lord Lytton that they should not dare address language of that type to men of distinction labouring for the advancement of their country without any fear of official frowns, or any hope of official favour. We wonder if in England, any official authority could have written in such language to the Vice-Chancellor of Oxford or Cambridge—it is no wonder that there is such a lot of discontent in this country with the system of Government which would render a person of the attainments, character and eminence of Sir Asutosh liable to be treated like this by Governors whose only distinction is their birth. It was a remark very offensive to the press in India which Lord Lytton made when he said that the articles in favour of the Calcutta University and against his Government were inspired by Sir Asutosh. We may mention for His Excellency's benefit that he is labouring under a mistaken impression when he thinks so and the Editors and Journalists are not the creatures of Sir Asutosh and their condemnation of the recent activities of his Educational Minister in connection with the Calcutta University is based entirely on a dispassionate examination of the merits of the question. The deposition of Sir Asutosh from the Vice-Chancellorship is nothing short of a public scandal and educationists must seriously consider the steps that may be taken usefully to prevent such a thing happening again anywhere in India. We are afraid Lord Lytton has not done any service either to the

Calcutta University or to the cause of education by nominating, of all people, Babu Bhupendranath Basu as Vice-Chancellor in place of Sir Asutosh. At best a successful solicitor and a cautious 'moderate' politician very agreeable to the powers that be, Babu Bhupendranath Basu has hardly any qualifications for such a high educational office. Looking at such a poor substitute, people may be pardoned if they are tempted to exclaim in the wake of Hamlet, "look on this picture and on this."

The way in which Sir Asutosh Mookerjee has been treated by Lord Lytton and one or two 'incidents which have happened recently in matters relating to Indian Universities have made thoughtful men wonder whether our Universities should continue to be at the mercy of the Government and the Universities as they are at present. The Ministry in Madras succeeded the other day in successfully flouting the wishes of the Senate of the Madras University in a matter relating to its own reconstitution and passed a measure to which it was absolutely opposed. Dependence on Legislative Councils for annual grants, with its dangers of fluctuations and sudden reductions, as has been happening in connection with the newly-constituted Universities of Dacca and Lucknow is another source of danger. There have also been tendencies in the Councils to tinker too often with the constitution of our Universities to suit the passing fancies of Governments and

Ministers and what is worse, attempts to interfere with the internal arrangements and even the academic details of University life. It is a question seriously to be considered, whether establishment by Royal Charter is after all not a better thing for our Universities. It would save them from humiliations of the kind referred to and also from sharing in the changes forced by quick legislative transformations regulated by every passing gust of public opinion. We throw out the suggestion for the consideration of our readers.

It is well-known on what principles the Ministry in Madras is likely to choose a Vice-Chancellor for the newly-reconstituted

University of Madras. Efficiency and merit are not likely to be considerations with it — communal representation and subserviency to the dictates of the leaders of the 'Justice' party are likely to be the grounds on which the appointment is likely to be made. We are not in the secrets of the Madras Ministry, but a number of names suggest themselves to us. Among Europeans — and we see no reason why they should be banned, especially if they have worked for the educational advancement of Southern India — there are Sir Mark Hunter, Mr. Arthur Mayhew and the Rev. Macphail. The first has just retired from the Directorship of Public Instruction in Burma and, besides his intimate acquaintance with affairs relating to the Madras University, he has had the advan-

tage of organising the new University in Rangoon. Mr. Mayhew is a very able and experienced educationist who has had occasion to make a special study of University problems in the Central Provinces. The Rev. Macphail is one of the ablest educationists we have had and it should be possible to check some of his anti-Indian proclivities as the constitution will be a popular one. A rumour has been going the rounds that Mr. Francis Dewsbury, the present Registrar of the University of Madras, is likely to be favoured for the place. While we have nothing but praise for his abilities as Registrar, we should plead for the appointment of one whose academic standing will be such as to command the respect of members of the University. Sir P. S. Sivasawmi Iyer and Mr. C. R. Reddy are two Indian names which will suggest themselves to many and it is likely that they can even be induced to accept the appointment without a regular salary, but the former will be looked upon by the Ministry as being guilty of the grave crime of being a Brahmin, while the latter will probably be thought to be not sufficiently docile for the purposes of the Ministry. There are a number of able educationists too, but they unfortunately belong to the caste which acts as a red rag to a bull to the Ministry and we therefore refrain from mentioning them. If the Ministry of Madras is capable of rising beyond communal considerations and looking outside the Presidency of Madras for a capable Vice-Chancellor, we should suggest the name

of Dr. C. V. Raman, M. A., D. Sc., Palit Professor of Physics at the Calcutta University, one of the most distinguished graduates of the Madras University, who has already acquired a high reputation for himself in the world of Science and has considerable experience of University affairs in India. We could have suggested the name of one of the Ministers themselves, the Hon. Raja Ramarayaningar of Panagal, who will be better employed as Vice-Chancellor of the University, than on his present job of laying irreverent hands on the religious endowments of the Presidency, but being a good Telugu student, he had better be reserved for the Andhra University, though it is showing no sign of materialising in the near future.

Readers of Newman will appreciate the need for choosing a fine site for a University and for beautifying the surroundings in which the young are to be educated. That they should carry to their homes, the loveliest impressions possible, after their educational career is over, ought to be the aim of all educational organisation. We are pleased to learn that the authorities of the Government of His Exalted Highness the Nizam of Hyderabad are not to spare any effort in giving the most beautiful habitation possible for the Osmania University, an account of whose inception and work appeared in a recent number of this *Review*. A sum of one crore of rupees, spread over ten years, has just been

sanctioned for the purpose of providing the University with buildings which are to be built on a fine, elevated site, outside the city dominating the surroundings. Prof. Patrick Geddes, the well-known town-planner, has been engaged by the State to advise it on the planning of the buildings which, it is understood, will be in the Indo-Saracenic style, appropriately with the surroundings and the spirit of a Muhammadan State. When completed, the buildings of the Osmania University will probably be the most magnificent in India and we hope they will enshrine in the fulness of time a great seat of learning of which the State and all India may be proud.

That the politician is often a source of disturbance in University affairs is illustrated by certain recent happenings in connection with the University of Allahabad. Pandit Iqbal Narain Gurtu, M. L. C., led a crusade against the administration of the Vice-Chancellor, Sir C. F. de la Fosse, and asked for a Committee of Enquiry at the very first meeting of the University Court. A Committee was appointed which after a very elaborate investigation exonerated Sir C. F. de la Fosse from all blame in the matter. Sir C. F. de la Fosse had also to go to the Law-courts to vindicate himself from some of the allegations said to have been made by this member of the Legislative Council, who however apologised in the Court, leading to the withdrawal of the legal proceedings. May not educationists be allowed to go

about their work in peace, and Universities be safe-guarded from such a predicament?

In view of the wide-spread talk we are having in various parts of India about the introduction of Vocational Education into our schools, the following description of Vocational Education in Sweden will be found interesting—probably Sweden is the country where Vocational Education is best organised in Europe:—

Vocational and technical education is well developed in Sweden, especially in Stockholm, where there are a number of full-time and part-time schools for boys and girls who have already entered an employment. Some form of further education, either technical or general, is compulsory on all young people who have left the elementary schools at the age of 12 or 13 under the terms of the Swedish Education Act of 1918.

The higher elementary schools give full-time instruction of a general character. The continuation schools provide part-time instruction, mostly of a vocational character. The workshop schools provide vocational instruction for young persons who wish to enter a trade but cannot find employment in which they would receive the necessary training. Apprenticeship schools also give part-time instruction; they are intended for young persons already working for an employer. The trade-schools have a more elastic organisation, especially as regards hours, etc. Technical instruction is given on various subjects, such as the metal industry, upholstery and allied trades, electricity and engineering, the clothing industry, food industries, the printing industry, goldsmiths' work and other crafts, building, commerce, domestic service and occupations such as that of hair-dresser, public baths attendant, etc. There

are also commercial and domestic training schools in which the course only lasts one year. Attendance at higher elementary and apprenticeship and continuation schools is compulsory, at workshop and trade-schools voluntary.

The most valuable feature of this organisation is the circumstance that it is supported not only by the employers but also by the workers. The schools give facilities for watching over young persons at a critical period of their life when they have particular need of encouragement and support. The employers have realised the utility of workshop-schools which give a solid grounding in technical subjects and they are following the development of these schools with great interest.

The provision of adequate facilities for Indian girl students pursuing their education in London has been a matter of serious importance to which sufficient attention has not yet been paid. We are glad to find that the International Service of the British Y. M. C. A. have started an Indian Annexe for the special benefit of Indian girls. A Sub-Committee for India and the Far East has also been formed for purposes of hospitality with Mrs. R. K. Mitter as Chairman, Mrs. Palat and Mrs. Sathianadhan and others as members of the Committee and the Hon. Emily Kinnaid as Secretary. The Committee is anxious to obtain co-operation in India in various matters:—

(a) In advising that no women students, nurses, etc., should come to England without sufficient

money, not only for their course of training but for holidays and other emergencies; many find themselves in difficulties which could be avoided.

(b) In directing students to make enquiries of the Government Student Committees in India as to the best School or College to study at in order to fit them for the object of their stay in England. Many have lost time and not gained sufficient advantage of their stay in England by not doing this; they have been disappointed when they cannot be admitted to certain Colleges through want of application beforehand. Such Committees exist in Ajmere, Allahabad, Bombay, Calcutta, Dacca, Delhi, Gauhati, Assam, Lahore, Madras, Nagpur and Patna.

(c) In strongly urging that intending students, visitors, nurses, etc., should make arrangements for accommodation before leaving India.

(d) In making known that if due notice is given a room will be kept, at a charge of from £ 2—5, per week, according to size of room, and the intending residents can be met at the station.

(e) In spreading the information that there are no funds for the use of Indians in England, therefore when girls come without Government scholarships they should be careful to have sufficient money to carry them through the year or years of study.

Girl-students have greater need for the help of centres of this kind than men-students and we hope that Indian girl-students going to England will hereafter feel assured of a place where they will have a cordial welcome on arrival in England.

Among recent interesting educational reports issued in Eng-

The Sexes in Secondary Schools. land is the one on *Differentiation of curricula between the sexes in Secondary Schools.* The report is in re-

sponse to a requisition of the Board of Education to a Committee to consider 'whether greater differentiation is desirable in the curriculum for boys and girls respectively in Secondary Schools.' The Committee complain of the overcrowding of the curriculum with subjects operating as a serious danger, more on girls than on boys, and plead for the lightening of the courses and home-work so as to give ample facilities to girls for unhampered individual development. Another useful sugges-

tion made by the Committee is that "a more prominent and established place in the ordinary curricula should be assigned to aesthetic subjects, such as music and art, and that the new group should be given a first rank position in the first school examination." It is a subject worth studying in relation to Indian conditions where there has not been sufficient differentiation yet between the sexes in the curricula of Secondary Schools. We wish Government appointed a Committee to report on the matter.

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UNIVERSITY OF DELHI. FIRST CONVOCATION, 1923.

The First Convocation of the University for the conferment of Honorary Degrees was held in the Legislative Assembly Hall, Delhi, on Monday, the 26th March 1923, at 4-30 P.M. H. E. The Viceroy, Lord Reading, as the Chancellor presided.

H. E. THE CHANCELLOR'S ADDRESS.

THIS is the first Convocation of the Delhi University; and the Governor-General, as the Statutory Chancellor of the University and President of the Court, presides for the first time at this function. I am glad that it has fallen to my lot to attend in an official capacity this inaugural Convocation of a University for whose future we all hold a high measure of hope and expectation. Before I pass to other matters, I wish to pay a tribute to those whose efforts, I know, you have in mind to-day, to those whose care and labour have made it possible to hold this Convoca-

tion. First I must congratulate the Hon'ble Sir Muhammad Shafi, who, as Member of the Governor-General's Council in charge of the Department of Education, launched the Delhi University Bill in the Legislature, the fifth successful measure of this nature while he was in charge of this portfolio, guided it through the difficulties of its passage and saw it safely anchored in the harbour of the statute book at last as Act VIII of 1922, an Act to establish and incorporate a Unitary, Teaching and Residential University at Delhi. I need hardly say that a University which owes its legal existence to his efforts, cordially welcomes him as one of its officers. The power to create having been obtained, it next became necessary to construct the machinery and set it working. This important duty has been discharged with the greatest energy and resource by the Vice-Chancellor, Dr. Gour, and the machine stands to-day fully equipped for working in a state of high efficiency, with the engines oiled and throbbing to perform their functions. I

congratulate him and all those who helped him in this important task.

Before I leave the subject I wish to add that though he is no longer with us, we have not forgotten the labours of Sir Henry Sharp in connection with the University Bill, the provisions by which we are governed and are to govern as a University body owe much in their framing to his great experience and scrupulous care, and the kind reception which the Legislature gave to the Bill was, to no small extent, due to the fervent advocacy and the technical knowledge he brought to bear.

When the decision was made to transfer the headquarters of the Governor-General and the Government of India from Calcutta to Delhi the establishment of a University at the Imperial Capital formed an integral portion of the scheme, and I think rightly, for in my opinion it is impossible to conceive of this Imperial Capital city of India without the necessary adornment and adjunct of a University. It would be difficult to imagine a Governor-General, a member in charge of the portfolio of Education and the Education Department of the Government of India exercising their ultimate responsibility for the moral and intellectual progress of the vast population of India in complete isolation from any visible and practical expression of the highest influence for intellectual and moral culture. Quite apart from the special aspects of the case connected with the Imperial Capital, the Governor-General and the Government of India, there were other reasons of general cogency warranting the establishment of a University at this centre. In the North-West portion of India we had three Provinces with a population numbering more than thirty millions and with only one University to serve them. It was apparent that the responsible

authorities of the University of the Punjab were faced with an almost insoluble problem in extending the blessings of higher education in an area and amid a population of this magnitude. Their special difficulties, it was anticipated, would in no small measure be lightened and overcome by the scheme for the establishment of a University at Delhi, in the South-Eastern portion of this tract. In Delhi also four colleges were already in existence. There was, and still is, reason to hope, though difficulties of finance may cause delay in fulfilment, that many institutions most valuable to Delhi as a centre of learning, research and culture would spring up in the New Capital. I refer to institutions such as Museums, Libraries, Central Research Institutes and the like. Already in the New Capital area Sir Aurel Stein's collection provides material to study the history and civilisation of a dynasty which but for his intrepid spirit of travel and discovery would have remained a sealed book to the student. No less inspiring are the older associations which surround us.

In the vestiges of former kingdoms and empires we see at Delhi on all sides, there is priceless material for those who wish to learn of the past, of its art, its history, its literature, and its civilization. If environment has, indeed, its alleged influence, the Delhi University should produce scholars, for around it are abundant signs of the scholarships of past ages, and our students will walk in the cloisters where the feet of other scholars in other centuries have trod. History is there for the reading on the face of the country. From Kila Rai Pithora, which holds the visible remains of the old Hindu Kingdoms, and from the Asoka Pillars, a chain of monuments of the successive Muhammadan dynasties leads us to the beginnings

of British Rule. The libraries of Humayun and Dara Shikoh still exist to remind us that literature was the pastime and pleasure of Emperors and of their sons. The tomb of the Chisti Saint at Nizam-ud-Din Aulia marks the honour which the past paid to great students of divinity and religious teachers. Nor is science unrepresented. In the centre of our new capital the great gnomon and the periphery of Jai Singh's Observatory rears its fantastic shape and records the progress attained by him in observing the movements of the planetary bodies in the hemispheres nearly 300 years ago.

We may also hope for much healthy stimulus at Delhi from communications with learned men of other countries in the future. There is scarcely a traveller of distinction in the world on a visit to India who omits to make a sojourn at Delhi. It is here they hope to study the evolutions of the past and to examine the nerve centre of a new and changing India. I look forward to the day when they will find in our University a peaceful and congenial atmosphere of knowledge and friendly help that will enable them to progress with their particular subject of study, and I know how much we may expect to gain from communion with them. I wish now to sound a note more personal to myself.

From the shelves of my library a number of volumes look down on me styled "Convocation Addresses." They preserve for me and for my successors the history of a long connection of Governors-General with the Calcutta University. I welcome, and I know that my successors will welcome, the continuation of the opportunity which each succeeding Convocation of our new University here in the New Capital will give to appraise moral and intellectual development in India. The

political expansion, the administrative development, the material well-being and progress of India are the daily concern of the Governor-General. His time is engaged in dealing with them. He has frequent occasions of reviewing the achievement and of speaking, or making pronouncements, on these subjects. Moral and intellectual progress, however, is more subtle and is less insistent as part of his common round and daily task, but it is well to pause and think as the Governor-General will and must, where India is tending in the moral and intellectual spheres, for without progress in this direction his efforts for the increasing material prosperity of the people of India and their more complete self-expression in the government of the country must largely fail. By statute, I as Governor-General, am the head of this University; but by virtue of the honorary degree which you have conferred on me to-day, I am now in a more intimate and permanent way connected with this University. In the latter capacity I desire to express a hope. We shall welcome Knowledge with open arms when she comes to our portals; we shall lead her in and invite her to make her home in the temple we have prepared for her, but let us not make the mistake of forgetting her more bashful sister, Wisdom who may linger outside unthought of unless we seek for her. For knowledge and learning alone will not make the sum total that our *alumni* should take away with them at the close of their studies from the University of Delhi. We wish them to acquire wisdom and character, which are concomitants in the old Universities of the pursuit of knowledge and learning. We would have them go out into India, not only adorned with learning and replete with know-

ledge, but possessing those less easily acquired and more intangible qualities of the cultured mind, good judgment, wise tolerance, and strong character which go to build the success of a nation and an Empire.

One more word. You know we are passing through difficult times financially. Do not be disheartened or discouraged if lack of funds prevents for a time in this University more rapid expansion and perfection on which you may have set your hearts. I am afraid that for some time to come Delhi University must be a poor University. You should not on that account lose confidence or enthusiasm for its future. Rapid growth is not necessarily the soundest form of growth, and eminence in academic study is not the monopoly of only the well-endowed and well-equipped institutions. Have trust, and, in spite of obstacles, persevere in your keen efforts for progress. Have courage, and, in spite of difficulties, determine to overcome them. Your success, when attained, will be the more meritorious. May your University flourish, long may its success endure, and may its fame enhance the glory of the historic City of Delhi.

ADDRESS OF THE VICE-CHANCELLOR

Dr. H. S. Gour, M.A., D.Litt., D.C.L., LL.D., M.L.A.,
Bar-at-Law.

On behalf of the University of Delhi and as its Executive Head, I feel it my proud privilege to welcome Your Excellency and other distinguished visitors to the First Convocation of the University of the Imperial City. I feel that this is a historic occasion and deserves to be commemorated in the annals of the University so long as the University lasts. Your Excellency's long and distinguished career at the Bar and in the

arena of politics, and later on as the Lord Chief Justice of England has added lustre to the exalted position which Your Excellency occupies in the Government of India. Your Excellency's keen interest in education is sufficiently evidenced by the fact that last year during a period of great financial stringency Your Excellency's Government were able to boldly launch forth the scheme for this University, the constitutional structure of which is now complete and crowned by your presence on this occasion.

2. This is truly a great day for Delhi. In the whole of its long and chequered history under the Hindu and Muhammadan kings it has been endowed with many memorable monuments in the shape of venerable temples, majestic mosques, marble palaces and towering battlements, but it has never had a temple of learning. The great Kings of old, though patrons of learning, embellished their Imperial City with perishable matter, the remains of which are tenderly protected for the observation of the curious, but never before in the history of this City was the foundation of a memorial laid which will diffuse its light and learning to its teeming population and send its beneficent rays to the people who dwell in the shadow of its immemorial shrines.

3. It is not merely an accident that at the new Delhi now to be the Imperial Capital of reformed and regenerated India, the centre and symbol of a regenerated nation rising and aspiring to self-expression and independence, a new University should be created which should serve as an inspiration to its new hopes and a sign post to its new born aspirations. I hope and trust that under Your Excellency's wise guidance the University will give birth to a living teaching which in course of time will take the shape of a perpetual tradition

which will for all time to come haunt the home where it has been born and imbue more or less every individual who is successfully brought under its shadow.

4. The foundation of the University of Delhi was acclaimed with delight by all the sister Universities of the world from which cables and telegrams poured forth upon its happy inauguration, and to which were extended all the courtesies of the ancient seats of learning; but with all the good wishes of its newly-acquired but numerous friends throughout the civilized world, the infant University had soon upon its birth to encounter a serious set-back. For many months its fate hung in the balance, and its benefactors trembled to think whether, with the ill-omen of its creation in the year of financial famine, it would escape the executioner's axe. Your Excellency's timely assistance, enthusiastically seconded by the multitude of voices in the Legislative Assembly averted the peril, and made her future fully secure. It is just as well that this young University was so early tried, and I can only hope that its survival would symbolise a more vigorous growth and rally to its support more coadjutors and helpers.

5. That the University of Delhi has filled a want in the Imperial Capital cannot be denied. No Imperial Capital founded by a nation which prides in its learning can ever remain without a University. A great educationist paved the way to true education, and following upon his foot-steps new Universities have sprung up scattered throughout the land. Surrounded by these torches of learning, the Imperial Capital would have shrunk into insignificance if it were left without a University, for the University of Delhi has truly work which falls before it, which is in

its nature both Imperial and Local. It has to justify its existence as the University of the Imperial City and its association with the Imperial Government, while at the same time it has to carry on the humbler task of local education. In its Imperial Mission as a radiating centre of education it has a great task to perform. With the decentralization of control of higher education in India and the pursuit of diversified models, the University of Delhi must aspire to be a trumpet in the distance pealing its message of exalted idealism, simple learning and practical culture. It must aspire to be a beacon light to its numerous youths who are to realize the dream of a prosperous and united India. Other Universities located within the centres of their provincial boundaries may perhaps become more and more provincial in their outlook upon education in life and upon their ultimate goal. But may we hope that the University of Delhi may stand forth as the rigid apostle of the Imperial unity and extend its hand of fellowship and help to the citizens of a vast continent who are to engage in the task of building a mighty empire and strengthen the foundations of their ancient nationhood. The Provinces can no more exist without Provincial Universities than the Empire of India can exist without a Central University. The University of Delhi may thus be the disseminator of a great ideal in the matter of education; it may become the diffuser of the higher learning; it may aspire to be the co-ordinator of all learning imparted throughout the land.

6. But this is a vision of the distant future. At present the University is a small attenuated body suffering from wounds yet unhealed, and the effects of which may even prove to be lasting. Nevertheless, it is

determined to subserve to its utmost capacity the growing needs of the great Capital with three flourishing Arts Colleges far removed from any other University centre. Here there is a great field for work, with the memorials of a mighty past looking down upon its struggles, the like of which they have themselves witnessed.

7. As First Vice-Chancellor, I have unfolded to you some of my ambitions for this great and worthy enterprise, and I desire to enlist the sympathy and support in its cause, not merely of all the local magnates and the leaders of intellectual life, but of all those who believe in the vision of an Indian nation and a united India, with its prosperous merchants plying their own argosies and carrying its merchandise to the uttermost corner of the globe. This is the ideal which we must set before ourselves; this is the lamp which must guide our foot-steps.

8. Your Excellency: You have planted this healthy seed with a loving hand. It has taken a firm root and has vigorously sprouted and even weathered a storm. Your presence to-day will proclaim to the world your sympathy and your support of this young plant of your own sowing. Assured of your generous encouragement and unfading love, it will not be long before we reap a teeming harvest.

9. Here I wish to acknowledge with grateful thanks Your Excellency's kindly reference to my connection with the University. The fact that its organization is complete in every detail is in no small measure due to the hearty co-operation of its Pro-Chancellor, Sir Muhammad Shafi, whose guidance has ever been ready at my disposal. I regret that my old colleague in the Assembly, Sir Henry Sharp, is not here to-day—for I know how happy he would have been to see the work completed of which he had laid the foundation so well, but he will be delighted to hear that the spirit and enthusiasm which he had displayed was so completely transmitted to his successor, the Honourable Mr. Butler, who has not stinted advice and assistance whenever it was necessary, and which the Honourable Mr. Chatterjee has alike accorded since his connection with the University. I rejoice to think that your

nomination of him and the Honourable Mr. Sarma to the Court of the University will bring two more of your Executive Councillors yet in closer touch with the University.

10. Members of the Executive Council: Upon you rests a special duty to advance the cause of the University, for to you has been committed the principal charge of the University, and upon you therefore rests the obligation to conduct yourself with wise deliberation and sound judgment and bestow upon its development your unremitting care.

11. And upon you, Members of the Court, rests alike the obligation to render such help and guidance in the affairs of the University as your power and resources may permit.

12. And now Your Excellency and Graduates of the University: By your initiation to our Degrees you have pledged your troth to the service of this institution. Its development and progress depends upon your united efforts; for though the University lives, it must still strive to live well. For this it needs your constant care, co-operation and support. The University will be what you make it. Its greatness will redound to your credit. Supreme efforts will be necessary to develop its various Faculties. It has yet to create a tradition, for however high might be our ambition, however noble our purpose, we cannot achieve success unless all of us unite to consecrate to its service a portion of our time and a part of our possessions. The great Universities of the West owe their success to the munificence of private charity. The splendid endowments which enrich these seats of learning commemorate alike the good deeds of their pious founders as they transmit to posterity the benefits of their bequests. No lover of learning can hope for a more enduring monument or obtain a better title to immortality: for he who benefits a seat of learning benefits alike his progeny and people. And what greater reward can one obtain than the undying remembrance of a grateful people. His deed is an inspiration to his contemporaries and his monument the undying love of posterity. All other memorials and monuments perish; such monument alone is imperishable.

THE FIFTEENTH MADRAS PROVINCIAL EDUCATIONAL CONFERENCE.

PRESIDENTIAL ADDRESS.*

WE meet in the season when the tables of Headmasters, Secretaries of School Teachers' Associations and teachers of special subjects of the school course as opposed to the educational men-of-all-work, groan under the weight of specimen copies of possible and impossible school books in Tamil or other South Indian languages as well as English. Most of these books bear on the title page printed or rubber-stamped—the mystic legend, "Approved by the Madras Text Book Committee;" some vary the wording of the legend into "Approved by the Madras Educational Department" or "approved by the Government." I have called the legend 'mystic', because like all mystic utterances it is taken to mean more than the words say and has been interpreted to mean many different things by very many different men. But before referring to the various interpretations of the legend, I wish to remark that it does not redound to the dignity of the Text-Book Committee or the Madras Educational Department that its name should thus be taken in vain, and what is very much worse, that its approval should compete with 'Good morning, have you used Pear's Soap?' or 'Pink Pills for Pale People' as an advertisers' tag for pushing on unsaleable goods.

Recently I had frequent opportunities of making enquiries as to what people—masters in schools, parents and that portion of the public which does not fall under these categories, understood by the term "Text-Book Committee." A large majority of people imagine that the Text-Book Committee is a small body of men who live at Madras and prescribe, year after year, the text-books to be

used in schools and colleges, on each and every subject of the school and University course from the Kindergarten class to the B. A. Honours class. I have heard not merely irresponsible critics of Government—a vague entity in the minds of many—but even people who ought to know better frequently attribute the modern-day decadence of Tamil, the futility of the usual school course of mathematics in fitting the young to understand the ordinary bazaar transactions and to make the necessary calculations half as readily and one-fourth as correctly as the unhappy trader who has never been at school, the decline in the ability of school boys to translate rapidly from English to Tamil, the increase in the number of books and exercise-books they have to carry daily to school, the ignorance of Indian History and Geography on the part of school pupils, college students, and educated people generally—in fact every real or imaginary fault in the education of the young, to the viciousness of the Text-Book Committee. And this is because the phrase, "Approved by the Text-Book Committee" has sunk to the level of the certificates appended to the advertisement of patent pills.

Half a century ago, when I was a school boy, school books made in England and available in India were few. So a small body of scholars, called the Madras School Book Society wrote and published a few English and Tamil school books which were used in the few schools which then existed. It was not a case of these books being prescribed for school use, but it was one of Hobson's choice. On account of the sudden development of the industry of the making of books in the last quarter of the XIX century in England and a faint echo of it in India, the Madras School Book Society found its occupation gone and there arose the necessity for the formation of a Text-Book Committee to exercise the function of the wine-taster and to decide which books could be permitted to be used in schools and which were unsuited to the moral and intellectual—and shall

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I add—physical health of the young. The necessity was accentuated when English publishing firms with names associated with the growth of English Literature and the spread of English scholarship and glorious traditions of splendid printing and gorgeous illustration, opened branches in India and began to compete with poverty-stricken Indian firms in badness of printing, flimsiness of paper, and the travestying of illustrations.

The question may well be debated whether it is at all necessary for a body of men—some educationists, others scholars in their way, but innocent of all contact with school work, others again representing interests unconnected with school teaching,—to do this work of tasting new books and 'approving' them, whether it were not the better public policy to allow the play of an unrestricted 'struggle for existence' among books and trust to the survival of the fittest in the case of school books as among other annuals and perennials. But the Darwinian theory with its assumption of the non-morality of natural processes is fast passing out of the realm of scientific thought; and the theory of Free Trade with the *laissez-faire* policy which it involves is fast being abandoned by statesmen. Some sort of State control and direction is necessary in the matter of school books as in the matter of plague-prevention.

It is certainly the function of the State to regulate in accordance with the ideals of which the State itself is the embodiment, the work of schools so that the young may be trained to understand those ideals and try to work them out in their lives when they become men. But can this function be at all served by the activities of the Text-Book Committee? I have constantly maintained almost since the Text-Book Committees were formed that their proper duty is not to approve or prescribe books but to proscribe bad and undesirable ones. The majority of school books that are being published in ever increasing numbers since the *pseudo imprimatur* of

the Text-Book Committee helps on their sale, can be described neither as good nor wholly bad. The good books produced perhaps average one a year. This goodness or badness of books may refer to their matter—how far correct, how far desirable, etc.—to the method of presentation—whether it is in accordance with sound educational principles—to the language used in them—whether it is correct, proper, suited to the young—and lastly, to their printing and general appearance. No Text-Book Committee in the world can consider all these questions, balance nicely all these considerations and pass an absolute verdict of good or bad on the hundreds of books presented to it half-year after half-year. I have recently examined a large number of 'approved' books and can name very many which offend against more or less all the principles above referred to. Thus in an 'approved' book I find the strange statement that the early Aryans believe that Indra created the Earth, the Sun, the Moon, etc., Another 'approved' book takes the story of India upto the VII century A.D., then suddenly returns to pre-historic times, again toils painfully on to the XI century A.D., then again slides back to the VIII century A.D., hence to mount to the XII century A.D., and perform again a back somersault to the IX century A.D. I have heard of progressive syllabuses and concentric syllabuses but this book moves with retrograde motions (*vakraḡati*) like Jupiter and Saturn. Others again are written in a language which can be described but as English disguised as Tamil, the words all Tamil and everything else that goes to turn a naked idea (if such at all exists) into one expressed in words, pure English. In saying this I do not at all mean to blame the members of the Text-Book Committee. I have been one myself and have certainly 'approved' cart-loads of books containing such defects. No member of the Text-Book Committee has undertaken or can undertake to read every line of the numerous books submitted to him, to act as Publisher's Reader and Proof-Reader combined and do what

even such readers cannot do, undertake to guarantee that all the statements in the book are accurate, all its sentences are good idiom and all that. The proper function of the Text-Book Committee should not be the approval of books, good or mixed, but to separate the goats from the sheep and to proscribe what is likely to do positive harm to young pupils. Disapproval means something definite but approval really means, can mean, nothing.

Another tag, also vigorously employed nowadays for pushing some books and decrying others is, 'prepared according to the Government syllabus'. Recently a certain book on Indian History was removed from the list of approved books and straightway publishers' bagmen went about the country proclaiming that the book was not in accordance with the recently-promulgated Government syllabus in that subject and hence it lost the approval that it had once secured. Before discussing this new advertising trick, a little bit of ancient history may not be entirely useless. Half a century ago the school books available were few and the methods of teaching followed in schools, primitive. Not more than one book existed in each subject and the same book was used in the few schools of the Presidency and a fixed number of pages of it were done every year. A syllabus of this kind was delightfully simple and had an air of mathematical precision. About 39 years ago the policy of prescribing not books but syllabuses was introduced. The syllabuses devised at first were but copies of the contents of the school books, divided by means of a pair of scissors into as many parts as there were years in the school course. The primary school syllabus in Arithmetic ended—not began—with the definition of fractions and addition of fractions with the same denominator, with which piece of indispensable knowledge, the 90 per cent. of school boys that ended their studies at the primary stage were expected to win laurels in the race of life. About twenty years ago, Mr. G. H. Stuart first attempted to release school-

teaching from the tyranny of school-books written for English school boys in England. He drew up excellent syllabuses in Physical Science to be taught as the primary subject in primary schools, but this genuine attempt to give really valuable education to the children of Southern India went the way of all schemes of mice and men.

During the last twelve years, I believe, it has been recognised that a pre-determined cast-iron syllabus is undesirable in any stage of studies, and is specially mischievous in the school course and that each Headmaster ought to draw up his own syllabus for his own school, in accordance with local needs and to suit local conditions. This principle is laboriously expounded in the training institutions to teachers under training, who during the course of training are made to draw up syllabuses of various kinds so as to enable them to suit their teaching to the varying conditions under which they are likely to work. Inspectors of Schools, also, so far as I know, point out in the course of their inspection that each school ought to develop an individuality of its own and this can be done only if each school devised its own syllabus in each subject so as to realise its own special aims. I know that, off and on, syllabuses are issued from the office of the Director of Public Instruction, sample syllabuses of several school subjects. These, I believe, are intended only as a model to the Headmasters and others and not as ideal courses of instruction to be followed in all places and at all times. These syllabuses are not all drawn up with reference to actual conditions of school life in South India. A few of them represent what the experts in their subjects regard as an ideal scheme of the logical development of the subject, what their authors regard as to what every boy ought to know and not what is educationally possible or desirable. It is one of the fundamental principles of pedagogy that the History and Geography to be taught to the young should start with and be based on the study of the History and Geography of the District or region in which the pupil lives and be correlated

to his actual daily experience. This one principle would render the idea of a universal History or Geography syllabus absurd.

Moreover a Government syllabus is meaningless under present conditions. In the political slang of the day Education is a transferred subject; i.e., it is under the direction of an elected Minister and administered according to the political principles of the party that happens to be in power at a particular moment. The party that forms the Government to-day is variously called the Non-Brahmin party or the democratic party, and hence a Government syllabus in Chemistry or in Algebra would mean a course of Non-Brahmin Chemistry or Democratic Algebra; and if in the future another political party with a different party label succeeds in securing the confidence of the electors, I cannot anticipate what its name will be and what slogan it will adopt—and become the Government—I will not conclude the sentence; for the idea of a Government syllabus in a school subject is too grotesque for consideration. To conclude this part of the discussion:—It is the proper function of the management of schools, and more especially of the Headmasters and their assistants, to decide what the ideals of their schools ought to be and what the subjects they can provide for training in, for they alone can decide what they can, and what they cannot, do. It is for them to devise their syllabuses and methods of instruction in accordance with what is possible and desirable in each locality and in each school. So far as I know, this is the general policy of the Madras Educational Department but I also know that several Headmasters deliberately refuse to take up the responsibility of deciding for themselves what to teach and how to teach it in their schools and think that it counts for righteousness to behave like dumb-driven cattle. No, Gentlemen, humility may be a priceless virtue in certain other fields of human activity, but certainly it is no saintliness, if you refuse to stand on your legs, to decide your questions for yourselves and patiently wait year after year

for "Instructions" from Deputy-Inspectors, Inspectors, Educational Councils, Directors of Public Instruction, and shall I add, even Ministers of Education, to enable you to do what is your legitimate duty. If, then, each school ought to provide itself with syllabuses of its own—and those, elastic syllabuses, susceptible of change while the yearly educational course is proceeding, there is no room for the publisher to invoke the *imprimatur* of Government for selling his bad wares.

The chief reason why ready-made text-books (not to speak of the innumerable peptonized school-books, called 'Examiners,' 'Guides,' 'Made-easies,' etc., which are the ratbane so largely provided and consumed, almost with the connivance, if not, silent approval of school-teachers) and hide-bound syllabuses for which people other than working school-masters are responsible loom so large in the horizon of schools is the fact that in this country school boys and schools exist for the sake of examinations which are the only dominant influence on school work. The veil of convention ought not to make us blind to the ugly fact that education as at present conducted in India has, as its aim not the development of human faculty, the formation of character, the stocking of the mind with useful knowledge, or any other of the beautiful things which books on pedagogy say it is, but it is merely the attempt to enable as many young men as possible to pass examinations with the minimum amount of knowledge that will help them to pass muster. Granting that the passing of examinations is the only possible qualification for earning your daily bread, it is but right that the fundamental law of physiological economy should assert itself and that young men, attempt to pass examinations with the least expenditure of psychical energy. The fault is not in the young men, they but follow human nature, *Prakritim yānti bhūtāni*, but in the system which has given an unreal value to a certificate of pass, nay, even to one

of failure, for a failed B. A. has a higher money-value in the Employment Bureau than a passed Matriculate. Examinations have attained this unique position in this country alone on our planet, for the employer of labour, (skilled, or rather learned labour, it ought to be called, but genuine labour it is not, because the labourer works with hands and not with the tongue), wants a guarantee that candidates for employment possess ~~that~~ amount of mixed English which he can tolerate in his office and, being too lazy to examine for himself the army of applicants for the noble work of quill-driving, wants other people, i.e., the professional examiners to do the work for him, the work of sampling the wares he wants to buy.

In the opinion of some people—unfortunately including some Headmasters—public examinations provide the necessary stimulus, as ready-made syllabuses provide the necessary knowledge to school-masters, to make them do their daily duty by their students. The theory is that unless the Headmaster checks the daily out-put of pedagogical piece-work, the constantly increasing number of Inspectors gauge every year the varying levels of pedagogical efficiency and on the top of these, the school and the public examinations which recur as regularly as the tides of the sea, separate the pebbles from the drift-wood, the average schoolmaster will draw his salary every month and go to sleep every day in the school-room. The result of this theory is that the school-teacher has come to believe that his function is not to teach the young, not to help their minds to grow in the directions in which their heredity inclines them but to drive painfully into their memory odds and ends of second-hand knowledge such as is the stock-in-trade of examiners and to train them to reproduce it rapidly when called for and have done with it once for all in their lives, unless they belong, as the large majority of them do, to the category of the failed candidates who have to go through the mill again and again. In the training colleges, prospective teachers learn

noble ideals of their professional duties based on the latest psychological principles and pedagogical experiments but when they return to their class-work, they have to learn to take the trouble to unlearn these and instead to devote all their time and energies to anticipate intelligently examination questions and drill pupils to memorise mechanically methods of circumventing the dreaded examiner. Every one knows that this examination pest is more firmly rooted than the plague or the influenza.

Once, about twelve years ago, a half-hearted attempt was made to dethrone examinations for the high-school course or rather to minimise the evils of the worst of these Public Examinations—the University Matriculation Examination,—by means of which learned University Professors whose standing in India corresponded with that of Saintsbury, Huxley, Acton, and Forsyth in England and who were blissfully ignorant of the actual conditions of school work in India, tried to separate the few swans from the many geese among the pupils offered for examination by our High Schools. The said swans were guaranteed to be fit (1) for standing a course of lectures in the higher knowledge—*Aparāvidya*,—to be delivered by these same University Professors, (2) to possess a well of English, not undefiled, but pure enough to secure for them work on Rs. 20 a month in offices. The steady pull of the forces of reaction has dashed the hopes of the reformers of a dozen years ago and the Secondary School Leaving Certificate Examination has become but the old Matriculation with a longer name, a more elaborate ceremonial and a many-leaved certificate of failure attached to it. Now-a-days as in matters educational, democracy has succeeded autocracy and as it is harder to convert the many-headed multitude to intelligent ways than the solitary autocrat, I suppose, there is not much use in decrying against the examination evil and one has to keep on swallowing this suffocating pill.

The pinch of examinations, especially in the lower grades, is felt all the more keenly because

they are conducted in English. It is scarcely necessary now to discuss the question of "the medium of instruction" as it is called in school slang. Few people now believe that the elements of knowledge can be learned by young pupils better when taught in a language they do not know than in one that they know. Still fewer, I believe, think that European languages possessed "technical terms," e.g., names of things like oxygen or ichthyosaurus, from when they were born from the womb of time and that the lack of these renders the languages of India unfit for school use. The real difficulty that stands in the way of the use of the mother-tongue in school teaching, which alone the teacher and his pupils can speak and write correctly and with ease, is the momentum gathered in the opposite direction for about forty years. Fifty years ago I learnt most school subjects, not excluding Euclid's Elements of Geometry, the History and Geography of the World, and the Elements of Physical Geography, from text-books written in Tamil. One reason of this was that the B.A. who can speak fluently a blend of Elizabethan and Victorian English spiced with Tamil idioms and turns of phrase was a *rara avis* in those days. Two of the superior masters in my High School were men who attempted to jump the Matriculation fence and got wounded in the process; the Headmaster alone enjoyed the glory of having satisfied the Matriculation Examiners, but he got his certificate for the twelfth time of asking. This old race of teachers has been superseded by the new race of B.A. teachers who teach all subjects in mixed English instead of in their mother-tongue for fear they should sink in the estimation of themselves and their pupils to the level of that much despised animal—the Tamil Pandit; for it is the irony of fate that a man who has got by heart what other people have written about Shakespeare and Milton, Tennyson and Browning and can deal in that kind of second-hand goods and can speak no language perfectly is a Professor entitled to a coolie of Rs.10 a day but

one who is a master of the vast field of Tamil literature—a literature which has lived and grown now for at least 2000 years and which embraces every subject known to man except the latest development of the physical and mechanical sciences is a mere Munshi—he cannot be called a Professor—whose wages vary from Re.1 to Re. 1½ a day and a man's mental calibre varies directly as the weight of his purse on pay-day.

Now-a-days almost everybody admits, as a matter of principle, that teachers ought to teach and pupils ought to learn knowledge through the only language they know—the mother-tongue. Recently a big Committee of the Legislative Council considered the question. It has admitted the rationality of the procedure but seems to be unable to solve the next puzzle—who is to bell the cat and how is the bell to be hung round the sleek neck of the cat. The Committee apparently contemplates that the said cat will 'obligingly ornament itself with the said bell. My answer to the riddle is this:—Since we cannot slay the examination-demon, let us at least make him serve us; make it a rule that the final examination of the High School course, if not of the higher courses should be conducted in the mother-tongues of the pupils and in them alone and then much of the inefficiency of the school course will be remedied.

Another result of the obsession of education by the examination fiend is the constant lengthening of the period which a student is required to spend at school and college. Bad results recur in the case of most examinations as regularly as sun-spots or famines and on each such occasion the only remedy which people readily apply is the lengthening of the educational course by a year or two. My school course, which I underwent in the seventies of the last century, was one of six years at the end of which period I was considered fit to wrangle with the theory of equations, the elements of solid geometry as expounded by that old fraud, Euclid, the mysteries of the human body, the wiles of Themistocles and the wisdom

of Socrates. Within eight years of my Aksharā-bhyāsam, when I was but turned my 15th year of life, I was declared competent to study Kant's discourses on the pure reason and the practical reason, to discuss the daring scepticism of Hume and the geometrical mysticism of Spinoza, Leibnitz's doctrine of the Monads and the unconscious mental modifications of Hamilton; to discriminate between the Tory prejudices of Hume and the Whig misrepresentations of Macaulay and I was not a particularly bright boy either, as is evidenced by the fact that my name in the pass-lists was never far from that of the University Registrar. The year after I passed the Matriculation Examination, the first "slaughter of the innocents" as it is now usually called, began and since then the practice of sporadically adding a year to the length of the school course began, till now it has grown from six to eleven years nominally and counting mishaps in the way and at the end, in most cases it is one of thirteen or fourteen years, at the end of which the average student is perhaps worse prepared for starting a University course than I was forty-five years ago. This proves, if it proves anything at all, that a mere lengthening of the period of stay at school does not necessarily mean any improvement in the mental equipment of scholars. I believe the dawdling methods of teaching due to this constant increase of the time-length of the school-course reacts harmfully on school pupils. I am of opinion that the maximum length of the school course—Elementary and Secondary—should not be more than eight years, say from the age of seven to the age of fifteen, at the end of which the Headmaster ought to present the school-boy with a certificate declaring what the boy can do well and not, as the results of Public Examinations declare, what the boy cannot do at all.

How would the school courses which obtain at present be affected by the change proposed by me? Before discussing the question I must point out that the development of the various subjects of the

school course and the methods of teaching them current in schools are substantially those which were devised before the birth of modern psychology when men believed with Locke that man's mind at birth was a *tabula rasa*, a clean slate on which the deft school-master had to write his words of wisdom, the quantity of which wisdom had to be periodically gauged by the clever devices of the examiner. The kind of wisdom thus poured into the empty vials of the children's mind has but little to do with the future life-needs of the student. Thus reading means the storing in the memory of the pupils of as many words as possible and as many rules of Grammar and exceptions to those rules as are available. Arithmetic means manipulation of huge figures which not even a statistician can meet with in the course of his work and with the motions of erratic railway trains and drunken squirrels, of profits which boys can never hope to make and Income-tax which they are never likely to pay, of stocks and shares which they will have no chance to gamble with and even these, manipulated in ways which no man in actual life ever adopts.

The development of school arithmetic, like that of most other school subjects is conditioned by the annual race between the examiner and the examinee as to who should succeed in circumventing the other. Every year the examiner invents a new type of question, a new trap for the unwary, a new kind of catch to upset the average pupil and the school teacher in turn invents ways of helping his boys to stand the new ordeals. The result of this race is that school books on most subjects become fatter and fatter, more and more academic, more and more remote from the practical interests of life and the length of the school course becomes longer and longer. The other school subjects have also developed in the same unreal, unpractical ways. History, Geography, Natural Science have all to be taught in set grooves academic, pedantic, divorced from the interests to be derived from the actual, daily life of the school

pupils. For instance, Trichinopoly, where I now live and work, happens to be a place where man has lived and thriven continuously ever since he was evolved. Kick the ground under the feet in some places and you can discover bits of stone-age pottery. Miles of graves where our ancestors of five and ten thousand years ago lie buried can be seen and excavated in the region. Careful scrutiny yields palæolithic tools, neolithic tools, early iron-age tools and the 11 year-long course of Trichinopoly schools lets all these severely alone. Recently I was asked to lecture to the young men of Lalgudi and when I told them the story of the battle of Peruvalanallur (a village five miles off Lalgudi), how it was one of the most decisive battles of the world, they felt that I was romancing for tickling their sense of local patriotism and that even if otherwise, I was wasting their time, for a knowledge of the battle of Blenheim would be more paying to them in their own battles with examiners than such worthless things as the history of their country, and if Indian History had to be learnt, the doings of the Sultans and the Sultanas of remote Delhi were familiar things and not the rise and fall of the Cholas and Cheras, the Pallavas and the Pandyas of their own native region. Geography, Chemistry, every other school subject is similarly divorced from reality and actual life-experience and life-needs of the young and a gradually lengthening course of teaching is found incapable of coping with the dull, cold, life-less academic, uniform syllabuses imposed by the central authority in the interests, not of real, useful education, of expansion of the youthful mind but of the system of examinations invented, not in the interests of the taught.

It is not possible to teach the young unless you interest them in the work and interest requires an appeal to the actual experience of the pupils and to their future needs. This can be done only if syllabuses vary from place to place, school to school. Perhaps to secure this, among other things, a partial decentralisation of educational authority is now being effected. District Elemen-

tary Educational Councils have been created and very soon District Secondary Educational Boards will come into being. Let us piously hope that these Councils will realise that their function is not merely the distribution of grants and the carrying on of the usual routine of administration, but also the rendering of education real, practical and useful to the rising generation, by enabling the Headmasters to adapt the teaching of various school subjects to local conditions and local needs. At present, the work in every class from the Kindergarten upwards is conceived as leading to the top of the tree—the B.A. class. As a matter of fact, out of every hundred boys that enter the Kindergarten, not more than one can at all hope to become the full-blown B.A.; therefore, in the education as at present conducted the life of every part of the tree, roots, trunk, and leaves, is sacrificed for the purpose of producing the solitary flower.

The severely academic, i. e., unreal method of teaching school subjects now in vogue is sometimes attempted to be justified by calling it *cultural education*. We often hear that people give a dog a bad name and hang it, but this is a case of giving a putrid dog a good name and placing it on an elevated pedestal. Every school-boy is conceived to be a possible B.A. and is stuffed with odds and ends of knowledge, unrelated to his future needs and unsuited to his inherited capabilities and if 99 out of 100 fail to reach the goal, people console themselves with the notion that though these 99 are unfit to earn their daily bread, they could subsist on the culture they have acquired. Instead of deluding ourselves with vague words, let us frankly admit that as things are at present in India, whatever it might be in Utopia, boys go to school and parents spend money on the schooling of their children, because they expect it will enable them to earn their bread and butter. Notwithstanding Macaulay's grandiloquent sentences, Indians learn English because it is a "vocational" study and not "cultural." Indians have a culture of their own which has progressed

and perhaps now and then retrogressed, but has flourished for a trifle of four millenniums at least, and you cannot change your traditional culture as easily as you can exchange a dhoty for a pair of trousers. Hence it is that very few "educated people," the phrase means "people who have learnt the English language or read English books" really absorb even a modicum of Western culture and become Europeanised in spirit. Whether the de-Indianisation of our young men is desirable or no, it is certainly almost impossible. Hence English learning has been resorted to so far as a "Vocational" and not as a "Cultural" study. But to-day, the market is glutted with a plethora of English knowing men and the possession of English no longer means the certainty of earning Rs. 20 a month as it used to be. Hence it is urgently needed that we revise our scheme of work in schools so that the bulk of our students may leave school with a better qualification than that of a failed matriculate. To make room for bread-winning subjects, some school subjects which are there only as anticipations of later college work ought unhesitatingly to be abandoned. A few such are juggling with algebraical symbols, consideration of the properties of triangles and circles in Euclidean space, mumbling of the new magic mantras involving H_2 , N, O, &c., problems regarding heat and electricity and invoking the demons of Xerophytes and Glossopteris, all which are very good in themselves but serve no useful purpose if begun and dropped before even the elements of the subjects can be mastered. They but serve to make the High School course too long and swell the numbers of the failures year after year. "I am even unorthodox enough to think that the quarrels of the Normans with the Saxons, the struggles of John Lackland with his Barons, the provisions of the Statute of Præmunire, the attempts of English merchants to sell wool in Flanders and of English sailors to "convey" Spanish Gold to the English soil, the sins of Charles the Second and the methods Walpole used

to persuade the M.P.'s of his time to support him, are neither interesting to the average Indian school-boy nor specially likely to develop his intellect or elevate his morals. Nor do I think that the lie of the land in Italy, the mineral resources of Germany, the direction of the Rift Valley in Africa, the conditions of life in the cattle ranches of America, all described in English more or less beyond the reach of the High School boy, absolutely necessary equipment for the South Indian school-boy in the battle of life.

While so many utterly useless subjects are painfully driven to the unwilling minds of our High School pupils they are not taught the age-long literature of their mother-tongue which has had a glorious literary history to be measured not in centuries but in millenniums. The entrancing history of the mother-land, where man has lived and flourished ever since he was evolved on our planet, is coldly neglected. There is no place in Southern India within a few miles of which you cannot find either relics of the stone-age or proofs of ancient iron or gold workings or at least other signs of man's occupation since prehistoric times. There is no village near which some ancient battle has not taken place or ruin of a thousand year-old temple does not exist or which is not associated with the story of some ancient king or poet or saint. This rich historical material on which the foundation of historical studies can be well and truly laid, is divorced from school work. The geography of the mother-land where, within a few miles' walk from any school-room, can be observed the conditions of human activity of the five geographical regions as classified by Tamil geographers of two thousand years ago, i. e., *Neydal*, *Marudam*, *Mullai*, *Kurinji* and *Pālai*, is ignored. The geography of the Deccan Plateau, which is the most ancient piece of the crust of the earth now standing, which has witnessed the drying up of ancient seas, the sinking of ancient continents under the sea and the slow elevation of lofty mountains, and which has itself undergone sundry vicissitudes,

without a knowledge of which the modern Indian cannot understand why he grows cereals in one region and cotton in another, why he hunts for gold and diamonds in one place and coal in another, all this knowledge, which alone can make education real and useful, is set aside. In this connection, I wish to point out that all this knowledge can be very well conveyed in Tamil to young school-boys. I assure you, Gentlemen, that in the last five years I have lectured to Pandits and to boys, in public and in private, in Tamil, on all these and other subjects without halting for a word and so as to enable my hearers to understand all that I have said. If school work is re-organised on these lines and a working knowledge of English and other—I use the word deliberately—"Vocational" or bread-winning subjects added, I do not see why the majority of our school-going boys should not be efficiently educated in a period of eight years and be enabled to start life not as failures but as successes.

Gentlemen, every one bemoans the fact that education has not spread among our countrymen as fast as we all like it should. This stagnation is due to the fact that the price of education has risen faster than that of rice and dhal, ghee and salt. It has become an article of belief with some that the efficiency of education is directly proportional to its cost. This is not necessarily true. Much of the cost of modern education is to be credited to the account of brick and mortar. Piles of brick and mortar do not necessarily render education efficient. The only effect of brick and mortar in this country is to vitiate the air breathed by pupils, and brick and mortar does not live for more than a few hundred years. Even stone temples do not stand for much more than a thousand years. Ugly school-buildings which harmonise neither with our traditional architecture nor with the landscape and atmosphere around, but, yet, are guaranteed to sow the seeds of tuberculosis cannot, I fear, render education specially efficient. In addition to the waste of money on brick and mortar in the name of modernism in education there is the further waste of money on timber imported from Burma. Stiff

heavy school furniture which compel the young to sit for hours restraining the natural impulses to move their limbs constantly serve no specific educational purpose. And the Indian is an inveterate squatter on his haunches and knee-crooker to boot. To compel him to adopt unfamiliar postures for a few hours at school follows neither the dictates of reason nor of hygiene. As if this were not enough, we compel the schoolboy to load his back and head with stiff and heavy clothing which permits neither the healthy play of muscle nor the sunlight and pure air which the good God provides so lavishly in India to play on his overheated, bacilli-charged skin. When I was at college the winds of heaven visited our backs roughly or smoothly as they list. Another source of school expenditure is what is called Scientific Apparatus. Asthmatic air pumps, paralysed Bramah Presses, and rheumatic Electric Machines, and the manufacture of stinks and the pulverising of test-tubes does not necessarily mean a knowledge of the fundamental principles of science or of the scientific method which latter is a more potent means of mind-growth than stocking the memory with the magic formulæ of Chemistry and the ill-understood words in bastard Greek which are the stock-in-trade of the Physics or Botany teacher. An intelligent appreciation of the properties of the stones and ores found in the vicinity of each school and an understanding of the life-history of the Plants and Animals which the schoolboy can easily come in touch with and efficient training in scientific procedure in the investigation of facts and arriving at conclusions does not at all require the waste of untold £ s. d. Another cause of the increase of the cost of Education is the substitution of bad English for good Tamil as the *medium of instruction*. The teacher who conducts his lessons in Indian English is much more costly than the teacher who speaks good Tamil. If all knowledge-subjects were taught in the mother-tongue of the pupil and of the master, there will accrue the further advantage of the standard of attainment in English rapidly improving; for then you can pick and choose the English master, entrust the teaching of English to

those that speak clean English idiom and there is also the negative advantage that bad English will not be constantly droned into the ears of pupils in every school-hour and thus become a fixed habit with the generality of them, which any amount of higher study of English in the Universities is unable to root out. As if these sources of unnecessary expenditure were not enough, the cost of direction and inspection reminds one of Falstaff's "ton of sack to one poor ounce of bread."

Gentlemen, I suppose no address on Educational questions to-day would be considered complete if it did not refer to the teaching University which is in the latest stages of gestation after a period of storm and stress that prevailed in the early stages. I am of opinion that it is not worth all the pother for the new teaching University is but the old familiar Madras University with practically the old cumbrous committees to work it in the old familiar ways and with the addition of hostels. So far as I have been able to understand it a hostel is but a hotel which has swallowed an "s" and is unable to digest it. Costly feeding places even with Swarajya by students thrown in and a solitary professor living near free of rent cannot change an apparatus of examination into a teaching University. So long as the provision of facilities for scholars to work for themselves in their own rooms at subjects which interest them and which they are qualified to study and investigate under the guidance of competent tutors—masters in their own special field of work is considered to be outside the horizon of practical politics, it is but waste of breath to speak of teaching Universities. So long as examiners and examinations dominate the work of colleges, so long as the chief aim of the professor or the lecturer, whatever you call him, is but to enable the maximum of students to circumvent examiners with a minimum of knowledge and that carefully memorized but not clearly grasped, it is but juggling with words to speak of teaching Universities.

The dread of the examiner directs all activities in colleges and so, no real teaching-work is possible. The complicated statistical methods of arriving at the results of examinations which are the main-spring which moves schools and colleges are inhuman, I mean, unhuman—I mean, so successfully supersede even the human intelligence of the examiner in estimating the worth of examinees that the professor of any subject however enthusiastic he might be, however conversant with progressive, up-to-date views, has the courage to let himself go in the lecture-theatre. Examinations are a Procrustean bed on which the majority of candidates is either stretched or amputated and rejected as unfit. The bed of Procrustes was at least of one uniform and unvarying length; but our examinations vary their dimensions year after year and at the same time they are inelastic—a combination of contradictory qualities which exist nowhere else in the world. So long as this state of affairs is not with a firm hand swept out of existence, it is idle to think of real higher Education, of teaching Universities and the like.

Such a thorough-going reform can be effected only by working educationists. The average outsider who has been through the mill and survived the process and hence imagines himself to have mastered all knowledge—such as most of our Legislators are—cannot help us in this matter. Every man who has succeeded in life and got to the giddy heights of the Legislative Council naturally thinks that whatever—genuine or sham—education he got when young was the one and only cause of his success in life. He cannot understand our ideals of Education which are the result of years of actual work, in schools, of patient observation and study of the developing mind, of frequent experiments, some utterly futile, others partially successful—all these combined with the study of the development of our traditional culture through the ages and of that of the foreign countries made available partly through the affiliation of our country to the British Empire and partly through the sudden

contraction of the surface of our earth on account of modern methods of locomotion. Notwithstanding the frequent sneers of the layman who knows nothing of our ideals and our struggles to realize them under adverse conditions and whose ideas of Education are clearly circumscribed by the loose scraps of intellectual lumber he has not succeeded in forgetting, I affirm here with all the fervour of conviction I am capable of, that we alone are competent to reform Education and direct it in right channels. But we, educationists, are a depressed class; on the one hand ill-paid and half-starved, though our work is productive labour, in so far as it increases the efficiency of the wealth-producing activities of the young men we train; on the other hand either despised or worse than that, patronized by lawyers and Government servants as they are called, whose work is absolutely unproductive but whose remuneration is much heavier than ours. But more than these, we suppress ourselves by affecting unnecessary humility, by not taking part in public movements or in any work outside the humdrum of our school-work. And even in this we do not allow our mother-wit or our life-long experience to have any play. We abdicate our rights of private judgment and year after year wait for the Inspector's orders about the methods of work we ought to follow in our daily work. One year we avoid the mother-tongue in the English class as if it were cobra poison because one Inspector has proscribed it and next year we deluge our boys with the Indian vernaculars because another Inspector has spoken sneeringly of the Direct Method. This year we adopt Physical Geography, Economic Geography, Regional Geography, Human Geography, because the Inspector is interested in Geography; next year the Inspector happens to be a Mathematics Honours man and we leave Geography lessons to wither in the cold of neglect, and torture our boys with refractory factors and enigmatical equations. May I appeal to you, school-masters assembled in conference, to learn to straighten your legs and stand on them, to

stiffen your backs and assert the dignity of your profession and maintain your right to teach the young as you alone very well can.

Gentlemen, we happen to live to-day in an age of partial experimental democracy. So far the democracy has but served to accentuate the scramble for the loot—conveniently called the emoluments of office, and the hatred which that scramble necessarily involves. But yet Education is a "Transferred Subject," transferred from the hands of intelligent if autocratic officers to the many-headed Councils with well-oiled voting machines. All the world over, democracy, whatever its virtues, from the sentimental point of view, is not—shall I say it, at the risk of being branded as unprogressive, as senile—a potent engine of progress in matters educational. Not much acquaintance with the history of Education in Europe is needed to help you to realize that when in autocratic Germany the progress of Education in the 19th century in breadth, in depth, and in intensity and the increase in the knowledge of the ways of working the child-mind and the improvement in methods of teaching effected by a knowledge of child psychology were advancing rapidly, in England education was but a pawn in the game of party politics. In England, the mother of democracy, decayed dames and decrepit barbers still taught in what are now called Primray Schools, when I was a boy. Long after I became a school-master, the question of teaching the Bible in English schools became a big party question followed by the tremendous engine of Passive Resistance. Even to-day in sundry schools, methods of teaching as old as the hills persist. If in spite of this, there has been much progress in educational matters in Great Britain, it is not because of democracy but because the more progressive teachers have learned to organise themselves and agitate for reform. In England it is the enthusiastic school-master that experiments for himself, devises progressive methods of teaching and wrings the approval of the educational

Mandarins; In India it is left to the solitary Inspector of Schools who has missed his way and landed in India to initiate reform and for the faddist Inspector of Schools to twist the tails of the humble, self-disrespecting school-master. No! This won't do, as Giffard said of Wordsworth's *Excursion*. We must learn to organise powerful Teachers' Guilds and learn to shout till we get the direction of Education into our own hands. In democracies, it is the tongue that rules and not the pen or the sword and the demagogue is the Minister and not the thinker. Our jaws are so much exercised in our schools that once our daily work is over we sink exhausted and do not take part in the atrophied Teachers' Guilds and anæmic Teachers' Associations that exist, and if we do attempt feebly to organise our forces, we spend the little heat we have in silly jealousies between conferences of Head-Masters and Assistant-Masters instead of combining together for the common cause. And the result is that when the Legislative Councils were reformed and special representation was provided for the backward and depressed classes, our profession was not even thought of as deserving representation in Councils! Apparently we were an infra-backward and sub-depressed class. True, a few educationists have got into the Councils but they have got in by the back-door of cooption as belonging to the classes which it is the fashion to call not vocal and not politically minded and the stigma of this entry by the back-door seems to cling to them for they do not seem to wield any influence in the Councils even when educational questions come up for decision. We want direct representation not only into the Legislative Council, for there people talk more than they do, but within the sacred precincts of the Cabinet. If a lawyer alone ought to be the Law Member, if the financial expert alone can be the Finance Minister, if the tried administrator can alone be the Home Secretary, is it absurd to maintain that the tried and experienced educational expert alone ought to be in charge of the Educa-

tional Portfolio? Let not my idea take your breath away. The education of the young, the intellectual and moral guidance of the citizens-to-be is much more important, much more sacred than any other department of administration and hence requires the guidance of the specialist-expert and is it not our duty to organise our forces and make our influences felt so as to reach this consummation devoutly to be wished?

Gentlemen, a faint echo of the saintliness and poverty of the *Upādhyāyas* of old India sticks to us: and along with it the spirit of Sanyasa and self-repression. But the Golden Age exists no more and this is the age of brass. Now-a-days more money is spent on advertisements than on making the advertised article. In the late war, the virtue of advertisements was brought home to the British Government and the greatest advertiser of the age became the highest Minister of the Empire. Let us take the lesson to heart and learn the value of organisation, agitation and advertisement, till we attain our legitimate position in the Councils of the land.

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"IT is a curious thing that while many people are so keenly interested in education that they read the 'Times Educational Supplement' every week, very few seem to have any idea what is the object of education, or indeed whether it has one at all. It is as though many persons were keenly interested in a factory, but had no sort of notion what it was intended to turn out..... Yet it may confidently be affirmed, in the one case as in the other, that unless the ultimate purpose of the institution is clearly realised and precisely defined, it can never perform effective work." This quotation from a new book by Professor Hearnshaw confirms what I was saying in my lecture on 'Educational Ideals,' a few weeks ago. I tried to give my own ideas about our objects as clearly as possible on that occasion. I cannot tell whether my audience agreed with me or not. One distinguished member, leaving my subject behind, started another topic of interest; and subsequent speakers followed him and not me. I hope that my ideas were understood and approved of by many, and that I may apply the same principles to examinations and tests.

We have all heard of engineers who from time to time inspect the foundations of bridges and other buildings, and of doctors who tap the chest and take the pressure of the blood. We have seen the man who goes round with a hammer striking the wheels of railway carriages. We know that the agricultural chemist analyses the soil to see what constituents are in excess or in deficiency. Some people test boilers to see what pressure they will bear; some act as judges at horse-shows and flower-shows; some go round tasting tea or grading wheat or cloth; some supervise athletic sports; or measure the chests of students before and after a course of physical training.

* A Paper read by Mr. W. OWSTON SMITH, M.A., F. R. HIST. S., at the general meeting of the Behar and Orissa League of Educationists, March 1923.

All these inspectors and examiners, testers and tasters know what they are doing, with the exception, perhaps, of the man who taps wheels. They are trying to find out what elements and qualities, good and bad, are present, and, as accurately as possible, in what quantities, so that the objects examined may be compared with a standard, rejected or passed, and also placed in order of merit. In some cases perfection is required and a single defect implies rejection, but in others success is relative. There is no mystery about what these people do. They apply the measuring tape, the thermometer or the stop-watch and announce the result. These are the methods of Science.

In the same way I think that the examiner should know what he is trying to find out about the qualities and defects of his victims, their capacity, ability and knowledge, their past industry and future prospects of success. This is not so easy as measuring the capacity of a cistern, and is perhaps harder than the task of a referee in a hockey match. We must first know what we want to test,—memory, knowledge, intelligence, imagination, taste, accuracy, adaptability, originality or mental alertness. Then we need a universal standard of judgment and a method which is objective, the elimination as far as possible of the subjective factor. An examination well conducted should produce the same results (with students and work of the same quality) on Monday morning as on Saturday evening, in 1920 as in 1925.

If an examination is to test industry in the past, knowledge and intelligence in the present, and fitness for this or that career in the future, can all these objects be attained at one time? Will the same examination serve for a School-Leaving Certificate a proof that the boy has worked well at school, and a Matriculation or Entrance Certificate, admitting him to a college, and giving a guarantee to the teachers that he can understand and profit by their lectures? There is much difference of opinion on this point. In his

Memorandum to the Calcutta University Commission, Mr. Hamilton says, "These two purposes are very different and from the nature of the case cannot properly be fulfilled by the same kind of examination. The character of the School Final Examination should be so changed as to mark the satisfactory completion of the normal school course by the normal scholar who has reasonably benefited by his opportunities. Of course the examination may also differentiate between those of normal and those of higher ability. The standard, however, must be determined by the intellectual attainment of the typical scholar..... On the other hand, the entrance examination imposed by a University ought not to be regarded as an end in itself, but as a means to ensure that those who are admitted as under-graduates possess both the necessary general education and the necessary ability to afford a reasonable prospect that the University course will be completed with success. The standard of attainment imposed by the test should be considerably higher than that reached by the normal scholar who completes the school course." Some have suggested that the same examination could be made to serve both purposes but that a higher standard or percentage should be required for admission to a college corresponding to a pass in the first division. One thing at least should be recognised,—that from the University point of view the Matriculation at present admits to higher study. No one, therefore, should pass, unless he is fit for college work, which, on any hypothesis, must be harder and higher than school work. We have to test the student's knowledge of the language in which the teaching will be given, and his capacity to understand the subjects and ideas which will be put before him. This knowledge of what he is supposed to have read in the past, affords the best, and sometimes the only, criterion of what he can do in the future. If he has not been able to understand the comparatively simple ideas contained in his school-books, or if he has been too lazy to read them, it

is a fair inference that he cannot rise (on this occasion at any rate) to the higher standard of the college. The work of examining requires intelligence, honesty, industry and care, and has nothing to do with sentiment. If a student is only five feet high, taking 12 inches to the foot, we do not say that it is the fault of the measuring tape, or of the man who holds it. We do not reduce the foot to ten inches in order that he may appear to be six feet high. Of course it is easier to measure height than to estimate the value of written work. But honesty and accuracy are as necessary in one as in the other. And in an elementary examination like the Matriculation there is little room for originality on the part of the student, or the exercise of taste and judgment on that of the examiner. The application of the test is more nearly mechanical than in higher examinations.

To whom should this work of testing be entrusted? So far as it looks to the past, and pronounces a verdict on work that is done, at least partly to those who have taught the student up to the present. But if employers of labour and the general public suspect the teachers of mistaken leniency, it will be necessary to call in some impartial authority whose verdict will be accepted. So far as it looks to the future, the examination should be conducted by those who are going to carry on the student to the next stage, who have to make themselves responsible for his further advance if he is fit for anything higher.

There are some who think that examinations are intended to prove that all men are equal. I think that they prove exactly the opposite. If all are equal why examine them? If we have 1,000 currency notes we don't measure each one with a millimetre scale, because we know that they are all of the same length. As Ruskin points out, education is not democratic but exactly the reverse. There is nothing which so inexorably divides men, grades them, arranges them in groups and pitilessly proves their inequality, as education. In the

physical world no one supposes that all can pass the same tests. All boys who are not deformed can perhaps jump two feet high. Those who are 14 years old can, in most cases, with a little practice jump three feet, about the height of a tennis net. But we do not think that because 900 boys out of 1,000 can jump the three feet in 1920, all the 900 will be able to jump four feet in 1921; still less that all will reach $4\frac{1}{2}$ feet in 1922, and 5 feet in 1923. We soon reach the stage when every rise of an inch eliminates many. If all can understand this in a test which can be seen with the eyes, it is strange that many cannot apply the same principle to a matter which needs mental sight. We do not blame a physical instructor if some of the 900 boys, who can jump three feet in 1920, fail to reach four feet in 1921. Yet we find writers and speakers of some repute who will tell students that when they do not reach a certain standard it is the fault of their teachers or of the examiners. They shut their eyes to differences of mental equipment and degrees of industry. Theologians tell us that Almighty God cannot make a man virtuous if he is determined to be wicked. Nor can any teacher make the idle student work. Perhaps very few boys in our colleges are really lazy, but there are many in all countries of moderate ability. The lecturer has not the resources of Omnipotence. He cannot give intelligence to those who are dull.

If it is unreasonable to expect the instructor to raise all his 900 boys from 3 feet to 4 feet in a year, it is still more unfair if the majority of them have never reached even three feet. If the lower test was applied not by himself but by some unscrupulous or ignorant person, who used a foot-rule containing only 10 inches, many of the students, when he takes them over, can jump only $2\frac{1}{2}$ feet. Then if the instructor is to be abused for the failure of many of his 900 he will be tempted to use a measuring tape containing feet of only $8\frac{1}{2}$ or 9 inches so as to produce a good result. This system, one may suppose, could be brought to per-

fection only in Bedlam, but there may be some danger of it in other places beginning with the same letter. If, in any way, we make the teacher responsible for the progress of his students, we must, at least, let him test their attainments and capacity before he begins work with them.

I think that I would apply this principle at every stage. The lecturers in the Degree classes should take the chief part in examining for the Intermediate, and the M.A. and M.Sc. lecturers should conduct the examinations for the B.A. and B.Sc. This will not be so necessary if the Degree is considered as a hall-mark, implying fitness for work in the world outside, rather than for higher study. In that case the M.A. professor must conduct his own preliminary test, or require some further proof of ability before accepting students. We have power to do so here. I believe that it is not done in practice. This is probably due to the paucity of students fit for higher work hitherto produced by our Province. If we restricted the M.A. classes to those who have given proof of fitness for advanced study our classes would be even smaller than they are. As numbers increase some method of selection may be introduced.

This brings us to the question of standards. In an elementary examination it is only a question of proving that the student has studied certain subjects, and can understand and remember what he has read. The work is not beyond the mental grasp of the normal boy. In most cases it is possible to give a perfect answer, and we know beforehand what it is. A sum must be done in the right way, and accuracy attained in translation, or in stating historical or geographical facts. There is not much room for judgment or emphasis and the answer is either right or not right. There I think we may demand a high percentage. There are some who think that the standard (i.e., percentage of marks) should be lower in an elementary examination, such as the Matriculation, than in a higher one. I believe that it is exactly the opposite. In the higher examination there is no

limit of excellence and we should leave plenty of room at the top for a brilliant student, if ever one appears. I believe that 100 per cent. in Mathematics is not impossible, nor even very uncommon, in the Calcutta Matriculation, whereas in the Cambridge Tripos, I understand that a high wrangler might get only 20 per cent. I think we should expect accuracy in a low examination, and therefore the percentage should be high, 40 per cent. or 50 per cent. or more. A student who cannot get 40 per cent. obviously does not know the work which he is supposed to have done, and should go back and learn to do it before he attempts anything further. What a bad preparation for life it is to let the student think that it does not matter whether a thing is done or not done. It is all the same. If he has neglected a duty, never mind, it will pass unnoticed; he will cover it up, and go on to the next thing, and thus spend his time in a series of half-finished tasks and pieces of slovenly work. If our matriculants are unfit for responsibility there is no wonder, if they have never seen anything done well, or been made to do anything well in their lives. It presents a painful contrast to my mind when I see a bit of wood work or brass work turned out in the Bihar School of Engineering, and compare the accuracy and finish of which our boys are capable (under strict supervision) and the inaccuracy and slovenliness of the mental work done by our school and college students. We can measure and value things made of wood and iron, but we attach little importance to accuracy in things of the mind.

We want a comparatively simple examination at the Matriculation stage. We must insist upon accurate knowledge and allow only a small percentage of error. At the same time we must so frame our questions and our rules as to encourage development of the intelligence rather than reliance on memory. This is very difficult in elementary work. A student should, at least, be able to read the questions, and to spell correctly words which are contained in the question paper. The

Emperor Napoleon is peculiarly unfortunate. Students have a strong objection to spelling his name as he spelt it. Even when it is printed correctly in the question they prefer to write 'Nepolian'. There ought to be some penalty for *l'es-majesté* of this kind. As the poet beautifully expresses it,

"He left a name at which the world grew pale,
Those who miss-spell it all deserve to fail."

Sometimes a mistake betrays complete want of comprehension. Rosebery's remark about the younger Pitt: "He entered Parliament as an heir enters his father's hall" was reproduced as "Pitt entered Parliament like a hare entering its den." The 'Game Laws' in England have been represented as laws forbidding landlords to play rough games on their tenants' land. On the other hand a ludicrous effect may be produced almost by accident. There is a country in Europe called Hungary. The article 'the' is placed before the names of some countries as 'The Tyrol.' A legislative body was formerly called a Diet. Many peoples of Central Europe have from time to time desired changes in their legislative system. Given these facts we can understand the meaning of the student who said, "The Hungry were not satisfied with the diet which was given them."

The examinee should answer the questions set, and not give answers to some other questions which he has prepared but which are not asked. If he cannot do this his intelligence must be very small and, probably, he ought not to pass. There should be some element of surprise in questions, and great importance should be attached to practical work in Science, to problems rather than book-work. We should expect intelligent criticism and accurate translation of unseen passages. The drawing of maps and pictures is useful. Everything should be done to discourage the gramophone type of answer. Perhaps it would be well for the paper-setter to make a collection of the most popular cram-books, and so to frame his questions that none of the answers would serve. If it were known that

this plan would be followed, such books, perhaps, would disappear from the market. Paper-setters should be willing to take more trouble and use more ingenuity than at present.

The same remarks apply to the Degree examinations, except that here it is not unreasonable to expect some little originality and power of judgment. We may ask not only what happened but why it happened. I do not wish to exaggerate here. I know that our standards are low, and that too much must not be expected from a B.A. I think that the standard of the Degree examination should be higher than that of the London Matriculation, in English and History, and considerably higher in Mathematics and Science.

Our methods of examining have been mercilessly criticised and ridiculed. Many of these attacks upon the system I have read with eager curiosity, hoping to find some practical suggestion for a substitute, but generally in vain. Some years ago a peripatetic critic wrote a long report, part of which was devoted to this subject. I hastily turned many folio pages, full of abuse of examiners and all their works, searching for something constructive. At last I came upon a small paragraph in which the writer offered to suggest a better way. It was this: "Instead of examination we ought to have estimation." Was there ever a more lame and impotent conclusion, a more irritating play upon words? For what is estimation but the exercise of one's judgment, and on what is our judgment based but on tests of some kind? Are we to toss a rupee, and say "Heads he passes, tails he fails"?

The hostility to examinations so often shown, springs, I think, partly from unwillingness to submit ourselves to tests, and from a sneaking fear that our merits are not equal to our reputation. We might abandon tests altogether and say "We will teach, but make no attempt to ascertain the results of our teaching." I think I should have little objection to that. I believe, however, that opponents of examinations do not wish to abandon them. They wish to make them vague and indeterminate like certificates and testimonials; to introduce changes which will make the result appear

better than it is, and cause to pass those who have really failed.

If all our present methods are defective, can we suggest improvements? Examinations may be rare or frequent, written or oral, on single subjects or parts of subjects, or comprehensive. Sometimes limitation of time is of the essence of the test and sometimes not. They may be confined to prepared work or we may allow surprise tests of all kinds. We may expect the display of some trace of imagination and originality, or require only proof of accurate knowledge. I don't see why we cannot combine all of these. In schools, and even in colleges, there is verbal questioning and discussion. There may be weekly essays on prescribed subjects, sometimes written at home with the help of books, and sometimes in the class-room after preparation but without any present aid. But at least sometimes, probably once a year, we should apply a comprehensive test in which all the mental powers of a student, and all his acquired knowledge are brought into play. If we use different methods we must not pretend that we reach the same result. A man who can do a piece of work in one day is vastly superior to the man who needs two days for the same task. A student who can reach a certain standard in two years is much abler than one who requires four years. That is, probably, the reason why in the higher examinations at Oxford and Cambridge a failure is final. There is no second chance. The man who "requires a second chance is, in some way, inferior, and ought not to be placed on the same level as the superior man. A four-anna piece is not a rupee, though if used four times it may do the same work. The difference between a student who can pass in four subjects at one time, and one who can only pass in one subject at a time, is probably greater than that between a rupee and four annas.

As we rise to more advanced work we narrow the field and concentrate on a smaller number of subjects. I doubt, however, the wisdom of too early specialization. There are some Universities where the M.A. Degree in History requires only the study of one period or reign in one country. At Cambridge, on the other hand, we are expected

to cover the whole field of ancient, mediæval and modern history, together with one or more special periods, with a study of the original authorities, always, I think, in a foreign language and political science, economics, and the constitutional history of England. Here detailed knowledge cannot be expected in every part, but so comprehensive a view of life requires, and gives opportunities for the use of all the powers of the mind. As Lord Acton says, "Universal History is not a rope of sand, but a continuous development, not a burden on the memory but an illumination of the soul." My illustration, naturally, is taken from my favourite subjects, but I believe that I can expect the support of philosophers, linguists, and even of scientists. How valuable, for instance, must be the very full literary and philosophical course taken by the students of Lit. Hum. at Oxford.

I think that a thesis or essay may be additional to, but cannot take the place of, an examination which requires a great body of knowledge carried up to a high level. Many people do not know what a thesis ought to be. They seem to think it is an essay of the type to be expected from an M.A. student, but prepared with the aid of books, with no limit of time either for preparation or production, and therefore, much longer, reaching the proportions of a pamphlet or a book. Or some believe it to be a catalogue of facts gathered from various sources, a string of quotations or references, pointing in one direction, and supporting some conclusion. Students sometimes express their wish for it under the impression that it would be easy to reach the standard. In practice I fear that the popular conception is not very wide of the mark. The kind of thesis required for a Ph. D. in India, in Germany and in America, has so often been ridiculed by those who have obtained the degree that some humorous passages may be in the minds of many of us. About ten years ago I accompanied Dr. P. K. Ray on a tour of inspection. At one college we found a Bengali lecturer newly appointed, who was in possession of a

Japanese doctorate. When we inquired how he obtained this, he replied "I had to write a thesis on 'The chemical constituents and relative economic value of pumpkin and squash.'" This is, no doubt, an interesting subject of inquiry, but I think that it cannot take the place of an education. Such specialization should come later, and a degree should not be given to a man unless he shows real originality of mind, and can make an important contribution to literature, or "widen the bounds of human knowledge" or whatever the popular cant phrase may be. Such a man, of course, does not need another degree, and is not likely to present himself. In practice, I fear, the ordinary candidate sacrifices breadth without attaining height. It is also almost impossible to propose subjects which are at the same time new, and important, and within the capacity of the ordinary intelligent man; it is very difficult, if not impossible, to decide how far the work produced is that of the candidate, and what help he has received from others. Success or failure, too, must depend almost entirely on the opinion, sometimes on the whim, of one man, and this increases the subjective element which we desire to avoid.

I think that an oral examination may play a useful part. It should not be conducted as at Allahabad, where the written work of the candidate is not placed before the examiner, and questions are asked for 15 or 20 minutes on any subject connected with the course. I have found by experience that they cannot be questions requiring a long speech in reply. In fact one can only ask for dates, names, places and such things. This is not the object of an oral examination. The student should be called upon to explain and amplify his own written work so that the examiner may know whether something badly expressed is really well understood or not; and whether an answer, good so far as words and sentences go, is a result of memory, or a proof of ability and comprehension. An oral examination requires much time, at least an hour for each student in doubtful cases. It cannot

be used in the B.A. but I think it might be very valuable as a part of the M.A. examination, or even at the B.A. stage in Honours.

For a long time I have been interested in the discussion with students of abstract terms and definitions, and in trying to make them see the implications of statements, which commonly pass unchallenged. Questions designed to test reasoning powers can be set in higher examinations, and we may demand criticism of sentences containing inaccuracies, ambiguities and fallacies. In America successful attempts have been made in elementary examinations also to apply psychological methods and to test observation, intelligence, quickness and accuracy. These methods are probably known to some of us, and it would take too long to explain them to others. I hope that more use will be made of them in our Training Colleges and Schools.

With regard to the method of expressing results I think well of the so-called 'Oxford System' of three classes, indicated by the letters α , β and γ , and further divided by the addition of plus and minus signs to each. This gives 8 or 9 marks and is almost equivalent to the publication of three classes, each containing three divisions. At Cambridge, in Mathematics and in Law, names are, or were, placed in order of merit. In Classics there are three classes, each with three divisions. Some other subjects have only the first or the second class divided. This is the method followed in History at present. There may be much difference in merit between the student who just misses the first class and the one who just rises above the third. I am inclined, therefore, to favour the division of the second class at least. This does not imply any lowering of the standard required. The lowest division of the class will correspond to the old minimum mark.

I have indicated some defects and some possible improvements in our methods, but I think I am prepared to defend the examination system even

as it stands. In what other department of life is so close an approximation made to fairness? The intelligent and industrious student nearly always passes, and the best student nearly always rises to the top. An examination implies a judgment, usually careful and deliberate, pronounced by competent, or semi-competent judges. It is ignorance or imperfect knowledge, tested by wisdom or by superior knowledge. Can we say the same of what is called success in politics or business? Can we say that the man who makes a lakh of rupees on the stock exchange, or is appointed to a high post, or elected a member of a Council, usually deserves his success as well as a student deserves his place in an examination list? Even literary or scientific reputation depends very much on skilful advertising, and the success or failure of a book means that the ignorant have passed judgment on the comparatively wise. The student who obtains a first class in an examination, usually deserves his place more than a knight, his title, or a C.I.E., the letters after his name. When all has been said about bad luck and possible mistakes on the part of examiners, I think that substantial justice is done. Though incompetence and unfitness sometimes creep through the gate, it would be hard to find a case of the failure of intelligence and industry.

I make this profession of confidence on the understanding that we appoint as examiners only men who know the subject and are conscientious in marking. In the higher work our choice is very limited, and often there will be only one man who has made a special study of a subject, and he, the one who teaches it. Whether few or many, however, I think that we should always prefer fitness to the principle of communal representation. An educational system has often been compared with a pyramid. The number of students diminishes as we rise to higher levels like the number of bricks in each course. But all the weight rests upon the bricks used at the bottom, and everything depends upon their soundness. It

would be the height of folly to use bad material in the lowest place. Probably a student goes on for years in ignorance of what he has failed to learn or understand at the Matriculation stage, and this ignorance adversely affects his future work. It is no kindness to him to send him into a college when he has shown himself incapable of doing his school work well. He starts subject to a handicap and struggles in vain to overtake his fellows. Or if there are many of his kind, the standard of the lectures is lowered to their level. The minority of good students are kept back, and are often obliged to go to England or elsewhere for higher teaching. This would be quite unnecessary at the B.A. stage if the lecturers were not expected to make bricks without straw, and obliged to choose between neglecting the incompetent student, and keeping back the more intelligent to suit the comprehension of the mental invalid.

The percentage required for a pass should be high in another kind of examination, and that is the one which opens the door to a profession. We do not consider a lawyer competent if he can give sound advice to only 30 per cent. of his clients. We do not trust a doctor who diagnoses a case accurately sometimes, or an architect whose buildings do not always collapse. With regard to the M.A. Examination, however, in a subject like Modern History, where the student requires a very good knowledge of English, and some comprehension of the myriad activities of the great world, in all its aspects, cultural, economic, political, financial and military, I think it would be unfair to expect him to rise to the standard of Oxford or Cambridge; and I should be prepared to raise him a class or half a class above his form; that is to give a first class to one who would be likely to obtain a second in the Tripos. I need not labour the subject of professional competence. It will be admitted by all that a high percentage of knowledge is to be required from the man who is going to use it. Unfortunately we do not apply this principle to the teaching profession

itself. The man who has obtained only 30%, sometimes the man who has not obtained even 30%, but who has been raised to that figure by all the devices of mistaken leniency, is turned loose upon our schools to spread his own ignorance among our boys. It is not surprising that our school boys cannot spell when some of the teachers themselves cannot spell. As long as we continue to give the B.A. degree to young men who cannot spell, and then appoint them masters in our schools, it is a case of the blind leading the blind. By giving a student only 25% or 30% the examiners have certified that he does not know his subject, that a great part of his work is inaccurate, that he gives proof of ignorance and want of ability. Nevertheless we give him a degree. The examiners never call him and tell him what are his mistakes. Consequently he believes that he is right. It is usually the worst third-class men who become school-masters, and go forth boldly to spread ignorance. Thus a University may become a fountain of darkness and not of light, a source of error and not of truth.

In England the very ablest men and most distinguished graduates are content to serve as school-masters. If you look down the Tripos lists at Cambridge, you will find,—not once by accident but frequently,—you will find schoolmasters among the first two or three men in the first class in the highest examinations. Those just below probably obtain fellowships and remain at the University as lecturers. Then come those who become professors at the provincial or colonial Universities, then the I.E.S., I.C.S. judges, colonial governors, politicians, merchants, Viceroy and members of the Cabinet, all mingled up, with a tendency for statesmen to be near the bottom. If in the so-called materialistic West, men thus value mind more than money, why cannot we do the same? The answer generally given is that we cannot afford to pay the schoolmaster as much as a mechanic, and therefore, we cannot expect to get a man as intelligent as the mechanic. We can afford one lakh

in order to appoint ignorant men to spread ignorance, but we cannot afford two lakhs to appoint instructed men to spread knowledge. I agree with a recent writer who says, "Ignorance in all its forms is the most expensive luxury in which nations can indulge." Even worse than ignorance is intellectual error, it is a positive source of peril, and not merely a negative condition of danger; it is an infectious plague, as opposed to a state of low vitality. "You can convince the wise," says M. Faguet, "and you can convince, though with more difficulty, the ignorant, the half-educated, never." "No one," he unkindly adds, "ever convinces the elementary schoolmaster." If this is true it is better to have a few competent teachers than many incompetent; better to have no schools at all than to leave our schools in the hands of those, whose stock of half-remembered, never-understood half-truths only makes them competent to mislead. The rich Indian Zamindar can afford two lakhs or five lakhs to fee the pleader, who uses all the means known to the law in the effort to gain an estate; he can pay Rs. 20,000 for an elephant or a motor car, and can even well reward the doctor who tries to cure him of diseases, which are the result of plain living and high thinking. But when it comes to the education of his son, to the

development of the mind and the elevation of the soul, then we see the relative value in his eyes of the estate, the elephant, his stomach and his son.

I have spoken plainly on this subject. We cannot convince the materialist of the importance of good teaching and the need of good teachers; but so far as we have any influence in our Universities, we should refrain from giving our degrees and the stamp of our approval, to unenlightened propagators of error. It may be that my fears are groundless. Perhaps our Universities never do this. The motto of our great neighbour on the East is "The advancement of learning." It is not "The propagation of shams." In the adjoining province on the West we read, "Quot rami, tot arbores." We must hope that the leaves of that tree are for the healing of the nations. Trees figure, also, in our own coat of arms. It happens that I was one of the three appointed to select it, and our motto "Esse quam videri" was suggested by me in the hope that our authorities would make it their guiding principle. It will be sad if we have to strike these words from our escutcheon, and adopt a new one from our Chancellor's recent Convocation Address,— "A shoddy factory of indifferent degrees."

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ANCIENT HINDU GEOGRAPHY.*

IT has been held by many distinguished scholars of the present day, that the ancient Indians were sadly deficient in the knowledge of Geography. But it may be remarked that the study of Geography is a necessary concomitant of the civilisation and no people that have made even the first steps in the progress towards civilisation and enlightenment can have failed to direct their attention towards it. It is true that we do not now possess any ancient authoritative work on Hindu Geography, as there were no professed writers on Geography or History to supply us with definite and trustworthy information. Even the works of the poets (as prose writing was a rarity in the ancient times) upon which we should be compelled to fall back in the absence of more authentic guidance are for the most part lost to us, either due mainly to the burning of the books in the days of struggle between the Hindus and the Muhammadans for supremacy in India, or due to the vicissitudes of the times. "We are thus reduced to glean what few hints we can gather from the citations of later writers, the accuracy of which we have no means of testing."—(BUNBURY). The difficulties in the path of writing a system of correct ancient Hindu Geography in the absence of definite materials, and connected links are too many and the same is true of securing accurate contemporary evidences. I now proceed, therefore, to give in my paper an account of what I think was known with certainty to the ancient Hindus.

THE EARTH—ITS SHAPE, GRAVITY AND GRAVITATION.

In the commentary by Bhaskacharya (Chapter III) it has been proved beyond the

*A Lecture delivered at the Behar Young Men's Institute, Bakipur.

shadow of a doubt, that the earth was a big globe and the flat theory of the earth has been much criticised and totally rejected. Previous and even contemporary writers like Lalucharya and others have not been spared criticism in his commentary for their erroneous idea with regard to the shape of the earth. (Arya Bhatta, a much later writer, also fully proved its roundness and globular shape). Bhaskacharya defined the position of America which he calls Sidhapur, that it was situated on half the earth on the other part (i.e. towards the antipodes), warning the readers at the same time against thinking that the people of Sidhapur have a chance of falling into the space, because of their inverse position, but that they are held fast to the ground by the force of gravity just as we are. This is a bold statement which at once reveals the knowledge that was prevalent among the ancient Hindus both with regard to the roundness and gravity of the earth and the law of universal gravitation without which a knowledge of gravity is inconceivable.

ROTATION AND REVOLUTION.

The rotation of the earth round its axis was also conceived by him when he set out to explain the formation of the Day and Night. He also said that the earth had a yearly motion round the sun which is near about the centre of the path described around him by the earth. Thus the earth had simultaneously two motions (i) that of Rotation, and (ii) Revolution. This is just in conformity with the views of the astronomers from the time of Kepler, who also enunciated the same in his well-known laws.

LATITUDE AND LONGITUDE.

The calculation of time based on Longitude and Latitude is also mentioned in the Geo-

graphical Commentary of Bhaskacharya. He has said as has been found out by modern astronomers, that for every change of 15 in Longitude, there is a difference of one hour in time. If the change is towards the East, the time is one hour sooner, but if it is towards the West, the time is one hour later. Hence it is apparent that the earth rotates on its axis from West to East. This explains the formation of day and night.

Thus when the sun will rise in Lanka, it will be mid-day in Yamakuti, sunset in Sidhapur and mid-night in Romikapatan. Sidhapur has, therefore, been identified with a point below Upper Mexico, as it is on the antipodes of Lanka.

THE POLES AND POLAR REGIONS AND THE EQUATOR.

The fact that all planets make circuits round the Pole Star which is situated at the apex of the cone made up by such circuits was long before discovered by the Hindus. This point is evident from Bhaskacharya's description of the Arctic Regions as a place where continual darkness of six months lasted and where the stars were circumpolar, because the Pole Star (Dhruva) was just overhead. That the axis of the earth is inclined to the plane of its orbits at a certain angle ($23^{\circ} 28'$) was also known to the Hindus, as otherwise the continual darkness of six months in the Arctic Regions and the circumpolarity of the stars cannot be explained. The following passage occurs in the *Padma Purana* which describes the Arctic Regions as a place where the sun and the moon cannot reach, which is just in conformity with the facts revealed during their modern exploration:—

"To the North of the Sringavan mountain and where the sea ends, Oh best of the twice-born, is the country named Airavata country of the (Mammotha) next to Sringavan

The sun does not go there and men never become old And also the moon with the stars which are luminous, is as it were covered."

It is therefore evident also that the causes of the change of the seasons were also fully known to them as they had already a knowledge of the inclination of the axis of the earth to the orbit and the revolution of the earth round the sun.

Mr. D. N. Sen goes a step further and maintains (*Trans-Himalayan Reminiscences in Pali and Ancient Indian Literature*) that not only were the ancient Hindus familiar with the North Polar Regions of long twilights and extreme cold, but that they seem to have actually migrated from those regions and that this memory is preserved in the words like दीपरत्तं (long nights), रत्तमभू (man of experience, literally, the knower of time), रात्रिं रात्रम् (hundred winters), etc., where the word 'night' is often used in the sense of time and precedes the word 'day' and the years are reckoned in terms of so many winters. Mr. B. G. Tilak was also of the same view (in his *Arctic Home of the Vedas*), and was inclined to give the more Northern regions as the original home of the ancient Aryans, rather than Turkestan or Central Asia. But a discussion of these views is beyond the scope of this paper and is a task quite disproportionate to its objects; suffice it to say that the Arctic and the Antarctic regions were fully known to the ancient Hindus, the former of which was called 'Sumeru,' the abode of the gods, and the latter 'the Kumeru,' the abode of the demons—(Bhaskacharya, Chap. III). Dr. Tibbaut in his *Astronomic (Grundriss*, pp. 30 and 37) has expressed very clearly on the subject, when he says that the Hindus knew the Dimensions and indicated the Pole and the Equator.

LAND AND WATER.

The globe consists of land and water. The ancient Hindus divided the land into seven *dwips* (continents) and each *dvip* into *varshas* (countries), one *dvip* lying in one hemisphere and the other six in the other hemisphere. All the *dwips* were separated from one another by a *samudra* (ocean). Thus there were seven oceans. The seven *dwips* were:—

- (1) Jambudwip.
- (2) Palukhadwip or Gowmedhakdwip.
- (3) Salmaldwip.
- (4) Kushadwip.
- (5) Karoundhwip.
- (6) Sakyadwip.
- (7) Pushkardwip.

Before identifying these *dwips* on the modern map of the globe, it may be pointed out that the ancient Hindus had a system of nomenclature based on the conspicuous appearance of the inhabitants of a particular place (to be identified) or upon the conspicuous growth of certain trees or shrubs in it. It was never named after the discoverers of the place (as is done in our days), simply because of the fact that the above system of nomenclature conveyed a better idea about its inhabitants than when merely the name of the discoverer was uttered. Thus when the ancient Hindus spoke of Romikapatan (lit. the place of the hairy people), they meant the Nègroes of Africa, who are conspicuously hairy. Neither is the belief, that these *dwips* were purely creations of their imaginations, tenable, because the Hindus daily even now in their Pujahs utter the words *Jambudwipa*, *Bharatkhande Aryavarte* (i. e., I am an Aryan who live in the Bharatkhand of Jambudwip). Also many of the Brahmans of the present

day, when questioned as to what kind of Brahmans they are, reply, they are Sakyadwipis, i. e., they come from Sakyadwip. It would be foolish to think under such circumstances that the Hindu geographers were describing about imaginary lands. One ingenious objection that is generally raised from the side of Western Orientalists, is that the Hindus are prohibited by their holy books from crossing the seas and from going beyond their country owing to the caste prejudice. Consequently, they had no boats or ships for the purpose. But how can these arguments be tenable when Manu, the great Hindu Law-giver, says in his Code, after fixing the rates of duties on certain items that taxes should also be realised from the ships, the amount depending upon the number of passengers and the cargo?

The caste prejudice then was not so keen as now. It was only a division of labour, and frequent examples were found of Brahmans marrying the daughters of Kshatriyas and Vaishyas.

Nobody could have done better justice to the enterprising spirit of the ancient Hindus than Mr. Crindle, who says (*Ancient India*, p. 110) that Cornelius Nepos (who died in the reign of Emperor Augustus — 14 B.C. to 14 A.D.) had mentioned Indian commercial activity even in Germany. That the ancient Hindus really described actual lands and not imaginary countries, is also evident from Mr. Francis Wilford's account of the Nile from the Sanskrit book sources which enabled Lieut. J. H. Speke to discover its source, (Speke's *Journal of the Source of the Nile*, Chaps. I, V, X). Md. Idris, an Arabian Geographer of the 13th century, calls Ceylon as Sarandwip or Sangaldwip, which evidently

is a Sanskrit word and shows the obligation of the Arabians to the Hindus in the matter of Geography. As to the identification of Jambudwip, Mr. D. N. Sen is of opinion (*Trans-Himalayan Reminiscences in Pali and Ancient Indian Lit.*, page 15) that, it "included amongst the whole of the inhabited portion of Central Asia from the South of the Himalaya to the shores of the North Sea," but a consideration of the Varshas included in it (which are according to Bhaskacharya nine in number, Chap. III) and according to the *Vayu Purana* (seven in all) shows that some of them have to be identified with North America and other countries, which are certainly not included in the limits mentioned by Mr. Sen. For example, among the other Varshas (countries) contained in Jambudwip, the Ilabrit Varsha may be identified with the lands of Siberia, Greenland and South Europe, and the Ramyak Varsha with a portion of North America for reasons which will appear later on. Objection may now be raised that Jambudwip does not lie on one hemisphere as previously stated, but some portions of it lie on the other hemisphere as well, e.g., the Ramyak Varsha; but it may be urged that the sections of the globe into two hemispheres were then not precisely the same as now; for we may divide a globe into two hemispheres in an infinite number of ways according as we take any diametral plane section of the sphere. Lanka or Sarandwip (Ceylon) was supposed to be in the middle of the earth, and truly no other place could have been a better starting point for an Indian student of Geography of those days and the whole of Jambudwip was supposed to be on one-half of the globe which to be clearer was not the old hemisphere of the

present day, but quite a different one. Dr. Maury in his *Physical Geography of the Sea and its Meteorology*, 15th Edition, page 7, describes one of the ways in which the world may be divided into two hemispheres. "Within the Torrid Zone the land is nearly equally divided North and South of the Equator, the proportion being as 5 to 4. In the Temperate Zone, the North with its land is thirteen times in excess of the South. Indeed such is the inequality in the distribution of land over the surface of the globe that the world may be divided into hemispheres consisting the one with almost all the land in it, except Australia and a strip of America lying South of a line drawn from the Desert of Atacama to Uruguay; England is the centre of this, the dry hemisphere; the other or aqueous hemisphere contains all the great waters except "the Atlantic Ocean"; New Zealand is the nearest land to its centre."

JAMBUDWIP.

In order to identify Jambudwip then, let us consider the varshas into which it was divided and then the identifications of all the varshas contained in it will be utilised in determining the position of the great continents on the modern map. According to Bhaskacharya it is divided into the following nine varshas:—

- (1) Bharatvarsha.
- (2) Kinarvarsha or Kimpurvarsha.
- (3) Harivarsha.
- (4) Ilabritvarsha.
- (5) Ramyakvarsha.
- (6) Hirumayavarsha.
- (7) Kuruvarsha.
- (8) Bhadrashavvarsha.
- (9) Ketumalvarsha.

The last two Varshas (countries) are not mentioned in the *Vayu Purana*, perhaps because both were lost to the sea as the description of their location indicates.

Mr. D. N. Sen, however, persists in identifying the Bhadrashavvarsha with the basin of the Tarim river and Ketumal with the valley of the Oxus, but there is absolutely nothing to warrant us in these identifications.

A passage in the *Vayu Purana* which describes then the remaining seven Varshas (countries) as separated by six mountain ranges reads thus:—

"This Himalayan country is well-known as Bharatha, Hemakuta is next to it and the land is known as Kimpursha. Naisadha follows next and the land is called Harivarsha. After Harivarsha and Meru follows the country known as Ilabrita. After Ilabrit is Nila and the country is known as Ramyak. After Ramyak comes Sweta and this country is known as Hirumaya. Sringavan follows Hirumaya and the country is remembered as Kuru."

Bharatvarsha, therefore, may be identified with India, the land of the Bharathas supposed to be the original inhabitants of the country. The Hemakuta which is next to the Himalayas cannot but be identified with the Altai mountains. Kimpurvarsha (lit. the land of the Hermophrodite) in all probability is China and Tartary because of the scanty growth of the hair of the Chinese. Mr. Kedar Nath, B. L., in his *Geography of the Ancient Hindus* has gone so far as to give an interesting linguistic history of the word. Kimpurvarsha changed in process of time Chinpurvarsha and thence to Chim or simply Chin, which is modern China. This view is upheld from the fact that while the name of Kimpurvarsha is mentioned among the Northern

countries invaded by the Pandava hero Arjuna in the *Mahabharatha*, it is not mentioned among the Northern countries to which a strong contingent of monkey force was sent by Sugriva in the *Ramayana* for the search of Sita (*Ramayana*, Kiskanda-Kand), but the names of the countries of the Chinas and the Paramchinas appear among them which go to show that the country was really called by both the latter and the former names and that this use was quite in practice. The Naisadha mountains seem to be the Ural Mountains and its chains and Harivarsha (lit. the land of the yellow people) is without doubt a part of Asiatic Russia, Mongolia and Manchuria, because the inhabitants of those places have more or less a yellow complexion. As to the location of Ilabritvarsha, sufficient hint has not been given in the passage quoted above. It only says that after Harivarsha and Meru follows the country known as Ilabritvarsha. Mr. D. N. Sen thus remarks, "The Thian Shan Mountains which are still known as the Celestial Range, seem to answer the description of the Meru Range as given in the *Vayu Purana*. The highest peak in this range would be the Central Meru Mountain round which the Ilabritvarsha lay. It is curious that there is still a river which is known as Ili which flows from the region into 'Lake Balkush.' But the position of Ilabritvarsha as indicated in Bhaskacharya's book is that it lies between the following four mountains:—

(1) Malayavan Mounts which spread to the Nil Mountains which are no other than the Rocky Mounts of America, because of their nil or blue appearance. The Malayavan Mountains though now extinct might be supposed to have been running from the Malaya Peninsula through the Pacific Ocean to the Rocky Mountains of America.

(2) Gaudhamadan Mountain which is North of Romikapatan (lit. the land of hairy people) i.e., Ethiopia or Africa and which spreads to the Naisadha Mountains, i.e., the Ural Mountains. This seems to be the great chain joining the Pyrennes, the Alps and the Caucasus which in the modern map are given as three different chains must have been due to various cataclysms in geological times.

(3) Nil Mountains or the Rocky Mountains of America.

(4) Naisadha Mountains. This land seems to be Siberia, Greenland, and South Europe, and as such it (Ilabrit) cannot be simply the country round the Thian Shan Mountains which has been urged by Mr. Sen.

The Ramyakvarsha (lit. land of beauty) is described thus: "After Ilabrita is Nila and the country is known as Ramyaka." Now this is not a sufficient hint which can help us in its identification and so it is no easy task for one to correctly indicate its position on the globe. But one thing which follows from the above description is that Ramyaka is the name of the land, where the *nil* Mountains of America, because of their *nil* or blue appearance, are situated. It is very significant here then to note that Ramyakavarsha is the name of the mountainous regions near about the Rocky Mountains and the fact that they are described as the "land of beauty," is nothing but a vivid description of the beauty of the natural scenery of the blue mountains glowing with purple like liquid gold in the early light of the dawn and that they must not have left the ancient Hindu geographers without effecting due impressions on their minds. The Ramyakvarsha may then be identified with the mountainous regions of Yukon, British Columbia, and a

part of Canada, the last of which curiously enough is pointed out to be a word of Indian origin by T. Alford Smith in his *Geography of America*, page 10. There is also a peak of the name of the Blue Mountains in the Great Dividing Range, stretching along the whole of Eastern Australia, but a consideration of the geographical description of the Nil Mountains in the Puranas and Bhaskacharya's book shows that the latter cannot be identified with the former.

The Swet Mountain which follows after Ramyaka seems to be the lower portions of the Rocky Mountains and the upper portions of the Andes Mountains in South America as the country of Hirmaya (lit. the land of gold) without any doubt can be identified with the North-Western portion of Brazil and a part of Columbia and Peru—a region which even now is famous for the exploration of gold and attracts people from all parts of the globe. An unauthenticated view is that Swetgiri has now been lost in the sea. It is quite probable that the remark is true only about a portion of it. But it has got no particular bearing on the description of its position in the *Vayu Purana*. The Sringavan Mountain which has been described after the Swet Mountain can as well be traced on the map. This seems to be the Southern portion of the Andes Mountains. Some people are inclined to think that it is also lost in the sea; but in this case it can be confessed that difficulties have arisen on account of a sad want of definite information on the point and the wrong identifications of it which have been made by some writers have left us utterly in chaotic confusion. Similar has been the fate of the country of the Kurus which has been very much confused with the city of the Uttarkurus. In regard to this, it may be pointed

out that the latter is placed in Harivarsha in the *Mahabharata* where Arjuna in the course of his conquests of the Northern countries is said to have entered. The confusion has been very ably cleared by the following remark of Mr. D. N. Sen: "The land of the Kurus, it will be noted, is designated in the *Padma Purana* as Uttar-kurus, which undoubtedly points to the fact that a branch of this race had already separated from the mainstock and migrated southwards. In the *Mahabharata*, the city of the Uttarkurus is placed in Harivarsha which according to Pauranic Geography lay to the South of Naisadha and far to the South of Meru." In the passage quoted from the *Vayu Purana* the only indication given is, "Sringavan follows Hirmaya and the country is to be remembered as Kuru." Hence it is evident that "the Northern most country included in Jambudwip was not Kuru" as has been erroneously thought by Mr. Sen. But a second passage quoted by him in support of his view is taken from *Brahmand-Puran*, which places the land of the Kurus to the South of the North Sea and adjacent to its shores. The passage is—

"On the shores of the North Sea and to the South of it
There live the Kurus in their holy land, the home of the perfect ones."

The conflicting description in the two Puranas then only lead us to the conclusion that much uncertainty remained in the minds of the people as to the true position of Kuru even in the Pauranic age. The land of Kurus may then be identified roughly according to the *Vayu Purana* with a part of the Western portion of Bolivia and Argentine.

KUSHADWIP AND SAKYADWIP.

The Kushadwip (lit. the land of the Kusha, i.e., a kind of grass) and the Sakyadwip

(lit. the land of Sakya or sag, a kind of vegetable) are the two dwips about the identification of which much difference of opinion prevailed. But the fact that they can be now definitely pointed out on the globe appears from a consideration of the valuable information which we have on pp. 12-13, of Speke's *Journal of the Source of the Nile*. On page 12 of the said Journal, Captain Speke has given a map 'by Lient. Francis Wilford of the course of the river Cali or Great Krishna through Kushadwip without and Shankadwip proper as mentioned in the Puranas. Now this river Cali or the Great Krishna is no other than the Nile, (which is one of the deepest and biggest rivers in the world), as Captain Speke latterly found out. The Shankadwip is nothing but a corruption of Sakyadwip through which the river Cali or the Great Krishna flows. The fact that it flowed through Kushadwip without and Shankadwip proper shows only that the course of the river was wholly through Shankadwip or Sakyadwip and lying very much near to the borders of the Kushadwip. Sakyadwip therefore can be identified with Abyssinia, British East Africa, and a part of Egypt, and Kushadwip with a part of Sudan and Egypt; from that map we also see that the Arunodadhi has been identified with the Red Sea and the Indian Ocean by Mr. Francis Wilford in his map. Dr. Gouranganath Banerji, in his *India as known to the Ancients* testifies to this identification in the following terms:—"The Phœnicians first made their appearance on the Erythrean or the Red Sea by which we must understand the whole Indian Ocean between Africa and the Malay Peninsula; and curiously the Puranas thus represent it, when they describe the waters of the Arunodadhi as reddened by the reflection of the solar rays from the Southern side of the Mount Sumeru which abounds in red rubies."

In the same map Dr. Francis has also indicated the position of the countries of Sharmasthan, Chandrasthan and the Pulindas.

SALMALIDWIP.

The Salmalidwip (lit. the land of the cotton) has been thought to be East Africa and Madagascar by Mr. Kedar Nath in his *Geography of Ancient India* on the supposition that these regions yielded at one time a large produce of cotton. But the supposition seems to be quite unwarranted, as we have already identified the Sakyadwip and the Kushadwip with East Africa on the authority of Francis Wilford's map. Again there has been another presumption in some quarters that the present Somaliland in Africa is nothing but a reminiscence of the old Salmalidwip. But we cannot be led away to draw such large conclusions on grounds which at least seem to be so meagre. There is, however, a very important cotton-growing area in North America towards which attention has been drawn by the following bold remark of Mr. Alford Smith in his *Geography of America*, p. 140: "The cotton belt stretches right across the Southern States from Texas to Carolina. Cotton cannot be cultivated north of the belt, because of autumnal frosts." It is, therefore, apparent from the above that the land included within the cotton belt is a conspicuously important cotton-growing area which must have been probably as famous for it in the ancient days as now. Salmalidwip may, therefore, be thought to be the portion of the United States lying above the Gulf of Mexico.

PUSHKARDWIP.

The Pushkardwip (lit. the land of the lotus) has been much confounded with the land of the Lotos-eaters placed by Herodotus on the Libyan coast seemingly in Tripoli, South of Malta. The fruit was described by

Tennyson as "in sweetness resembling the date" and a wine was also prepared from it. That the description of the land is not geographical, but purely imaginary appears from the following remark of Mr. Palgrave on the poem of the 'Lotos-Eaters' of Tennyson: "The foundation story of this poem is given in the *Odyssey* IX. 82—115, but the *Olympus* of the same (VI. 42—46) and the *Lucretian* repetition (III. 18—22) with other reminiscences from ancient song, must have entered into the varied landscape here set before us." The land of the Lotos-eaters in Homer is no less imaginary than the island of the Sirens, where magically enchanted every mariner lay, or the Island of Circe, who could by her magical powers turn human beings into swine. The Pushkardwip therefore, may be identified with Australia, either because it looks like a lotus in the midst of the ocean or because its border-lands still abound in lotuses of various kinds. The former view, it must be confessed here by the way, is slightly poetic and imaginative.

THE KAROUNCHDWIP AND GOWMEDHAKDWIP.

The Karouchdwip (lit. the land of the wild trees) and the Gowmedhakdwip (lit. the land of the cows tree) are undoubtedly South America, because large forests of wild trees and probably of the cows trees found there in abundance in the ancient days (*vide* Kedar Nath's *Geography*). These identifications it may be remarked are not absolute, but based on the presumption of the writer, as obviously there are now no earlier books in our possession which can help us in lightening our present task.

MINOR DWIPS.

(Sarandwip.)

Sarandwip as has already been seen before is Lanka or Ceylon. Md. Idris, an Arabian Geographer of the 13th century, calls it as Saran Dwip or Sangal Dwip and in fact this

was the name by which the Arabians used to call the island. Whether the whole of Lanka as we see in the *Ramayana*, was sunk into the waters of the sea when its kingdom was given to Bibhishan after the defeat and slaying of Ravana or whether only a part of it is rather doubtful, when we find that at the time of the *Mahabharat*, invitation was also given to Bibhishan, King of Lanka, to join the great war. This shows that Bibhishan was reigning in Lanka at that time and hence it cannot be thought that the island was sunk into the sea by Rama. But it is quite certain that part of it must have gone under the waters owing to geological cataclysms; otherwise it passes our comprehension, how the small size of the Island of Ceylon was able to accommodate all the huge army and the population and the big area (described in the *Ramayana*) during the reign of Ravana, for we cannot imagine that all the description may be brushed aside as poetic hyperbole.

JAVA-DWIP.

Yamakuti.

This is situated to the East of Sarandwip or Lanka (Ceylon) and may be identified with the Indian Archipelago. Yama or Java is modern Java. Hence Yamakuti is the group of Islands round about Java (lit. barley) which on account of its being an important commercial and political centre in the ancient times came to be known as Javadwip (lit. the island of barley). The following observations of Dr. Gaurangnath Banerji will make the point clearer:—

"From Java which was the particular centre of the Archipelago, the culture or the religion of the Hindus spread to the neighbouring Islands of Sumatra, South Borneo, and other parts of the Archipelago..... The fact remains, however, that the ancient Indians turned especial attention to Java which was known to them as Javadwip or Vulgo, 'The Island of Barley'. This name

was given by the first Hindus to both Sumatra and Java on account of this cereal, which according to the tradition, they found there growing wild." It may also be remarked here that nearly the same view has been taken by Sir William Raffles in his *History of Java*, Mr. V. Smith in his *History of the Fine Art in India and Ceylon* or Mr. Balfour in his *Cyclopædia of India*. Hence Javadwip or Yamakuti may be identified with Java, Sumatra, Borneo, the Philippines and Guinea.

OCEANS.

The description of oceans by Indian geographers has created great doubts about their existence in the minds of European as well as Indian scholars. These geographers have mentioned seven oceans:—"The ocean of water," "the ocean of ghee," "the ocean of milk," etc. The critics have here all agreed in saying that such oceans never existed at any time and that the ancient Hindus have only betrayed their utter ignorance by describing such imaginary oceans. Prof. S. M. Shastri in the *Indian Antiquary*, April 1921, page 117, has criticised the Indian geographers rather strongly with a certain amount of warmth. "This conception," says the Professor, "is childish; we ought not to compare it with that of the 20th century and stigmatise it as ridiculous. Ancient nations had strange notions"; and Prof. Macdonnell is of opinion that the knowledge of the sea was of a heresy nature and there seems to be no ground for the same. But it may be safely said that the waters of the different oceans at that time may have presented an appearance like that of ghee, milk, etc., just as the names Black Sea, Red Sea, Yellow Sea, etc., at the present day, convey the idea that the waters of these seas present a black, red, and yellow appearance. The modern geographers look upon the waters from the view-point of colour, while with the ancient Hindu

geographers naming of the oceans was based on the question what they looked like. If an ocean appeared like milk, it was an ocean of milk, if it looked like curd, it was an ocean of curd. The difference lies only in the points of view taken. In fact, the system of nomenclature employed in ancient India may have been precisely the same as obtain in our time. Thus it ought to convince an impartial mind that when the Hindu geographers wrote about the oceans they did not indulge in vain imaginings, and thereby betrayed their ignorance as has been supposed by some. We have already seen how the Arunodadhi was identified with the Red Sea and the Indian Ocean stretching from the Coast of Africa to the Malay Peninsula and we will also have occasions to note further identifications later on, and so Mr. Shastri cannot now hold that ancient nations had strange notions," in face of all the identifications which have been made up till now.

The Lavan Samudra (lit. the ocean of salt) since it lies between the Gowmedhak and the Jambudwip can be identified with the Gulf of Mexico, the Sura Samudra with the Atlantic, the Ghrit Samudra with a portion of the Atlantic and the Mediterranean, the Dadhi Samudra with the portion of the Atlantic lying between South America and Africa, the Dughana Samudra (lit. the sea of the milk) with the Red Sea and the Indian Ocean and the Jal Samudra (lit. the ocean of water) with the Antarctic Ocean. A slight examination of the position of these oceans (as given in Bhaskacharya's book) will bear out the above identifications :—

- (1) Jumbudwip.
Lavan Samudra.
- (2) Gowmedhak or Palukshadwip.
Ikshu Samudra.
- (3) Salmalidwip.
Sura Samudra.

- (4) Kushadwip.
Ghrit Samudra.
- (5) Karoundhwip.
Dadhi Samudra.
- (6) Sakyadwip.
Dighna Samudra.
- (7) Pushkardwip.
Jal Samudra.
Kanchanbhumi.
Lokalok Parvat.

As the dwips have already been identified before, so there can be no difficulty in identifying the oceans, and in fact, the dwips have been the basis for the latter's identifications.

The Kanchanbhumi, as it comes after the Antarctic Ocean, may be identified with the South Polar regions and the Lokalok Parvat seems to be nothing but the belief of the ancient Hindus that there is a big range of mountains and high snow cliffs at the farthest ends of the South Polar regions. Modern explorations of those regions have borne out that belief and hence proved that the Hindus were quite correct about this.

We have a Geography of the Northern Regions as given in the *Ramayana*, Kishkindha Kand, Chap. XXXIV.

Sugriva despatched a strong contingent of the monkey force towards the North in search of Sita. The following is the list of the countries to which they were asked to go on their errand :—

"The country of the Mlechhas, the Palindas, the Surasenas, the Prasthalans, the Bharatas, the Kurus, the Bhadrakas, the Kumbojas, the Yavanas, the Sakas, the Arattakas, the Bhalikas, the Rishikas, the Pauralas, the Tankanas, the Chiuas, the Paramchinas, the Nibaras, the Daradas, and the Haimavanta country."

Other places to which they were also advised to go are :—

"The great black mountain, a hundred yojana of dreadful wilderness where there are no mountains, rivers, trees or living things, the white mountain known by the name of Kailas, the Kraunch Mountain, the Mainaka Hill, Baikhanasa Lake, where elephants with their calves roam freely, the country on the other side of the Lake, where the sun and the moon are lost and the sky is starless and cloudless and things are seen under a light like the rays of the sun and to the north of which lies the Ocean."

In the *Mahabharata* we find the names of the following Northern countries conquered by the Pandava hero Arjuna whence he also exacted tributes :—

"The Kimpurshas, the Katakas, the people of the country round the Mansarowar and the Harivarsha."

Mr. K. P. Jayaswal in his "Historical Position of Kalki and his identification with Yasudha Varma," *Indian Antiquary*, 1917, page 149, says of Kalki: "He made a conquest of almost the whole of India, the northern countries, the Madhyadesha, the Vindhya countries, the Aparatas, the Deccan, the Dravidas, the Paradas, the Palhavas, the Yavanas, the Sakas, the Tusharas, the Barbaras, the Pulindas, the Daradas, the Lampakas, the Audhakas, the Rudras, and the Kritas."

It is not possible to identify all the countries named above with the very small amount of materials that we have at our disposal, but an attempt can be made in this direction towards some of them, e.g., the country of the Pulindas has found a place in the map of Francis Wilford, given on page 12 in Speke's *Journal of the Source of the Nile*. From the position which this country occupies in the map, it appears that it can be

identified with British Central Rhodesia* and a portion of the Congo regions. The country of Bharatas may be identified with Northern India above the Vindhya. The country of the Sakas seems to be in all probability Scythia. The country of the Bahlikas is undoubtedly Balkh. The country of the Gandharas is the same as Kandahar of to-day. The Paradas seem to be the inhabitants of Parada which appears to be the same as Paratha or Parthia, i.e., Paras, i.e., Persia. The land of the Pathans seems to be a part of Persia as the Pahlavi language is still spoken in that area. The Madhyadesha or the middle land is identified with the lands near about Meerut, on the ground that the Vindhya formed the lowest boundary of the Bharatvarsha. The land of the Kritas has got a place in the ancient Historical Atlas of India by Charles Joseph. From the map it appears that it can be identified with the Southern portion of Assam. The land of the Surasenas from the position which it occupies in the map of Charles Joseph already mentioned, appears to be the land near about Mathura, Delhi and a part of Eastern Rajaputana.

The "hundred yojan of dreadful wilderness where there are no mountains, rivers, trees, or living things," as the description indicates, appears to be a desert where there can be no mountains or trees or living things. A hundred yojan may be taken to mean only a very great desert and not a desert whose magnitude is definitely stated in terms of so many yojans. This may be thought to be the great Sahara Desert of Africa. "The country on the other side of Baikhanasa Lake where the sun and the moon are lost and the sky is starless and cloudless, and things are seen under a light like the rays of the sun

and to the north of which lies the ocean." This evidently refers to the further regions of the Arctic Circle where there is continual darkness of six months and the stars are circum-polar. The light of which the description has been given is undoubtedly the Aurora Borealis, a phenomenon of electricity in the higher regions of atmosphere and a provision by God for the less favoured people of these places which may be identified with Esquimaux, etc. The people of these places have to depend upon light emitted forth by the Aurora Borealis (there being an Aurora Australis as well for the South Polar regions) which is very brilliant and shining.

(To be continued.)

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FROM A RURAL SCHOOL WINDOW.

By K. R. R. SASTRY, M. A.,

Fellow of the Royal Economic Society (Lond.)

I. TO THE OFFICER.

IT is always hazardous to take suggestions from such gifted writers of prose as Mr. A. C. Benson; yet his book served as the best indicator for one in search of a title for a series of rambling thoughts. Perhaps my post is one of the most uninteresting, dull jobs which is invariably successful in turning potent geniuses into mediocrities.

Why such a tirade, you may ask. The reason is not far to seek. You may be a graduate in Arts or even of the tribe of Honours' men. But what of that? You are asked to inspect schools with VIII standard as the highest; and of the preponderating majority of schools, IV is the highest class. Woe be to you if you have not got sufficient knowledge of your vernacular not to commit bad mistakes in transcription. Your simple idiomatic English prose, not to speak of the neo-poetry among some of us, has no place there.

NEVER GET DISAPPOINTED.

If after seeing Rolls Royces gliding through the Beach Road, you are to see only the historic country-cart travelling at the rate of two miles per hour, you will have to thank your stars for that vehicle at least. More often you will have to be on your heels to reach the village school.

GET A DAILY PAPER.

Woe be to you if you do not get a daily for yourself. Closetted with the school away from traces of civilization, the newspaper is your only solace. It is difficult

to get a Tamil Daily in many villages of even the most advanced district.

Never go to the post with high hopes of exercising your authority. Realise that you are technically only an adviser. If asked for, give proper advice. Always try to maintain the best personal relations with the Managers and Presidents concerned. More is gained through a half-an-hour interview than through lengthy correspondences tinged with bitterness and enunciation of high principles. Was it not that master-hand Lord (now Marquis) Curzon who rebuked even the I. C. S. for their lengthy correspondence?

CANONS OF INSPECTION.

Your canons of inspection should always aim at wide diffusion of knowledge rather than at measuring the depth thereof. If under your Range the number of schools does not increase, it does not reflect well upon your administration.

NO GOOD FEATURE?

Is there no good feature about this office? I shall be the last person to conceal some of the very valuable lessons one learns during one's regime. You have exceptional opportunities of moving with the dumb millions.

HAVE AT LEAST ONE HOBBY.

It is the officer who has created hobbies for himself who can utilise these opportunities. It is not far from truth, that if you have no hobbies and subjects as correctives, you are bound to turn out a mere machine devoid of initiative.

MOVE WITH THE ARTLESS INFANTS.

You may ask the pertinent question, is there no pleasure in moving with the artless innocents? Yes; there is much pleasure in it; but in 7 out of 10 schools you come across only ill-clad and dirty boys. If it is known

throughout your Range that you are an officer who insists to the letter on neat appearance, you are likely to meet with better and more cheerful faces.

Unless you are an energetic, painstaking officer, the work that is before you will appear quite insipid. If you are a good student of Economics who has created a genuine taste for social studies, you have good opportunities before you in every village. Only choose a definite problem and then work at it so that your studies may have some scientific value.

The monotonous uniformity of syllabus and the multitudinous formalities attached to this office need not at all non-plus you. Which office has not got routine and "I have the honour to be," etc.? From the Viceroy to the Village Munsiff, it is the same story. The new Act VIII of 1920 and the creation of District Educational Councils have tended to make the work of the officer less full of clerical work. This must tell on the transformed sphere of work of the officer. More pointed attention should be drawn towards the diffusion of education, closer inspection and more constructive suggestions suited to the different localities.

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THE ENGLISH LANGUAGE - WHEN AND HOW IT SHOULD BE TAUGHT.

IN the Anglo-Vernacular Schools of the Madras Educational Department the teaching of English is not commenced until the pupils have read the Vernacular up to the Fourth class, i.e., the vernacular alone is taught for the first three years. If the pupil is in his sixth year when he joins the first class he would not begin his English until he is nine years of age. In fact the boys are much older when they join school or begin to read English. It seems to me that the general want of proficiency in English among the *alumni* of the University is due in a great measure to this postponement of the teaching of that language.

Now boys learn to speak their mother-tongue and the vernacular, when it happens to be different from their mother-tongue when they are very young, and they can be taught to read and write when they are four or five years old. The acquisitive faculty in respect of languages is very sharp about this time and that it should not be availed of in the acquisition of the English language is a great misfortune for which the Educational Department is responsible. The reason of the present rule is not apparent nor is it justified by the result. It is probably a survival of the time when English had to be read as a *foreign* language. It was a foreign language two or three generations ago, but as we prefer talking in English to talking in the vernacular whenever we can, and intersperse our vernacular freely with English words it has ceased to be foreign.

Attempt has indeed been made to introduce what is called the Direct Method of teaching English, but it appears to be more appro-

priate for very young boys rather than to boys of nine or ten years and might be fruitful of good results if commenced early.

Some Hindus have been teaching English to their boys very early and have found no difficulty. They easily get up the Nursery Rhymes and Verses like "Twinkle, twinkle little star," and find delight in the sound and in the subject-matter. They learn the capital letters from the picture alphabet and, this supplies them with a small stock of words. They soon learn to transcribe the capital letters, then the small letters and then the script characters. As the alphabet consists of twenty-six letters only there is not much difficulty. As regards the sounds represented by these characters they learn them from the words in spelling books. The Dale Spelling Books and Readers are handy for this purpose and there are also local Primers which serve the same purpose.

They can at the same time learn the Vernacular alphabet—to read and to write it. Some Primers have constructed a Picture alphabet and there is not so much difficulty in spelling as in English.

When they have learned to read and to write English and the Vernacular they can easily read for themselves Anglo-Vernacular Primers, and get on with the study of both the languages at the same time. We have Anglo-Tamil Primers of Mr. M. S. Hari Hara Iyer, and Macmillan's King Primers and Readers.

Boys of five or six years are quite able to accomplish this. There is not the slightest difficulty in their learning English and Tamil at the same time and the present rule that boys are not to begin English until they have read their Vernacular up to the Fourth class is quite unnecessary and uncalled for.

When boys who have learnt some English and Tamil in the manner described above, have not progressed in Tamil up to the IV class, they have to keep their English in abeyance for two or three years and then begin again: or if they have progressed up to the Fourth class both in English and Tamil by private study, they may join the Fourth class but they will have to begin the English alphabet again.

One solution of this difficulty is to send the boys to European schools where they will learn English and Latin or French, but cannot even speak the vernacular or mother-tongue. They will then practically be snatched from the world in which they were born and thrown into another world. This cannot commend itself to most Hindus; nor is it consonant with the principles of psychology.

If English is begun early as recommended above, it will be possible to abolish some of the higher classes, especially the Fifth class, which is a recent interpolation, and the First form. This will reduce the S.S.L.C. course from eleven to nine years. This would not in any way reduce the period devoted to English at the present time which is only eight years.

A good number of boys read the vernacular up to the Third standard and then leave

school. Why should they be compelled to learn English? I do not desire that they should be so compelled. What I ask for is that those who want to read English should be started sufficiently early to learn the language to advantage. Why should they be compelled to wait for three years until those who do not want to learn English have left school? There is no rhyme or reason in it and is detrimental to English education.

Schools should be divided into Vernacular and Anglo-Vernacular, the former teaching the vernacular only and special subjects in the vernacular only, and the latter teaching English along with the vernacular from the first class and using both English and the vernacular as the medium of instruction. All High Schools will be Anglo-Vernacular schools.

This will in a measure meet the cry of the Non-Co-operators. If no general change in the system can be introduced at once, Managers and Headmasters of High Schools should be given discretion to try the experiment either by introducing the teaching of English in the First class or by sending the boys of the First class to the Fourth class for the English lesson.

T. SUNDARA RAO.

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A CHALLENGE TO INDIAN STUDENTS

BY

DR. SUDHINDRA BOSE,

Lecturer, Department of Political Science,
State University of Iowa.

ONE of the greatest problems of India to-day is education. And the purpose of education, as I see it, is to prepare men and women for the difficult task of leadership. It involves, however, a long and arduous process. It means hard work extending over many years.

Let me give an instance. President Roosevelt, one of the greatest leaders that America produced in this generation, was once discussing the question of woman suffrage with a friend. At the end of the discussion, Mr. Roosevelt promised to send his friend some books he had read on the subject. How do you think the books came? By parcel post? Oh, no! The books came in a dray. There was a wagon load of them. Over seven hundred books and pamphlets were found in the consignment. And Mr. Roosevelt said they were only a few of the many books he had read on the question.

Woman suffrage has now been adopted in Bombay, Behar, Madras, and Bengal. But how many are there in India who have read half a dozen books on equal suffrage? This little Roosevelt incident of the dray-load of books affords us an insight into the methods by which men acquire influence and leadership.

Somehow there seems to be a widespread craze among Indian youths for University degrees. Degrees, as such, have no value for their own sake. They are often less than worthless, if not a positive nuisance. I wish the time would speedily come when the Indian Universities, like those of some of the

Republics of South America, would abolish academic titles altogether and issue in their stead only certificates of proficiency. I cannot conceive of a more pitiable human being than one whose sole object in going through a University is merely to trail a number of letters after his name. The Indian students must have stern self-respect based on solid accomplishments. Every good mechanic, journalist, merchant, banker, farmer, is a double asset to the nation—of importance for what he can do, of importance because he can do it superbly well. What the world needs to-day is not men with degrees, which may be both numberless and useless, but men willing and able to serve their generation intelligently, to advance the highest and best interests of humanity—primarily for the good of the Motherland, ultimately for the good of all nations. The world's eternal question is: What are you fitted to do? What are you able to do?

College training should also come to our rescue in reconstructing our philosophy of life which will be more suited to modern needs. We, the undermen, must realize that this life is all we have "between two eternities of silence." We must see to it that we are not fooled into resignation and exploitation by any cunning religious folderol. There is no more mischievous, no more fatal doctrine to human progress than that which teaches abject submission to the evils of life, to the glaring social and political injustices, on the ground that we may go to some mythical heaven, way off beyond the clouds, where we shall dwell in "mansions not made with hands." How silly, this pious humbugging!

Belief in *post mortem* reward is no doubt a very convenient doctrine for foreign exploit-

ers who want to go through our pockets while we starve and suffer and die; but that is precisely what we should resist with all our might. Not humiliation, not suffering, but vigorous self-assertion should be the revised version of the gospel of New India.

Swami Vivekananda was absolutely right when he announced with his accustomed vigor that a God who could not in this life give a crust of bread, was not to be trusted in the next for the Kingdom of Heaven. The prizes of life must be ours here and now, and not in a fabulous mystical world. Indians are not subjects. The sons and daughters of Hindustan are kings and queens of the earth; they are the gods and goddesses of the creation.

India's vast area and immense population make her potentially one of the greatest powers of the world. Hindustan is indeed a giant nation, only her people are unconscious of the infinity of their strength and resource. The whole of the Orient is throbbing with the struggle of a mighty awakening. Can India afford to draw herself away from this great onward surge of life which is sweeping the Asian continent from Constantinople to Canton, from Teheran to Tokio? Let the young Indians of to-day, who are to be the moulders of Asian destiny to-morrow, awake from their slumber and be ready to fling their darts a thousand miles. Then on—on, where duty leads!

Remember that the object of all education, the business of all living, is to make real man and woman. The highest titles which humanity can bear are—man and woman.

My plea to you is this: Be something, do something—try. Map out your work every day, and then do it with courage. "Courage

is the man, and a man without courage is dead."

Build cloud castles, build beautiful ones. Keep your ideals for ever higher and higher. Let your ideals shine like stars, and they will guide you in your voyage through life as the Pole Star guides the sailors in the dark, unfathomed, boundless, shoreless ocean.

Trust and then work and work and work! If you do that your success will be written across the skies: if you do that it will spell for your happiness, your strength, your greatness. And when the Indian nation produces nothing but great men and women, then all its problems will solve themselves.

A Spartan general in ancient Greece, pointing to his army proudly said: "There there stand the walls of Sparta and every man is a brick."

If the United States of India, which has been visioned forth by its leaders, is to endure with the stars, may I not point to you and say: "There stand the unconquerable walls of the Indian nation. Every red-blooded Indian is a solid brick. Nothing shall prevail against India."

Can you not be as good as Spartans any more? I think you can; I believe you can. Have courage! Dare on! Dream on to the stars! Nay, pour out your heart's blood: make your dreams come true.

THE OBJECT OF EDUCATION AND HOW TO ACHIEVE IT.

THE object of Education is to produce, in the words of Aristotle, 'a sound mind in a sound body'. But, hitherto the object of Education, in India, has been and still is, to develop the brain only, in which it has deplorably failed, because it wanted to develop the one at the expense of the other. How can a part of an object be developed without developing its other component parts? A school up to very recent days was regarded to be a seat of study and nothing else. A game, a play or some other physical activity was considered to militate against its efficiency and was repugnant both to the educators and the parents of the children at school.

The effect of such a system has been very pernicious and ruinous not only to the individuals concerned but to the nation at large. Who does not remember the pale, morose faces poring upon their books and constantly repeating their lessons to learn them by rote, and some sturdy fellows being caned to shake off their drowsiness, if they were noticed by a dull, sleepy man in the chair with his legs outstretched upon the table in front? It really makes me sad when I think of the so-called pillars of the coming generation, physically diseased, morally depraved, and quite unfit to bear the burden which the society wants them to do. They either become a burden to society, which the latter is obliged to drag or are hurled into the lightless pit prematurely.

If we dip into the History of Ancient India we shall find that the object of Education of our ancestors was quite different from what the modern educators have tried to achieve.

Our ancestors were not only paragons of intellectual power but of physical power as well. "The demi-gods and heroes of the oldest religions are not only types of moral excellence but also of perfection, of athletic development and of beauty of form. Rama is not only the great and good, he is also the archer whose shafts never miss. The five Pandus, though distinguished each by special attributes, were all alike famous for feats of prowess and athletic skill," but sorry to say that the race of giants has been dwarfed and belittled in every aspect. Where are those intellectual stars whose brilliance was sufficient to dazzle the world? Where are those men whose physical feats sent a thrill into the bodily frame of the spectators and became proverbial achievements that stand even up to now at the lips of the world? India was then an oasis amidst the desert.

The true object of Education should be to train a man as a whole. Mind is not the whole thing that makes up a man. "He is compound of many ingredients of which the intellect is indeed an important one." It is, therefore, the training of all these ingredients that should be the aim of Education, so that the whole be harmonious and complete. What we want is the proportional development of, and the keeping of the balance in, different component parts. A savage may be a fine fellow physically, and another physically deformed may possess a fine intellect, but neither of them is a truly developed member of society, because both of them lack balance. Taking for granted that the training of the mind should be the only object which an educator should keep in view, I fail to see how the mind can be developed when the other members of the body are allowed to rust. It

may be that here and there we find men physically weak and feeble, in possession of brilliant brains. But such are only exceptions, meant by Nature to be such and are bound to be intellectual giants even if placed in most unfavourable circumstances. I assert that their mental faculties would have been still more highly developed had they been physically better. Moreover such men fall an easy prey to death, thus leaving the nation which would have otherwise been benefited greatly, bankrupt and in a sad plight. Thus according to those who hold the view that the aim of Education should be to produce men socially efficient, schools would prove a failure.

Aristotle's view of Education would also manufacture men who would possess true moral character, for "morality is essentially normality, and normality means health. Morality depends upon balance, equilibrium and poise of personality. When you develop the capacity of co-ordination, of regulation, of symmetrical living, you develop character itself."

From all this we infer that in order to produce "a sound mind in a sound body," as much importance should be attached to games, plays, and other physical activities, as schools attach to studies. For besides developing muscles they offer a change from labour to play, "from constraint to liberty, from dark to the light, from monotony to variety, from giving to receiving" which is the sauce of life. "Moreover, physiology teaches us that the store of mental energy available is strictly limited and that it can be exhausted not only by excessive persistence in the same study, but also by excess in a variety of studies. "The children readily give way to the sleepiness and lassitude by which Nature

calls upon them to allow their nerves the rest that is needed for their recuperation."

Another thing is that games and plays though unconsciously yet indelibly impress upon, and infuse in, the mind certain lessons and qualities of untold worth which perhaps cannot be achieved from any amount of preaching and lecturing. They instil in us perseverance, co-operation, fellow-feeling, respect for fairness and the necessity of impartial justice, and teach us to keep cool under adverse circumstances; never to relax effort, never to be angry, never to despair. Who can deny the unselfish service to fellow-beings, that is being administered in continual small doses, by Scouting which after a short time changes the whole mental attitude of the Scouts, transforming them into altogether different beings, capable of bearing any hardship smilingly and undauntedly? The actions they do, though appearing trivial and insignificant, prepare the doers to perform great and meritorious actions, in the years to come. For "Repetition of action crystallises into habit and habits make up character."

The second requisite to achieve this end in view is that the school should be equipped with an efficient staff capable not only of developing brains but of fashioning the boy's character into right shape also. This will require the services of some of the best men of the soil. But how sadly schools lack in this, is known to all. What to speak of the Assistants, even most of the Headmasters are wedded to the idea that plays and games should be divorced from schools altogether and that they instead of improving, spoil the boys' character. I know of a Headmaster who was never tired of saying, "Boys, these breathing exercises are simply a waste of time, you should mind your studies only." To them activities are a

poison which sip up this life blood. They cry up for results, yet such have hopelessly failed to improve them. My short experience has clearly demonstrated to me that the results are bound to be good, if the school time at their disposal is utilized properly not in instructing but in educating the boys and that an equal importance is attached to different physical activities. The most essential thing for the success of schools is that the Headmasters should be really efficient hands: not only should they be intellectually bright but strict disciplinarians. They should be capable of commanding rather than demanding respect.

To me it seems that even the existing staff would become much better if they are sufficiently paid. How can they devote after-school periods to games and other activities when their presence is required at home to do small duties which can well be done by servants? But they are so poorly paid that they live from hand to mouth and have little to have refreshment to recoup their energies or to employ a servant.

The scanty salary itself is the chief cause of the degradation of this profession. It is so degraded in the eyes of the people, that teachers are being looked down upon by the public and have no social position. The world desires appearances but they have no means to put on such.

It is because of that, that the really capable and pushing men do not join this profession. Most of them have entered it because they were not welcomed by other professions. If some good men have joined it, forced either by circumstances or by some missionary spirit, they rue the time when they joined it throughout their lives. What to speak of others, even teachers themselves, inhaled as they have, the prevailing atmosphere of the public opinion have begun to look upon it as an easy profession, so much so that the presence of an

active, energetic and hardworking man is sure to excite their jealousy, for they have to stir themselves to maintain their own reputation if they have any at all.

Some critic is sure to say that those who join this department should be patriotic and full of missionary spirit and that they should work zealously for the common cause. No doubt the profession is noble and requires inherent love for the profession, but I must assert that all such criticism is merely a platitude and would mean nothing for empty stomachs. The teacher is a human being and as such is endowed with hunger and thirst which must first of all be satisfied and quenched for self-preservation, before any such lecture can appeal to him. What an army of men, though dying of hunger, yet working for the common weal, has such a critic seen? Moreover he has to look not only after himself but also the members of his family.

As long as we desire to make teaching cheap and do not equip schools with efficient staff well paid and wedded to the interests of their institutions and the taught, impelled by a desire to train the man as a whole we cannot expect good products and the schools are bound to fail. No one has made a greater contribution towards the civilization and progress of the world than the teacher. Yet his profession is the sorriest of all and he is the most neglected one. Unless all these defects are removed, to me education all a farce appears.

It is the duty of every educationist and leader to see all these defects removed; otherwise India is sure to lag behind in the race that is being run, among nations to produce men—men in the real sense of the term, the pillars of the nation, capable of bearing the burden with credit and of facing difficulties unflinchingly and devoted to the interest of the nation at large. If that is achieved, the older golden India is surely to be revived and we are likely to see men whose brilliant intellects would shed lustre all around and whose achievements in various fields would strike an awe into men's minds.

S. K. VERMA.

A PLEA FOR THE TRAINING OF VOICE.

A GOOD voice is an asset which every man and woman likes to possess, and although it may not be the sole determining factor of his or her success in life, yet it goes a long way towards it. In every walk of life voice plays an important part. A lawyer needs a good voice to impress upon the judge and the jury his client's innocence, although he may not himself believe in it. The teacher, the orator and the preacher require it to be successful in their several vocations. Captains of labour and industry have their task of controlling and soothing labour considerably lightened if they have at their command a persuasive voice.

A candidate for an appointment may be preferred by his employer over others, simply because he possesses a clear and refined voice which impresses the latter favourably. Again suppose we hear two persons speaking, without seeing their faces. The one speaks in a clear and musical voice, while the other's voice is harsh and gruff. Are we not at once pre-possessed in favour of the former though we may not be knowing either of them? It may be prejudice, but there it is. You go out shopping. You return empty-handed from one shop, but you come out from another, loaded, not only with your requirements, but many superfluities. The first tradesman is surprised at this, knowing that his prices are in no way higher, and his goods no way inferior to those of the other tradesman. But he does not realize that his competitor has by his persuasive voice convinced you, perhaps against your inclination, about the superiority of his goods, his exemplary honesty and the urgency of your requirements. At a social function where

everybody wants to talk and to be heard, we hear sometimes a voice above all the hubbub, a voice clear, rich and musical, that at once arrests attention and commands profound silence. Here we have the powerful conversationalist who is listened to with almost bated breath, and who by the gift of his speech is able to exercise an almost fascinating influence over his listeners.

Some persons depend for their very means of livelihood upon their voice. An actor or a professional singer, for instance, when he loses his voice, he loses all. In a lesser degree this can be said of several other vocations. Indeed it will be no exaggeration to say that in several instances our failure in life is due to some defect in our voice.

When such is the importance of voice in life, it behoves the teacher to see that he is guilty of no neglect in the training of the voice of his pupils, so that they may acquire a rich, powerful and refined voice which may help them in life afterwards.

All children are possessed of clear and musical voices, unless for some physical defect, and there is no reason why they should grow up with hoarse and thick, high and strident or weak and piping voices. While therefore the childish treble is developing into a manly bass every endeavour should be made to train the voice carefully.

A teacher should therefore always see that his pupils speak in a clear and distinct voice. But in order to achieve this he must himself set the example. He should know that during every minute of the school-day he is unconsciously, by his speech, gestures and action furnishing 'copy' to his pupils, which they imitate, and imitate most faithfully. He should therefore speak in a very distinct and

well-modulated voice which may arrest and retain the wandering attention of his pupils. It is likely that he does not possess such a voice, as perhaps he does not possess a high forehead, a Grecian nose and regular classical features required of an ideal teacher; yet he can do much to remedy this defect by cultivating his voice, so that after some perseverance and practice, he will acquire, if not a rich and musical voice, at least a clear and distinct one. He should therefore make it a point to speak slowly and distinctly in the class-room. This will serve a double object. By speaking slowly and distinctly he will allow the words to sink into the minds of his pupils, for a thing spoken hurriedly is lost hurriedly, and secondly the boys will acquire the habit of speaking in the same manner. If a boy speaks indistinctly or hurriedly he should be made to repeat the passage or the para once again till he acquires the proper speed and manner of speaking, and his voice has a certain restfulness about it which is very pleasing. This repetition must go on constantly without exception till the class comes to realize that there is no help but to speak in the manner indicated, and acquiesce in the position, and what is at first done consciously and laboriously will, in course of time, become second nature. Thus the boys will acquire one of the most precious possessions of their lives. Boys should also not be allowed to skip over words or portions of words. For instance, sentences such as 'Don cher-know,' 'what a good fel you a.' 'I hear the boom of the gun in the mornin,' are commonly heard. This tendency to speak hurriedly or to skip over words and syllables may later on develop into stammering. And if once a boy acquires the habit of stammering his whole career is ruined. He grows

morose and retired by nature, shuns all active pursuits, and becomes unfit for most of the professions, and his very life becomes a burden to him. It is not the purpose of this article to discuss the origin, causes and remedies for stammering. Suffice it to say that the tendency no sooner observed must be curbed.

It is often observed that Indian boys speak in a very loud key of voice which jars on the ears of the listener. This is due to two reasons. Firstly perhaps the teacher is himself setting an example by speaking loudly, of course doing this unconsciously. In this connection it would be very desirable if we had some sort of instrument to register the pitch of our voice, so that we could be in a position to know whether we should lower our voice or raise it, till ultimately we are able to adjust it to the proper key. But in the absence of any such ideal arrangement the teacher should take a commonsense view of the matter, and by careful observation should so adjust his voice, that without being loud, he is heard distinctly by the boy farthest off from him without the slightest effort. In this connection he should bear in mind not the number of boys in his class-room but its dimensions and acoustic properties, etc. Secondly when a boy speaks indistinctly so that he cannot be heard, he is oftentimes asked by his teacher to speak *loudly*. Now this is a mistake. For what the teacher wants is that the boy should speak more distinctly and *not* more loudly. When therefore he is asked to speak more loudly he raises his voice, and after some time it grows a habit with him to speak loudly. It should therefore be seen carefully whether the boy is speaking slowly or indistinctly, and he should be instructed accordingly. Thus the tendency to speak loudly should be corrected.

It is a general complaint with Inspectors and visitors to Indian schools that the boys speak in a sing-song and monotonous voice and sometimes in a drawling sort of fashion. Whatever be the reasons, the complaint is not groundless. The boys should be made to realize the defect of such a voice and helped to acquire a voice full of life and vivacity.

A teacher has ample opportunities of training the voice of his pupils. To do this he needs no special knowledge of phonology nor need he discuss it in the class, for that will be 'dry-as-dust' both for the teacher and the taught. A few simple rules followed carefully will achieve this.

In addition to the suggestions made above the following will be found useful. It should be borne in mind that during all class periods the boys should speak in the same clear ringing voice. For if the boys speak in the 'regulated' voice during the reading period, but are allowed to fall back upon their usual indistinct voices during other periods, the result will be neutralized. Therefore throughout the day, whether the lesson is in reading or history or mathematics, the teacher and the pupils must speak in the same clear and distinct manner. There should be no hurry about their voice, on the contrary, if need be, there should be a certain deliberateness about it till the natural medium is acquired. There should be mottos hung all round in the class-room somewhat like "Speak clearly and distinctly," "A refined voice is the keynote of success in life," "A rich and powerful voice is a priceless possession," so that the aim to cultivate a good voice is kept constantly before the pupils' mind. To speak clearly and distinctly should be a standing

law of the class and no lapse therefrom should be allowed.

Acting some simple dramas written for children, and dialogues and dramatic passages from the class reader also helps in this direction. By this means we not only help the pupil to cultivate his voice, but satisfy his natural craving for acting which is being starved at present, for the dramatic instinct is very strong in the child. Here the teacher will have opportunity for impressing upon the pupil's mind the value of intonation, accent and pitch, and he will come to appreciate the various shades of voice to express grief, sorrow, joy, pain, contempt, etc. The pupil will see that his acting will be of no good if his voice is bad and he will be only very eager to cultivate it. School Debating Societies are also very helpful. They lead the boys to see the value of a good powerful voice, and they set about to acquire it. They incidentally teach them the rules of debate and help them to overcome their shyness.

The article has not been exhaustive, indeed no attempt has been made to make it so bearing in mind the vastness of the subject and the limitations of space. For instance, the influences of health, diet, and exercise upon voice have not been discussed. An endeavour has simply been made to throw out a few broad suggestions, whereby a teacher can help his pupils to acquire a rich, powerful, well-modulated and refined voice, which will be useful to them in life.

T. J. BHOJWANI.

The Report submitted by the Committee appointed to consider the Applicability of the Recommendations of the Calcutta University Commission to South India.

I HAVE no doubt ere now the public, and especially educationists, have before them the above Report. I thought, I might offer a few remarks on the Report; and in doing so I shall confine myself to that part dealing with Secondary Education.

One feature of the Report, that seems to me to be very commendable, is that it does not contemplate any drastic changes. This is as it ought to be. For, in educational matters, as in most other things, progress should be made more following the lines of evolution than revolution.

Resolution No. I arrests one's attention because it lays down in clear and unmistakable terms one of the fundamental bases of the object of education in the following words:—"The aim of Secondary Education be a good general education which includes a training in right conduct in daily life." Whether this aim has or has not been in the teacher's mind till now is not for me to judge. If it has been, then it requires greater emphasis. For what is education worth if it does not raise and improve the moral tone of those who receive its benefits. Are we not familiar with students who as students lead loose lives? We are also tired of students copying at examinations, trying to get at questions by foul means, telling lies at the slightest disturbance of mental equilibrium, writing anonymous letters, spreading false rumours, and having recourse to mutual reprisals, if I may use the expression. These are disgusting things. They may not form the peculiar feature of the student of South India only. But we have to confess they bulk rather unpleasantly too much before us. The educationist should constantly have before him a larger vision and a greater aim, that of building a nation that will rise strong, great and upright.

The Committee recommends the Secondary School course to be divided into two stages — the Middle School stage and the High School stage. The curriculum of the course of the Middle School stage is divided into compulsory and optional parts. The compulsory subjects comprise nine items, the only new subject introduced being Manual Training, such as wood-work, metal-work, gardening and weaving. This is a right step, provided schools have sufficient aid, encouragement, and facilities for the proper carrying on of Manual Training. In the teaching of Manual Training subjects one has also to guard against show and sham. Amongst the optionals I am glad to find Indian system of Accounts and Banking. This is sure to attract a good number of Vysya boys who as a rule fight shy of English education. But what the object of the Committee may be to include 'Singing' as one of the subjects to be taught to boys, passes my comprehension. Singing is all right for girls. But for boys it cannot serve any useful purpose.

It should be also remarked that the Committee has shown much leaning to Agriculture — for we find it included in the Middle and High School stages, and provided for in the College stage also. I am not quite sure if the young people of Southern India need so much of this subject. Besides, it is not clear to me what form teaching of Agriculture will take in the Middle School stage, — will it be mere elements of Botany or real agricultural operations, such as manuring, ploughing, sowing and reaping? It seems to me from the point of view of a school, this is a highly impracticable subject.

Special subjects to suit girls at all stages form a noticeable feature of the curriculum.

The Middle School stage is to end with a certificate from the Headmasters, and the Committee hopes that the Headmasters will employ care and singleness of purpose in issuing the certificates. If the Committee recognises the utility of awarding a certificate after the Middle School stage, I don't understand why the value of the certificate should

not be enhanced by holding a public examination for it. It makes no difference in regard to the "strain" whether the examination is private or public. If the examination is public there will be, on the other hand, a greater uniformity of standard and better work, both by the teachers and the taught. It will also serve for a proper elimination of bad material. It is generally not the examination that is a strain but the undue value attached to it. Besides the prospect of obtaining a certificate more than recompenses the 'strain,' if any.

Coming to the High School stage the curriculum consists of two parts, the compulsory and the optional. The former comprises English, Vernacular, Advanced Indian History, Outlines of English History and General Geography of the World, etc., Elementary Mathematics, Elementary Science, including Physiology and Moral Instruction. The optional consists of two kinds of subjects, technical and non-technical. The student has to choose one subject from each of the non-technical and technical groups. The non-technical subjects include language (English or any other language), Natural Science, Elementary Civics and Economics, Outlines of World History, and a course specially adapted for girls. The technical course comprises the following:—Fine Arts, Drawing, Agriculture, Industries, Commercial subjects, and for girls Needle-work, etc. A student according to the present curriculum can go through the High School stage with English, Vernacular, Indian History, History of England, Geography of the World, Elementary Mathematics, Elementary Science, C Group Telugu (using the present phraseology) and Drawing. The change that has been recommended simply amounts to this that B Group merges in the compulsory, and the C Group dwindles into one with a technical subject added. But the Committee leaves the fate of the B Group to the disposal of the Board. The Committee seems to realise the heaviness of the course in the compulsory portion and wisely suggests that the syllabuses in the various subjects should be drawn up by a Board entirely con-

sisting of teachers who will keep in mind the large number of subjects to be taught. The Committee reminds us that the medium of instruction being the vernacular, much of the difficulty will disappear. In regard to the recommendation that vernacular should form the medium of instruction I have no doubt it will be welcome to all. But teachers should be kind enough to accept the proposal. Many of them are exceedingly chary of using the vernacular. Just the other day I watched a teacher of the Fifth Form in History. He carefully eschewed all use of the vernacular, with the result when I questioned the best boy in the class what colonization meant, he could not give any correct answer. For an intelligent grasp of a subject vernacular will be the only vehicle. To encourage the use of vernaculars the Committee further recommends that the questions in non-language subjects should be set in the vernaculars also. Perhaps in this connection I may add parenthetically that in the use of the vernacular as a medium of teaching most of the technical words in any subject may be retained at least till the time when simple and suggestive vernacular terms are brought into use.

The Committee seems to have generally approved of the existing S.S.L.C. Examination, excepting of course the changes already adverted to. It gives the same importance to the class-marks as at present which I always think is the most commendable feature of the S.S.L.C. scheme, though I know many of my friends will call it the fly in the ointment. As recommended by the Committee the S.S.L.C. Board is to be thoroughly representative and should satisfy all demands. But it seems to me that the Madras Presidency is too large to be comprised under one Board. The work is too heavy and is necessarily lacking in efficiency. It will certainly conduce to greater justice being done to the Examination if the S.S.L.C. Board is divided up into linguistic areas — there need not of course be an attempt to make the areas equal. The suggested arrangement will lend itself to certain adjustments necessitated

by the genius and proclivities of the different areas.

I am glad to find that English has not been altogether thrown into the back-ground. The English language is necessary for general culture and higher education, though its paramount importance in the High School curriculum and examinations is very doubtful.

In Resolution 17 the Committee contemplates a sort of post-High School course to those who may not enter colleges. The idea is impracticable though commendable. As the Committee itself fears there may not be much encouragement given to such schools. Perhaps the course may be left to technical or professional institutions, in fact it does not fall within the scope of High School work.

The Committee suggests the employment of two sets of Inspectors, one set for teaching and the other for administration purposes. Teachers should certainly welcome the former provided they are of the type we hear of in England who go about more to put the teacher in the way and give him kindly suggestions, than to scare him away by their overbearing manner, or try to oust him from his hard-earned position.

Those who have gone through the Report will agree with me when I say that the Committee deserves congratulations for the thorough manner it went into the question of Secondary Education.

A. T. PALMER.

Reduction in Prices.

THE CHRISTIAN LITERATURE SOCIETY

beg to announce that reductions in cost of production enable them to reduce the price of some of their school books from July 1st, 1922. The rates at which the following three Series on School Reader will now be supplied are in most cases a reduction of 4d. in the shilling of the prices that have ruled for the last two years.

On and after the 1st July 1922, the

(1) ENGLISH, (2) NEW ENGLISH. & (3) INDIAN READERS

will be supplied at the following prices:—

ENGLISH READERS.			NEW ENGLISH READERS.			INDIAN READERS.		
Primer	32 pp.	2d.	Primer I.	32 pp.	4d.	Primer I.	32 pp.	4d.
Reader I.	64 pp.	4d.	do. II.	32 pp.	4d.	do. II.	32 pp.	4d.
do. II.	96 pp.	6d.	Reader I.	64 pp.	6d.	Reader I.	64 pp.	6d.
do. III.	144 pp.	8d.	do. II.	96 pp.	9d.	do. II.	80 pp.	9d.
do. IV.	224 pp.	1/-	do. III.	128 pp.	1/-	do. III.	104 pp.	1/-
do. V.	312 pp.	1/6	do. IV.	192 pp.	1/4	do. IV.	160 pp.	1/6
			do. V.	224 pp.	2/-	do. V.	208 pp.	2/-
			do. VI.	224 pp.	2/-			

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CHRISTIAN LITERATURE SOCIETY FOR INDIA, 35, JOHN STREET, LONDON W.C.1.

PROCEEDINGS OF THE ELEMENTARY MATHEMATICS ASSOCIATION AND OF THE MADRAS TEACHERS' GUILD.

27

MISCELLANEA MATHEMATICA.

XVII. The Quadratic Expression.

In my experience I generally find that students follow stereotyped methods in solving problems and do not think of other methods. The principle underlying the resolution of $px^2 + qx + r$ into factors may be employed with advantage in solving questions of the following type:—

1. Determine r so that $2x^2 + 3xy + 2x - 3y - r$ may be expressed as the product of two linear factors. Generally students try to apply the principle of indeterminate co-efficients. Arranging the expression in descending powers of x we have $2x^2 + x(3y + 2) - (3y + r)$; now $-2(3y + r)$ must be split into two factors such that their algebraic sum is $3y + 2$. $\therefore 3y + r - 2 = 3y + 2$. $\therefore r = 4$.

The same principle may be applied in the case of certain problems requiring a knowledge of the Remainder Theorem.

2. Find c so that $x^2 + 7x + c$ may be divisible by $x + 4$. The product of two factors is c of which one is 4 and 7 is their sum. $\therefore (7-4)4 = c$, i.e., $c = 12$.

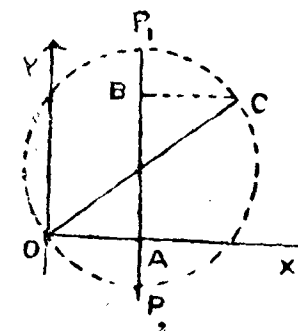
Though I do not explain any new principle, I really believe that students' creative faculty will be

developed if they are encouraged to solve problems in different ways.

S. R. KRISHNASWAMI Aiyangar.

XVIII. A Geometrical Solution of the Quadratic Equation.

Given any quadratic equation, reduce it to the form $x(x - b) = a$, where a, b, c are positive or negative, integral or fractional.



Take two perpendicular directed straight lines OX, OY. Along OX, step off OA = a; through A draw AB parallel to OY and equal to b; through B draw BC parallel to OX, and equal to c. On OC as diameter describe a circle, cutting AB at P₁, P₂.

Then the measures of the segments AP₁, AP₂ are the roots of the equation.

In any given case take the scale of the drawing conveniently and pay attention to the directions of the segments OA, AB, BC.

G. A. SRINIVASAN.

RUDIMENTS OF ALGEBRA

With a Chapter on Graphs

by the late S. SRINIVASA IYER,

Author of "Problems in Arithmetic"

Revised by B. HANUMANTHA RAU, B.A.

Professor of Mathematics, College of Engineering, Madras.

Sixth Edition.—Price Re. 1.

SRINIVASA VARADACHARI & CO., MOUNT ROAD, MADRAS.

Reviews and Notices.

PLANE AND SPHERICAL TRIGONOMETRY WITH STEREOGRAPHIC PROJECTIONS, BY JAMES ATKINS BULLARD AND ARTHUR KIERNAN, ASSISTANT PROFESSORS AT THE UNITED STATES NAVAL ACADEMY. (PUBLISHED BY D. C. HEATH & CO., 39-41, PARKER STREET, KINGSWAY, W.O. 2, LONDON.) Price 6s.

In consonance with the aim of the authors which is "to teach logarithmic computation along with the principles of trigonometry," the first chapter is devoted to the exposition of the theory of logarithms. The second chapter which is very short is devoted to the definition and measurement of angles, while the next introduces the trigonometric functions and develops their elementary properties. Para. 28 of this Chapter is not very happily worded: "Functions are constant for any angle" is not a suitable heading for a paragraph which shows that the values of the functions are independent of the position of P on the radius vector representing the angle. Para. 35 dealing with functions undefined is a success. After the solution of right-angled triangles, the graphs of the functions are discussed and used to bring out the periodicity of the functions.

The seventh Chapter is very carefully written. Having been first proved for acute angles, the addition formulæ are extended for all angles by the method of Mathematical Induction—perhaps the only satisfactory method. The next chapter, which is devoted to the solution of triangles, contains a good many practical hints for arranging the work of logarithmic computation. Then follows a neat little chapter on De Moivre's Theorem, which brings the first part to a close.

The second part has the first three chapters devoted to the spherical triangles and their solutions. Then follows a very useful chapter dealing with applications to Terrestrial and Astronomical triangles. Finally, this part is concluded with two chapters on Stereographic Projection,

with applications to graphical solution of spherical triangles.

To have covered this wide range within a short space of 230 pages, what to include and what to omit should have been a serious problem and it must be said that the authors have faced the situation successfully, avoiding the temptation to include many results, which, though of great theoretical importance, are of no immediate use to the practical computer.

The get-up of the book is very neat and attractive.

HUMAN GEOGRAPHIES FOR SECONDARY SCHOOLS, BY J. FAIRGRIEVE AND E. YOUNG.—BOOK II: THE ATLANTIC HEMISPHERE, 1922. pp. 295. 3s.; BOOK III: EUR.-ASIA, 1923. pp. 344. 3s. 6d. (LONDON: GEORGE PHILIP AND SON, LTD.)

These volumes, of which the first deals with the British Isles are "human in outlook, progressive in difficulty, practical in method and attempt to develop a point of view." The series intends to cover the world's study regionally in 3 years and to leave free the final (or as it may be, the preliminary) year for the world as a whole. Each book tries to show by its presentation of the lives of the peoples in the different regions, that there is some order in the world after all. The student is trained not to criticise the unfamiliar and curious habits and customs of other peoples, but to find out the causes of difference and the particular laws to which those customs and habits are adapted.

The method of treatment is direct and simple. For example, a fundamental distinction is made between things that grow and things that are grown and progressively the student is taken on to the more complex aspects of natural and artificial vegetation. The same kind of treatment is seen in the study of wind-systems and rain-belts. Current problems of interest like the position of the Blacks in Africa and the task of exploration of that continent are given prominent attention. We

are taken in the first of these two books to America on the other side of the Atlantic sea-board; and topics of economic geography, like natural markets, production of wheat and cattle are all dealt with at fair length.

India receives but too scant attention in our opinion; and the authors are too prone and intent upon showing off India as a land of contrasts in people and natural environment. Their one sentence (p. 37 of Book III) that "Perhaps India is not a country after all" is indicative of their latent mental attitude. To them China is a definite unit as India is not; while in Japan "we have an example of powerful influences of geographical environment in helping to form the early habits, occupations and outlook of a nation, leading to a well-organised human region under the new needs of a later development. Here is an old civilisation taking with certain adaptations its place in the modern world" (p. 74 of Book III). Indo-China and the East Indies resemble Africa closely in the modern life problems of European exploitation, tribal extinction, etc., which are agitating them. These form a region "where alien peoples of many different nationalities tend to rule." Australia is the one white man's country which has a reasonable hope of remaining white, refusing to admit coloured people and so "create a problem that she would not be able to solve." But the question is asked also: "Is it possible to keep Australia white and yet fill it?" and our authors hope that this is possible in the course of time which is the essence of the Australian problem. On the whole we lay down the books with a sense of having received good, though not always to us acceptable, information.

HEBER'S INDIAN JOURNAL—A SELECTION WITH AN INTRODUCTION—BY P. R. KRISHNASWAMI, M.A. (OXFORD UNIVERSITY PRESS). Pp. xiv & 221. (AN EASTERN LIBRARY III).

After the Charter Act of 1813, a charter embracing the establishment of an Indian Bishopric

and the concession of greater liberty to Christian Missions was passed. The first Indian Bishop was Thomas Fanshawe Middleton, who was a fellow-mate of Charles Lamb at Christ's Hospital, and who, according to the friend of his youth "was a scholar and gentleman in his teens and has the reputation of an excellent critic." Middleton, the first Metropolitan of Calcutta, was a Bishop without a clergy; all the chaplains of the Company being then under secular control. Lamb writes of him as having borne his mitre high in India; while Sir John Kaye remarks that he would have *sultanised* the episcopal office. Fifteen months after Middleton's death came Bishop Reginald Heber who grew up an infant prodigy and had the reputation of a scholar and a poet before he was eight years old and translated Phœdus's Fables into English verse in the nursery. In his youth "he had surprising notions of the might, majesty and dominion of the Church and at the age of seventeen wrote letters on ecclesiastical discipline and episcopal supremacy, such as might have emanated from Bishop Middleton himself." For 16 years he was a country curate, greatly beloved by his flock and loving them with an equally great tenderness. He grew humble and mellow; and sometimes in his humility he imagined whether he did not suffer his love of literature to beguile him from the quiet walk of the country pastor.

The call to Calcutta came upon him and he took it up in a sense of fulfilling his appointed duty. Within the course of a few months he had acquainted himself with all the needs of his Church and began an extended tour into Upper India for the ostensible purpose of furthering the progress of Christianity among the Indians. The principal incidents of this journey have been rendered pleasantly familiar to Indians and Englishmen alike "through the medium of one of the most attractive books ever devoted to an Indian subject." Later he visited Bombay, Madras and Ceylon, and died after an all-too-short episcopate at

Trichinopoly in the early part of 1826. The famous Dr. Duff, one of the foremost of Indian Missionaries, has characterised the Bishop as "the gentle Heber;" while his Archdeacon Corrie, afterwards Bishop of Madras, is equally warm in his praise. Corrie who preached Heber's funeral sermon declared that "Our late beloved Bishop was so entirely a missionary that we can scarcely hope to see one like him." But we Indians see in the Bishop, first and foremost, a gentle, tender soul, warm in his love of literature, assiduous in his quest for learning and a close observer of man and nature alike.

His *Indian Journal* has become an Anglo-Indian classic. Heber was prolific in his writings, and as an editor remarks, an author of popular hymns, an eminent divine, a close critic and a facile journalist. In addition to his *Journal* Heber wrote two poems in India—*Lines to My Wife* and *An Evening Walk in Bengal*. Both display an exquisite power of word-painting; and we wish we had more of such things from him. Heber and Leyden were greatly promising as poets and writers; but both were cut off unfortunately for Anglo-Indian literature in their prime.

The *Journal* was written in the shape of a diary, though the greater part formed his correspondence with his wife. The *Journal* usually appears in company with his *Letters* and it forms a vivid account of the country as it was about a century ago.

Mr. Krishnaswami, himself a good authority on Anglo-Indian literature, into whose hands the task of abridging and editing the work has been most deservedly given by the publishers, would call it one of the numerous travel-books on India that have become source books of Indian History. There are five other books dealing with travel and experience in India, like Lord Valentia's *Travels*, Buchanan's *Mysore*, *Canara and Malabar*, and Forbes' *Oriental Memoirs*. But none can come up to the combined literary and high accurate level of the *Journal*. Mr. Krishnaswami rightly contrasts him with Abbe Dubois, an elder contemporary of his as being more sympathetic, though less acquainted with Hindu literature and customs. The *Journal* contains little reference to the professional objects of his journey and betrays bigotry and prejudice against idolatry and the Brahmins. But the general note is one of sympathy and minute observation of the fauna, flora, popular habits, etc.

The extracts selected are all interesting and show the taste of the editor; while their arrangement into groups is quite attractive, and the high reputation of the work, the neat and handy form of its present edition, the skill shown in extracting and editing—these make the volume one which should be studied by our students of the College and the High School.

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By Mr. N. G. WELINKAR, M.A., LL.B.

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by the same author—is in preparation.

A PREPARATORY ALGEBRA

By Mr. V. RAGHUNATHA AIYAR, B.A., L.T.,

Assistant, Teachers' College, Saidapet.—In the Press.

SRINIVASA VARADACHARI & CO., MOUNT ROAD, MADRAS.

MADRAS UNIVERSITY: EXTRAORDINARY SENATE MEETING.

An Extraordinary Meeting of the Senate of the Madras University convened by Sir K. Srinivasa Iyengar, Vice-Chancellor, on the receipt of a written requisition from 15 Fellows, was held on the 17th inst. to consider the recent decision of the Syndicate, cancelling the F. L. and B. L. Degree Examinations held in the middle of last month and directing all the candidates to attend the October Examinations, paying once again their application fees. There was a somewhat lengthy and animated debate on the question as to whether there should be any re-examination in July and the resolution embodying this suggestion was ultimately rejected by a majority of 7, so that the decision of the Syndicate remains unaltered.

THE RESOLUTION.

Mr. S. Satyamurthi moved the following resolution, of which previous notice had been given:—

"That it be a transitory regulation that, notwithstanding anything to the contrary in the regulations, the Senate hereby resolves that the Syndicate be directed to hold the First Examination in Law and the B. L. Degree Examination on the days commencing from Monday, the 2nd July 1923, and that all the candidates, who sat for the said examinations commencing from 16th April 1923 be permitted to sit again for the same, without any fresh applications and on a mere additional payment of Rs. 5 each to cover the cost of superintendence, stationery and fees to question-paper-setters, the said payment to be made on or before such day as may be fixed by the Syndicate in that behalf."

In moving the resolution, he wanted to assure the House at the very outset that it was not the intention of the signatories of the requisition to pass a vote of censure on the Syndicate for its decision. It was just possible to hold two views on a question like this and he was only anxious to persuade others that their view would meet the ends of justice in this case, better than the decision of the Syndicate. The history of this matter was shrouded in mystery. Who was responsible for the leakage of questions, the Registrar, the Printing Press, the Examiner's desk or the Chief Examiner's desk? If the Syndicate had known about the leakage even a

day or two before the examinations commenced, it should have been easy for the Syndicate and the Vice-Chancellor to cancel the examinations and get new questions set. Did the Syndicate take any steps to trace the culprits? The only information available was that a large number of candidates had known the questions before they sat for the examinations. The examinations in such circumstances were perfectly valueless and they were willing that they should be cancelled. But the Syndicate went further and inflicted a mass punishment upon the innocent and the guilty alike. He would quite agree that the guilty ought to be given a deterrent punishment. But no man should be punished without his guilt being established. What was it that they wanted to deter in this matter? An attempt to get at the question papers? But they ought not to stretch too much this argument of deterrent punishment. In this case, the Syndicate did not know the guilty ones. Even assuming that there was to be some punishment of all the candidates because of the misbehaviour of some of them, he would suggest most respectfully that his resolution was a sufficient punishment in itself. The sleepless nights and anxious days to be spent in preparing for a re-examination and the agony of having to go through the same would be enough punishment. Besides, they would have to spend Rs. 30 to Rs. 35 for their train fare, etc., in going to Madras to attend the re-examination. The punishment proposed by the Syndicate would deprive the candidates of another chance of appearing for the October examinations, to which they were entitled under the Regulations. The students of the F. L. Class would have to suffer as well as the B. L. students. Were all of them to suffer this drastic punishment for an accident for which the University authorities were at least as much responsible as the guilty ones amongst the candidates themselves? Again, leakage of question papers was not a growing evil and they need not get suddenly angry and punish the guilty and the innocent alike. Administrative inconvenience, if any, could be easily met.

So far as the question of fees was concerned, he was anxious that the University authorities should not spend a pie more upon the examinations than what they got out of examinees. The expenses

could be divided equally among all students. In the end, he said that the prestige of the University that is based on justice and appealed that justice should always be tempered with mercy.

Mr. P. Subramaniam, of the Pachaiyappa's College, seconded the resolution.

A SYNDIC'S OPPOSITION.

Mr. C. R. Reddy after offering his congratulations to Rev. E. M. Macphail on his appointment as the first Vice-Chancellor of the re-organised University, opposed the resolution and said that he demurred from the view that there should be no group punishment under any circumstances. In the world as it was constituted, it was impossible to avoid group punishment. They came across it in every State. For instance, Punitive Police were stationed in Guntur, and the party to which Mr. Satyamurthi had belonged once were very angry that Government tried to sort out the Co-operators and the Non-Co-operators in order to impose the tax only on the latter. They had said that such a thing would lead also to a great deal of bitterness on the part of those who had been singled out for punishment.

Mr. M. Ramachandra Rau. Who said that?

Mr. C. R. Reddy: I was referring generally to members of one party.

Continuing, Mr. Reddy pointed out that the Law students were graduates who had taken their Convocation Degree. What was the University to do, when they illicitly got information about the questions? Should they not treat the students as a community who ought to be made to feel that they had sinned in this matter as a community? They should be made to understand that this kind of game would not pay.

INJUSTICE CONDEMNED.

Dr. John Mathai asked if an educational body would be justified in inflicting a punishment, making no difference between the innocent and the guilty? The Law students came from two different centres and there were large numbers of private students among them. What was the community life among them? He would urge that the resolution should be accepted.

Mr. M. Ramachandra Rau, speaking in support of the resolution, said that one pertinent question was how many of these students had been really

aware of the questions and were parties to this nefarious transaction. On this single point, they would have to judge whether the whole community of students should be condemned in the manner suggested by the Syndicate. If such punishment was permissible in the field of Police administration it was absolutely inadvisable to extend this form of community punishment to the students in this Presidency.

Mr. C. R. Reddy: A fairly large number of students were aware of the question papers.

Mr. M. Ramachandra Rau: I do not understand what 'a fairly large number' means.

Mr. C. R. Reddy: Does my hon. friend require statistics? I am sorry I cannot supply.

Rev. William Meston: Mr. Satyamurthi said that there was "a large number."

Mr. C. R. Reddy: I am sorry I said "fairly large number." I withdraw the word "fairly."

Mr. M. Ramachandra Rau continuing said that it was altogether unwise to extend the principle of community responsibility in this case. He saw no justification to uphold the action of the Syndicate.

VICE-CHANCELLOR'S STATEMENT.

Sir K. Srinivasa Iyengar then vacated his presidential seat and walked down to the floor of the House to make a statement on the matter. Mr. R. G. Grieve, Director of Public Instruction, was asked to take the chair.

The Vice-Chancellor in the course of his statement wanted to place before the Senate the materials which were before the Syndicate when it arrived at a decision on this matter. Nearly 7 or 8 days prior to the examinations which commenced on Monday, 16th April, a letter had been written to the Registrar by a member of the Syndicate in which he stated that it was widely rumoured that almost all the question-papers were out. That letter was immediately communicated to the speaker by the Registrar. Then, without anything more definite, it would have been impossible either for the Vice-Chancellor or for the Syndicate to have taken any action either in the way of cancelling the examinations or taking any other steps. But for the purpose of verifying merely a rumour which could not be traced to anybody, action was taken by asking enquiries to be made

through the Police or the C.I. D. and they were good enough to comply with their request though there was nothing definite against anybody. On that investigation, it was found that it was merely a rumour. It was impossible to trace it out to any particular source, nor even to ascertain that it was correct.

This was a couple of days prior to the examination. In view of the fact that they had nothing more satisfactory to verify the rumour that the papers were generally known, they allowed the examinations to go on. On Monday, the first day of the examination, when the speaker happened to be at the Vakils' Association in the High Court, a friend of his said that a particular question was coming on in Torts paper next day. The speaker at once wrote a letter to the Registrar, enclosing the question as stated by the Vakil who did not tell him from whom he had got it. The Registrar was asked to verify whether, as a matter of fact, that question was there. It was found that it was there. Therefore it was clear that that question could not have been known by a mere accident. That was on Monday and this was on Tuesday. Again the C.I.D. was asked to investigate with the help of this more definite information they had. The same evening or the next morning, Dr. Swaminathan was able to supply the Registrar with a set of the remaining papers for F. L. and B. L. before they were handed to students. It was then quite clear that the papers had been copied out and the information they had was that the papers were copied out while they were with the Chief Examiner who was away lecturing. The speaker wanted to clear any misapprehension which might exist on the part of members of the Senate. There was absolutely no negligence whatsoever on the part of the Chief Examiner. There was a deliberate attempt to open his box, break open the seal and reseal and close the box and lock it in the usual manner after copying out all the papers. That was their information. On that information, they made further inquiries and were satisfied that the papers were generally known. His friend Mr. M. Ramachandra Rau had asked him what this fairly large number was. One of the students had come and told the speaker that, prior to the examination nearly 75 per cent. knew the questions and on the second day, 90 per cent. of them knew

the questions. Type-written copies of the questions were sent from Madras to Trivandrum and almost every student there knew them. That was the information they had from the Chief Superintendent at Trivandrum.

Everybody was agreed that these Examinations conducted when the papers were so very well-known were perfectly useless. A great deal had been said about mass punishment. They had tried their best to trace the culprits who had copied out the papers before they were sent out for printing. The printing was not done in India at all, nor by the S. P. C. K. Press, as stated in some newspapers. They came printed from thousands of miles away. The papers were copied before they were sent out for printing and this was more than 3 or 4 months prior to the examinations. This fact had been kept secret. The Syndicate, however, had knowledge about the facts as to how they were being sold to other students by the original student or students who copied them and subsequently when they were nearing the examination and when they found that they were unable to make much money out of them, they were freely being given to others. On the second day when they were hopeless of getting any more money, they spread them broadcast to all.

Now neither he nor any member of the Syndicate had any personal feeling in regard to this matter. They had been trying to do the best they could in the interests of the students and in the interests of the legal profession of which there were several ornaments there. These students were not boys, they were graduates of this University. They were preparing themselves for a very honourable profession, a profession where the temptations were very strong indeed. He was afraid that so far at least in Madras, they had kept up the highest possible traditions of the bar. Now when they found that the papers were out and were known to such a large percentage of the students before the examinations started, he would say that it was the duty of the students, however they came to know of the questions, to bring it to the notice of the authorities. If that had been done, he would have taken the responsibility of postponing the examinations and getting up new papers immediately and holding the examinations about a week later, if not on the same day. He would have taken the responsibility of getting the

subsequent sanction of the Syndicate to postpone the examination from Monday to a couple of days later. He could have got all the Examiners to meet at his house and get the papers printed or cyclo-styled.

It had been freely said that a considerable amount of trouble and expenditure might have been saved, if the Vice-Chancellor had acted on some information which was supposed to have been given to him. Papers were given to Dr. Swaminathan and the speaker was told that they came to him from the editor of a newspaper or from a reporter.

Mr. S. Satyamurthi: May I know when?

Sir K. Srinivasa Iyengar: On Tuesday after the examinations began.

The Vice-Chancellor went on to say that he was also told that a set of papers were in the hands of a Reporter in the "Swarajya" staff. It had been stated in the papers that he had generally come into communication with the speaker, that he wanted to publish the papers and that the speaker directed him not to. That was not true. On the other hand he had tried to get into contact with that gentleman after the examinations had started. When he was told that he had the rest of the papers, he tried to find out if he could give him any information as to how he got them. But he could not get it. Perhaps it was journalistic etiquette not to give out such a piece of information. Now when they found sets of papers in the hands of Reporters on the staff or the editor of a newspaper, they might be practically certain that they were thrown broadcast and that they were in the hands of practically everybody.

The student's duty was to communicate with the University authorities under the circumstances. In this state of affairs, he was unable to see if an immediate re-examination would be any punishment at all. The question of cost or trouble to the University in holding a re-examination was absolutely a minor matter. If they found it necessary, neither he nor the Syndicate would have hesitated to undertake the responsibility. If he found that justice required that another examination should be held immediately after, it would not be a question of inconvenience to the office. No such consideration would have prevented either himself or the other members of the Syndicate from doing their duty from the point

of view of justice. But the point of view was this. Seeing that the papers were so widely known in Madras and as he was told that they were in the hands of newspaper editors, the students, honest ones or the honestest of them, should have done their duty by informing the University about it. As they did not do it, they were culpably guilty, he considered. In such a case as this, he did think that a mere cancellation of the examination and holding a re-examination was really futile. In these circumstances, the view which the Syndicate took was that they should make it clear that this kind of thing was not going to pay. They could only do it by cancelling the examinations and leaving it to the ordinary course, without exercising the Syndicate's special power of holding another examination. This could be done in exceptional cases. According to the rules, the fees could not be returned unless in particular cases, the Syndicate chose to give them back. The Syndicate had cancelled the examinations and the other things were merely consequential.

The Vice-Chancellor concluded:

"I put it to the House whether holding another examination for the students would be any punishment at all for this scandalous knowledge of the questions previous to the examinations. That is what I have got to put before you. I again repeat, the Syndicate had no personal feeling in the matter at all. They were anxious to do justice and I consider they have done the barest justice and no more. Mr. Satyamurthi asked that justice should be tempered with mercy. I consider this as the least that the Syndicate could have done under the circumstances."

WHO IS GUILTY?

Dr. C. B. Rama Rau asked whether it might not be after all a low-paid clerk that had done the mischief and not a graduate student.

The Vice-Chancellor who had gone back to his seat rose to say that he had placed before them the information he had. He was afraid he could not speculate on the subject.

Mr. T. V. Muthukrishna Aiyar, High Court Vakil, observed that students on the eve of the examinations would generally get various suggestions about likely examination questions on the succeeding days. But how could they feel sure about it beforehand?

Such information would generally be very disappointing. There was no justification in inflicting a mass punishment or any punishment at all.

ANOTHER SYNDIC.

Mr. K. V. Rangaswami Iyengar of the Trivandrum Maharajah's College said that he met many students who were prepared to admit that they had known that the questions were out. The bulk of the students undoubtedly knew all the questions. The students whom he had met took the decision of the Syndicate in a sporting spirit. In the course of the discussion, there had been a certain amount of confusion of issues by the use of the words 'innocent' and 'guilty', somewhat freely. There were two kinds of guilty persons, firstly, persons who were actually guilty of stealing and selling the papers, and secondly, persons who derived clandestine advantages from those papers. There was a large number who knew that the papers were out and who still thought that it was not up to them to do anything more than passively regard it. They should be taught that they had a social duty and responsibility in the matter. As far as the present question papers were concerned, the speaker was absolutely satisfied that a very considerable percentage of the students—60 or 70—undoubtedly knew the questions before and undoubtedly believed that they were the questions that were coming up for the examination. Their number increased day by day. He was not sure whether the punishment inflicted by the Syndicate was deterrent at all. They had to show by a substantial action that they reprobated in the most severe terms such an offence. It was one of those things in which they could not play fast and loose with canons of morality. The inquiry should be pursued still further and further action should be taken as may be found necessary.

A PROFESSOR'S VIEW.

Mr. P. Subramaniam of the Pachaiyappa's College observed that the degree of knowledge that the students possessed varied considerably and there was a considerable number of students who were, in spite of the question papers, diligently absorbed in their studies. He urged that the students should have the benefit of a re-examination in July.

LAW COLLEGE PRINCIPAL SWOONS.

Mr. Arthur Davis (Chief Examiner) first of all thanked very much the Vice-Chancellor and the Registrar for the great kindness and courtesy shown to him in the matter. But in spite of this courtesy, he felt bound to vote for Mr. Satyamurthi's motion on an educational ground. There was the question of group punishment and the innocent suffering with the guilty. He himself had changed his mind as to on which side he should vote on this question. At one time he thought that the Syndicate should be supported and that the group should be made to feel their responsibility. Again he felt convinced that there was a large number of students who were innocent in every sense of the word, who never knew the papers at all or at any rate, they did not know his paper. His paper was the first paper in Jurisprudence. After he got the order from the Registrar to stop marking he went through 50 papers with a purpose to see from internal evidence whether candidates had seen the question paper beforehand. Out of 30 papers that he valued from the Madras Law College he was convinced (He added: I say to my own shame) that a very large number of them knew questions beforehand. Out of 30 papers he valued, 14 students got first class marks, though he was reputed to be a very severe marker. Generally not more than 10 would have got first class marks out of 500. It was obvious, therefore, that many of the Madras Law College students had his paper before the examination.

Next he went through 20 Trivandrum papers. Not even one of those students got more than 2nd class marks. One got good 2nd class marks. Judging by the experience of about 10 years of examining he thought that he could safely say that the Trivandrum students did not know his paper beforehand.

Then there was this educational question. The B. L. students would have to wait for three months. But for the F. L. students, it was a very serious business. They would have to go on working (till October) with their B. L. and F. L. studies together. He would tell them quite frankly that, in his opinion, this double work would ruin their B. L. class in the Law College next year. In punishing

the whole group, they were doing something against the educational interests of the University.

Mr. Davis growing extremely nervous in his tone and gesture said: "I do not know if I have made myself clear. I feel very nervous." He could no more control his voice. With a loud shriek he suddenly dropped into his seat and swooned. The proceedings abruptly stopped for a few minutes. This fainting fit cast a temporary gloom over the House. Some of his friends at once rushed to him and restored him to consciousness in the course of 5 minutes and supported him out of the House.

Mr. S. Satyamurthi briefly replied and once again appealed that justice should be tempered with mercy.

The Vice-Chancellor then put the first part of the resolution to vote. He declared it carried by a show of hands. But the Registrar wanted a poll and it resulted in 17 voting for and 24 against the resolution. The resolution was declared lost and the Vice-Chancellor in dissolving the meeting, remarked:—"This closes up the remaining business."—(*The Swarajya*).

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The Educational Review.

We congratulate the South India Madras Educational Teachers' Union on the very successful session of the Educational Conference.

which they have just held in Madras. Mr. P. T. Srinivas Iyengar, M.A., L.T., who presided over the Conference, delivered a very thoughtful and stimulating address containing a number of useful suggestions. His criticisms on the work of the Text-Book Committee were very convincing and he put in a very inspiring plea for the development of the vernaculars. His appeal for more freedom with regard to syllabuses and curricula was rightly conceived and has an educational aspect whose importance cannot be overlooked. One of the most valuable parts of Mr. Srinivas Iyengar's address was his condemnation of the waste of money on costly buildings and other things which do not add materially to the essential facilities available for education. "Much of the cost of modern education," he said, "is to be credited to the account of brick and mortar. Piles of brick and mortar do not necessarily render education efficient. The only effect of brick and mortar in the country is to vitiate the air breathed by pupils * * *

Ugly school buildings which harmonise neither with our traditional architecture nor with the landscape and atmosphere around, but, yet, are guaranteed to sow the seeds of tuberculosis, cannot, I fear, render education specially efficient. * * *

Another source of school expenditure is what is called Scientific

Apparatus. Asthmatic air-pumps, paralysed Brahmah Presses, and rheumatic Electric machines and the manufacture of stinks and the pulverising of test-tubes does not necessarily mean a knowledge of the fundamental principles of science or of scientific method which latter is a more potent means of mind-growth than stocking the memory with the magic formulæ of Chemistry and the ill-understood words in bastard Greek of the Physics and the Botany teacher. An intelligent appreciation of the properties of the stones and ores found in the vicinity of each school and an understanding of the life-history of the plants and animals which the school-boy can easily come in touch with and efficient training in scientific procedure, in the investigation of facts and arriving at conclusions do not all require the waste of untold £ s. d. * * *

As if these sources of unnecessary expenditure were not enough, the cost of direction and inspection remind one of Falstaff's 'ton of sack to one poor ounce of bread.' We are in cordial agreement with Mr. Srinivas Iyengar's demand for the recognition of the claims of educationists in public life and in educational administration, a point on which we have ourselves laid emphasis from time to time. He rightly argued that the educational portfolio in the Ministry must be in the hands of an experienced educationist. The phenomenal success of Mr. Fisher's Ministry of Education in England must convince people of the great value of securing expert educational guidance for the

Ministry of Education. "The education of the young, the intellectual and moral guidance of the citizens to be, is much more important, much more sacred, than any other department of administration and hence requires the guidance of the specialist expert and is it not our duty to organise our forces and make our influences felt so as to reach the consummation devoutly to be wished?"

The reconstitution of the University of Madras has naturally brought the University problem once more to the front in Travancore and we find that the Travancore Durbar has appointed a Committee with Rao Bahadur K. V. Rangaswami Iyengar as Convener to consider the question once more. We hope the deliberations of the Committee will result in the submission of a scheme leading to the establishment of a University in Travancore. With all the educational achievement which has taken place in the State in recent times, it should be surprising if Travancore was content to occupy the subordinate place which would be assigned to it in the new order of things under the Madras University. We confess we are however not very much enamoured of some of the alternative schemes suggested for the consideration of the Committee. The constitution of a teaching and residential University at Trivandrum is the only justification for the idea of starting a new University and separation from Madras. But the Durbar seems to entertain other possibilities which do not seem to deserve the serious consideration, at least, of educationists. A Pan-Kerala

University will cut into the essential features of a high-class University which may be started consistently with some of the best traditions of higher education to-day. A Pan-Kerala University also implies the establishment of many authorities over the proposed University, the Travancore and Cochin Durbars and the British Government in connection with the British territory in Madras, which will render its satisfactory administration a matter of extreme difficulty. No harmonious development is possible in these circumstances and there is not much point in having an affiliating University on the West Coast instead of on the East Coast. The Colleges in Travancore might as well continue in association with the University of Madras rather than with any weaker imitation of it in Malabar. We find that an agitation is already afoot to prevent the Travancore Durbar from having a unitary, teaching University of its own, but we hope the latter will not succumb to it, but succeed in effecting an educational reform, worthy of its recent progress, with full scope for its well-directed development under its own control and guidance.

The pernicious influence of immoral fiction on youthful minds must be a matter of serious concern to all educationists. Mr. Brimley Johnson has just drawn up a scathing indictment on the fiction of to-day drawing attention to the highly demoralising tendency of modern fiction in his new book on *Moral Poison in Modern Fiction* (A. M. Philpot, Ltd., 2s. 6d). After an analysis of the

Immoral Fiction.

plots and characters of several popular novels, he demonstrates the wrong and perverse outlook on the moral problems of life exhibited by several writers. Is anything being done in Indian Schools and Colleges to prevent the circulation of such literature among the younger generation? As far as we know, nothing is being done in that direction though the evil seems to be fairly wide-spread and is such as to cause real anxiety to those concerned with the making of the character of our young men. At least in hostels, it should be possible to exercise a certain amount of censorship in the matter, though it is possible to push the matter too far, to the extent of restricting intellectual and moral growth.

The number of candidates appearing for examinations in some of our affiliating Universities is getting to be so large that their efficiency even as mere examining bodies is bound to suffer seriously. The following figures represent the number of candidates who appeared for the various examinations of the Calcutta University in 1922, the number of candidates for 1923 having no doubt increased even further:—

Matriculation	... 19,153.
"Inter. Arts	... 3,747.
Inter. Science	... 1,911.
B. A.	... 2,799.
B. Sc.	... 505.
M. A.	... 502.
B. L.	... 720.
Total	... 29,357.

The examination of about thirty thousand candidates each year, by a single examining body cannot lead to very happy results and in any case, cannot leave much time and energy for real educational work.

The growing importance of tutorial work in University Education is indicated by a very significant remark made by the *Nation* the other day that "the great tutor is the summit of the educational edifice." The tutorial system is spreading widely even in America where the Universities have till now been accustomed to large scale teaching. It is a pity that owing to poverty of resources Indian Universities have not yet been able to introduce the tutorial system in any very effective manner. The essence of the tutorial system is put with great clearness in the following observations contained in the article:—"The business of a University is not to confer information. For the under-graduate at least its main function is to offer training in that discipline of mind which renders possible the creative analysis of problems. For him, how to know is more important than what to know. The amount he can hope to learn in his three years' work for the Degree is always, save in exceptional cases, small, but he can, at least, be taught the method of acquiring and utilizing knowledge. * * The key to this attitude will be found in personal contact of two kinds. In part it comes from residence in a college. Continuously to rub shoulders with men engaged in a disinterested search, to discover the essential truth that all facts

are not born free and equal, to become free of the great company of scholars — these things are the root of the University idea. It is only the extraordinary man who can gain them in solitude. It is only the divinely-sent teacher who can communicate them by lecture. For most the effective way is living with other students in a kindred adventure. It is there that takes place the ruthless evaluation of ideas, the perception that scepticism is fundamental, the notion that knowledge is not a collection of formulæ."

The first public utterance of Mr. Bhupendranath Basu as Vice-Chancellor of the University of Calcutta will not enhance his

reputation, or satisfy the disappointment roused in well-informed circles when he was nominated as Vice-Chancellor in succession to Sir Asutosh Mookherjee. One who had himself spent all his life in one of the most money-grabbing branches of the legal profession made the profound discovery that lawyers were "legalised free-booters," forgetting that lawyers were necessary in any commonwealth and they did service of great value in the preservation of individual rights and liberties. The opinion was due to the mistaken notion that lawyers did not add to the wealth of the country, though even an elementary knowledge of economics should have told him, that among the many factors necessary for the production of wealth, the work of the lawyer is also one. Having

delivered himself thus about the legal profession to which he himself has belonged for the entire period of his life, he proceeded to make the startling observation that the Calcutta University was sending out graduates whose heads were full of Shakespeare and Milton, as if it was a crime. In any case, a Vice-Chancellor who is horrified at the prospect of graduates whose heads were full of Shakespeare and Milton cannot be expected to do much for the advancement of higher education in Bengal. Let us wait and see and we hope that Lord Lytton will now realise his folly in depriving the University of the services of its greatest Vice-Chancellor.

Lecturing on the *Teaching of History*, Mr. H. G. Wells put forward an interesting suggestion the other day—

The Teaching of History.

it was that history should be taught on as wide a basis as possible instead of in water-tight compartments in relation to individual countries. His thesis was that history was not many subjects, but one and should be taught in the same terms in all civilised countries and that it was best taught in that fashion. It was as unreasonable to teach it in closed packets as was done now as to teach Chemistry or Biology in that manner. It was as unreasonable to have such subjects as English History or French History as to have English Chemistry or French Biology or German Mineralogy. He advocated the teaching of world history as distinct from national history, because

it was more interesting, easier to teach and more readily understood. Mr. Wells argued that history should be taught by beginning with the dawn of life on the globe and going on with the development of the human race, the growth of States and Governments and civilisations. There is one aspect of the matter which is of special importance. The teaching of History in connection with individual countries and the laying of too much emphasis on country and nationality are things rather injurious to the development of international brotherhood and the execution of Mr. Wells' idea, to the extent that it may be practicable, cannot but be productive of very healthy results.

The latest Administration Report of the Baroda State gives some interesting details with regard to the progress of education in the Baroda State.

The total number of schools at the end of the year was 2,814 as compared with 2,797 in the previous year. Of these 2,814 educational institutions, 2,748 are exclusively set apart for vernacular education. Expenditure on primary education during the year amounted to seventeen lakhs of rupees. There were 372 Girls' Schools in the State and these imparted education to 30,331 girls. This was in addition to 31,598 girls who were studying in mixed schools. It is interesting to note there is also a differentiation of curriculum between boys' schools and girls' schools. As many as 221 schools

had been set apart for the education of the depressed classes and there are also stipends and scholarships for their special benefit. One of the most interesting features of education in the State is the provision made for technical education and education of many other kinds over all of which considerable amounts are being spent.

We congratulate the Rev. Dr. Macphail on his appointment as the first Vice-Chancellor of the reconstituted Madras University. We cannot disguise the fact that the appointment of an Indian would have given us greater satisfaction, especially at the present stage in the development of Indian Universities, but as an able and experienced educationist Mr. Macphail is an eminently suitable person for the high office. Being a very successful speaker with strong common sense and a fine sense of humour, Mr. Macphail should be able to handle with effect the proceedings of the University bodies over which it will be his duty to preside. We only hope that Mr. Macphail will not identify himself, at least in his capacity as Vice-Chancellor, either with the Madras Christian College or with Missionary interests in general, but will always assume a high attitude of impartiality and justice in his relation to the numerous colleges which constitute the University of Madras. We also hope that as the first Vice-Chancellor of a "popularised" University, he will always endeavour to

give the amplest scope for the development of Indian talent and aspiration in all matters concerning the University, and also not succumb to the influence of the *Justice* party. It is interesting to note that Mr. Macphail's is among the names suggested by us only last month for the Vice-Chancellorship.

We are sorry to note that the 'Shakespeare Hut' now being run in London, under the auspices of the Y. M. C. A. for the special benefit of Indian students, will shortly be demolished to make way for the new Institute of Hygiene. As a place of recreation and as a rallying centre for Indian students in England, the Hut has been of considerable service in recent years and its disappearance will cause real hardship to Indian students. It is very necessary that some alternative accommodation should be found and it is proposed to found a new home in Gower Street. An appeal has been issued for £20,000 of which £7,000 have already been promised. We hope that the appeal will meet with generous response and the Shakespeare Hut will continue in another home. Contributions may be sent to Mr. Judd, 8, Frederick's Place, London, E. C.

The announcement has been made that the Minister of Education in Madras has summoned a Conference of experts in working Elementary Education in rural areas in order to prepare a programme for universal expansion of Elementary Education in rural areas within a definite period. We are informed that for that purpose he has prepared a Memorandum showing the number of schools that are to be provided under the new scheme and associating village people and panchayets with the opening of new schools in villages. An estimate is to be made of the entire school-going population and the number that are to be provided for under the new scheme. The financial responsibilities of the scheme are also to be estimated and the scheme will extend for a definite period for having a school for each village or a group of villages. This Memorandum is to be placed for the consideration of the Conference after which a resolution will be issued by the Government on the subject. Fourteen Municipalities have already adopted free and compulsory education and the scheme will provide for its extension to all the Municipalities in the Presidency. An attempt will thus be made to cover all rural and urban areas and we hope substantial results will follow the deliberations of this Conference.

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Ag. Director of Public Instruction.

WITH A FOREWORD

BY

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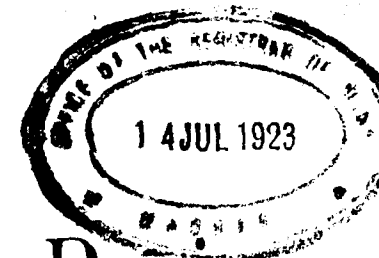
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THE THIRD HEADMASTERS' CONFERENCE.

PRESIDENTIAL ADDRESS.*

LET me begin by tendering you my heartfelt thanks for your extreme kindness in according me the honor of presiding on an occasion like the present and participating in your deliberations.

It is well-known that our Association has been the outcome of a suggestion that "if the Headmasters of Schools in our Presidency were organized, their Conference ought to be the means of pressing on the public mind, as well as on the minds of teachers themselves, the importance of their profession and the feeling of *noblesse oblige* and that the teacher should see to it that the profession does not suffer through any fault on his part."

POSSIBILITIES OF EDUCATION.

In no country or kingdom can the ruler ignore the possibilities of education and the

* By Mr. R. SWAMINATHA AYYAR, B.A., L.T., F.M.U., Headmaster, Town High School, Kumbakonam.

power for good of educationists without detriment to his own cause. It was through education, technical and non-technical, widely and deeply diffused, that nations, large and small, have come into prominence. Take, for example, Prussia humbled to dust at the battle of Jena in 1806. Take again the United States of America, or Sweden, Switzerland or Japan. How high in the scale of nations these stand in respect of material prosperity! Do they not owe it all to their Schools, higher and lower, rural and urban, general and special? Do they not owe it to their Colleges, general and professional? Do they not owe it as well to their night schools, continuation schools and factory schools, to their technical and technological institutes? Are not these institutions broadcast in those countries, so as to be within the reach of all, rich and poor in them?

FUNCTION OF SCHOOL-MASTERS.

Our function, as school-masters, is both to advise Government as to what education,

technical and non-technical, our country needs and how best to advance it and also to bring home to the people, in whose midst we are thrown, the benefits of the education required as well as the necessity of their sympathy and co-operation in the matter of securing them. This double function we could discharge in an easy, effective way only by organizing ourselves into an Association or Brotherhood and we could at the same time use the Association as a means for having the grievances of our profession redressed.

The late Mr. Gokhale in his Congress Address of 1908 mentioned "Mass education, sanitation, peasant indebtedness and technical education as large outstanding questions, which it was beyond the power of an official Government to handle without the co-operation of the people." Such co-operation is possible, as has been said, only through the kindly efforts of the school-master, acting as the interpreter of the aims of the Government on one side and the educational needs of the people on the other.

CONDITION OF EDUCATION.

The Report of 1918 of the Commission on Indian Constitutional Reforms says in regard to the condition of the Indians: "The immense masses of the people are poor, ignorant and helpless far beyond the standards of Europe.....226 out of 244 millions of people in British India live a rural life... In the whole of India the soil supports 225 out of 315 millions and 208 millions of them get their living directly by or depend directly upon the cultivation of their own or others' fields." In British India about 6 per cent. of the population, males and females together, are said to be literate, being able

to read and write. Even this education is not evenly distributed, the percentage being found higher in the case of men than in that of women, higher in cities than in rural parts, higher again among the higher classes than among the lower. Naturally, the educated higher classes are best qualified, by their position and education, to lead in the educational advancement of the poorer classes about them.

"The higher castes of Hindus have for generations supplied the administrative body of India, whatever the nationality of the rulers, and the introduction and development of British rule inspired these classes to qualify themselves for a continuance, under the new conditions, of their hereditary careers.From the economic point of view, India has been handicapped by the want of professional and technical education."

What education the country has had is said to have been on wrong lines, in that it has not prepared students for the normal life of the country. The system is said to have failed to train pupils for an industrial and commercial life and given students no insight into the bearing of science upon the industries of the country and no insight into the working of business organizations.

"In their Resolution of 1888 on the subject of Technical Education the Government of India pointed out that the education hitherto provided had been too exclusively literary in its bent: that industrial training was required in view of the necessity of securing a greater variety of occupations; and that technical education could be provided with advantage at once for industries which had already reached a comparatively advanced stage of development such as the textile and engineering

industries.....The necessity of giving a more practical bias to general education was emphasised, and Local Governments were incited to take action in these directions."

Another pressing need is said to be "to foster more widely in the schools and colleges those ideas of duty and discipline, of common responsibilities and civic obligation, on which a healthy political life depends."....."There are, it is added, notable and welcome signs of the growth among the educated Indians of the conviction that the possession of education does not merely offer the individual opportunities of advancement but should confer on him also the ability and the obligation to serve his country."

CHANGES SUGGESTED.

The proper education of women, who form one half the race and who are almost sunk in illiteracy is, one need hardly say, a *sine qua non* for the proper economic and material progress of the country. The lack of proper co-ordination between primary and secondary education, the under-payment of teachers making the profession unattractive to men of ability and character and the inadequacy of their training have contributed not a little to the educational wastage in evidence everywhere. The improvement of the primary and secondary education and their proper co-ordination are again necessary for the development of technical instruction and University education.

The Industrial Commission have laid stress on a substantial increase in the scientific and technical services of the country and their organization under a separate department of the Government of India, whose business would be to bring it into close relations at various points with the Department of Com-

merce, the Army Department, the Department of Education and the Finance Department.

The commercial education in vogue in schools about us, to be fruitful of good results, must include instruction not merely in short-hand, type-writing, book-keeping, precis-writing, but in the mechanism of banking, exchange, foreign trade, commercial geography and the economic resources of India. The practice of up-to-date methods of business and account-keeping is certain to spread among people, if men familiar with modern trade and industry are increasingly employed as teachers in schools. What great part is there for the school-master to play in this and allied matters!

RURAL EDUCATION.

It has been said that nearly nine-tenths of the population of British India live in villages. To prevent over-crowding in urban areas and make village life bright and self-contained and also to obviate "the two-fold robbery of the soil, both of its chemical products and of its men" referred to by Mr. L. K. Elmhirst, vigorous efforts must be made to place rural education on a sound and enlightened basis. As it is, the education given in village schools being confined more or less to the Three R's is dull, formal, and mostly inefficient and unsuited to village-conditions. It prepares pupils neither for a bright village life nor for suitable higher education. What is talked of as "the project type of curriculum" must be tried, the most suitable projects being the village home, the village farm, the village shop and the connection of these with the whole country and the outside world. The curriculum, the methods and hours of work in the school must be calculated to secure the convenience and co-operation of the pupils'

parents. Due emphasis should be laid on civics, sanitation, hygiene and nature-study in teaching. Where possible, the school activities should be such as would contribute to the pupil's family income. In fine, the education given should suit the village life and make it happy and attractive. The village school should further be a centre of culture and enlightenment even for adults and a place of discussion for the settlement of the local, social and economic questions.

Are there at present village schools good enough to meet the wants of the rural people? Are there village school-masters capable of fulfilling their expectations? It must be admitted at the same time that the post of the village school-master is far from attractive. Unless his emoluments are sufficiently advanced by the authorities concerned, unless due emphasis is laid on a study by training students of the conditions of village life in training schools by means of a suitable scheme of work, the problem of village or rural education, which is the problem of problems, must remain unsolved. In the Lower Grade Elementary School what is really needed is less educational theory and more practical work. The teacher must be got to know what to teach and how to teach it. In matters of such vital importance who could advise our Government and our fellow-men better than we, headmasters, who represent the collective wisdom of the staffs in our schools?

MASS EDUCATION.

It is said that Switzerland holds the education of the masses to be indispensable for the permanent prosperity of the State. This little country of 16,000 square miles in area with a population of 31,19,000 is said to have

in all more than 300 schools giving technical and commercial education, besides schools and Universities for general education. The State provides for the education of all grades of society. Germany is said to be far ahead of other countries in respect of mass and industrial and commercial education, with twenty-one Universities for higher education, all departments of education being most carefully attended to by the State. In all British India the number of professional colleges under Government management except those for teaching is 34 with about 9,500 scholars in them and the number of professional schools managed by Government excluding those for teaching is 147 with about 15,000 students in them. The people having technical education are for every four thousand two in all British India, and only one in our Province.

In America, the State, the merchant princes and the manufacturing concerns arrange, it is said, to maintain technical, industrial and commercial schools to keep the United States the premier industrial country. The common people, they say, evince a unique interest in, and a passion for, trade and technical schools. There "learning by doing" is said to have precedence over "cultural education." There are said to be any number of continuation schools, night schools and trade schools established by private enterprise in connection with manufactories. Efforts are said to be concentrated upon producing first class farmers and higher grade workmen and artisans. Europe, Japan and even China are said to be putting forth their best efforts to propagate industrial education. Should we not follow suit? Should we not endeavour to get the State and the people to make

industrial education a *fait accompli* in our land?

Technology is nothing new to our land. It is said to have been amply patronized in the past by the State with a special department established to attend to it. The excellence of our men in times of yore in the production of delicate woven fabrics, in painting, sculpture and architecture is too well-known. There is indeed the instinct in us latent, requiring but to be stirred up.

REFORM IN EDUCATION.

In order that instruction in technics may be successful, a certain amount of general education is, as has been indicated, indispensable and that knowledge, general and special, may make due progress, higher institutions must be suitably organized and equipped. Then talented men, young and old, capable of and disposed to carry on research work by way of extending the domain of knowledge will have the necessary facilities for their work. It was for the purpose of studying the existing conditions of education, higher and lower, general and special, technical and industrial, and formulating proposals for its improvement and extension in view of the present day needs of our country and in the light of its past achievements and traditions, that our Government appointed a Committee sometime back and we have before us their report, embodying their considered views.

THE PROPOSALS OF THE GOVERNMENT COMMITTEE.

As our Conference is to go fully into the Report, I propose to deal only in a general way with its more important Resolutions. Some of the members of the Committee have indeed done well in recommending the abolition of the distinction between Primary and Ele-

mentary Education. This artificial and arbitrary distinction has done no small harm. In England efforts are said to have been made to do away with such a distinction. It has led to drift to towns of people from villages, to the decay, partial or entire, of villages and village schools and to the unhealthy congestion of towns in general. To restore villages to their original condition of prosperity and beauty, the village schools, as has been said already, must be reorganized, with their curricula and methods of work suited to the conditions of villages and their requirements: and men of ability and knowledge and of the requisite training and character must be procured to teach. No doubt all this means money, and Government must be prepared to face the expenditure, heavy as it may be, if they care for the well-being of the people.

N. B.—[A reference to the Government Committee's Report may be necessary to make out the following.]

A. The Middle-School Stage.—Resolutions 3 to 6. The course indicated (a) compulsory is the same as that at present in vogue with the addition of optionals under (b), such as Agriculture, Accounting and Banking, Singing, which find no place in the existing curriculum.

How many optionals under (b) are required to be studied by a pupil along with the compulsion under (a) is not indicated. Possibly only one has been contemplated. Unless the syllabus in each of the subjects is sufficiently light, some of the subjects included under (a) or (b) must go, I am not for having any optional at this stage.

B. The High School Stage.—Resolutions 7 and 8. The course suggested is susceptible

of improvement. It includes all the compulsories in A and B groups without Sanskrit of the present S. S. L. C. Scheme and a non-technical from a new group (A) and a technical from a new group (B) to boot, instead of two subjects to be selected from group (C) of the existing scheme. There is no provision for a compulsory study of an Indian language as such. An *Indian language* must be put in for a *vernacular* (vernacular composition being a compulsory subject in any case). The compulsory study of the vernacular in the Middle School course to the exclusion of Sanskrit and the vernacular being used as the medium of instruction for all *information* subjects in both the Middle School and High School courses must be enough for the cause of the vernacular and the people. At the High School stage *Sanskrit* must be brought in as a subject of study as an alternative to the advanced study of the vernacular. Sanskrit, as a subject of cultural value, is too good to be abandoned. The interests or progress of the vernaculars do require its aid. The interests of pupils, sons of officials in particular, having to go from one linguistic area to another for study demand it. Higher medical studies, whether in an Indian or European University, need it. It would be grave injustice to all concerned to ignore the claims of Sanskrit for a good place in the school curriculum. Personally I would urge that it might well be given a place as an optional subject of study in the curriculum of the lower forms, provided the study of the vernacular is not prejudicially affected by the arrangement. I am certainly sensible of the imperative need for a proper study of the vernacular in schools.

The course suggested for girls (Domestic Economy, &c., and Domestic Hygiene, &c.) as

subject viii under the new Group A (non-technical) may come under vi of the new group B (technical)—A special course for girls (Needle-work, Cooking, Indian Music)—The rest of A (non-technical) may be completely dropped and the syllabus in the allied subjects in the compulsory group (a) to (e) may be suitably drawn up to secure the educative value of the A (non-technical) subjects proposed here to be dropped. The arrangement proposed by the Committee is indeed inconvenient, the course newly suggested being in no way an improvement upon the present one. No useful purpose will be served by retaining A (non-technical). The compulsory subjects under Resolution 8 (a) to (c) covering as they do, a wide enough range, must be sufficient for the intellectual training aimed at, while the omission I suggest would leave time enough for increased attention being paid to the technical subject selected from (B). At least one period a day must be given to the study of the technical subject (chosen under B) if it is to do any good at all.

The existing division of school subjects into "A", "B" and "C" Groups may well give place to (1) compulsory subjects, and (2) a group of technical subjects—only one of them having to be brought up by a student.

The candidates at the end of the course may be examined in *all* the subjects—(1) the compulsory and (2) the technical—brought up, the number and duration of the question papers being suitably reduced to reduce the examination strain and the syllabuses in the subjects of examination being made sufficiently definite and light to minimise the strain of preparation.

INTERMEDIATE EDUCATION.

The Resolutions of the Government Committee on this subject, namely, that its aim

should be to lead towards a University degree and to provide training preparatory to higher technological training or to practical occupations and that the control over both the course and the examination be vested in the University, seem to me to be sound enough, my reasons being the same as those which have weighed with the Committee, *viz.*, that the resources of the existing High Schools are too slender in almost all cases to admit of their developing into what are now known as *Second-grade Colleges* and that the Intermediate courses and the Intermediate Examination can be better guided and controlled by the University than by any authority to be newly created. But the new University Act which is soon to come into operation has quite altered the situation and no useful purpose can be served by going into that question. I would however suggest by way of avoiding all complication that any class or classes contemplated by the authorities above the present VI Form—in view of the Intermediate or the University Entrance examination—must continue in the existing Colleges, Second-grade or First-grade, the selection of pupils for the University course being done in the colleges themselves. The aim of the Intermediate Education set forth in Resolution No. 13, as summarised herein already, being kept in view, the colleges concerned should so shape the preliminary University course, (the necessary provision for technical instruction being made just to follow up the High School arrangement) and the University authorities should so adjust their University Entrance Examinations that the selection of students for the University course may be properly effected. The rejected students may then proceed direct to practical occupations or higher

technical or technological institutions for further training.

The three-fold aim of the Intermediate education, as indicated in Resolution 13 of the Report, and the arrangements that ought to be made both in the Secondary Schools and in the Second-grade Colleges in view to accomplishing that aim seem to make the creation of a separate course of higher secondary and practical education and of the concerned higher secondary and practical educational institutions contemplated in Resolutions 16 to 20 of the Report wholly unnecessary, particularly in view of the Trade schools and the Technical institutions contemplated in Resolutions 26 and 27 of the Report. Would not the provision of a suitable technical course in the existing High Schools or Colleges for the weaker students in them having a special aptitude for technical studies both obviate the wasteful duplication of institutions and courses and make for economy and efficiency?

WOMEN'S EDUCATION.

In view of the special difficulties with which women's education in our country bristles, the Committee of Educated Indian Ladies recommended in Resolution 30 must be welcomed. A scheme of studies suited to the actual needs of the several classes from which girl students are drawn, as determined by the conditions of their present and prospective living must be worked out. Certainly it won't do for us to let almost one half of our country's population grow in illiteracy.

The further arrangements recommended in Resolutions 31 to 34, *viz.*, the medium of instruction and examination being the vernaculars of the students and the staff of teachers being women as far as possible, women

being represented adequately on all bodies dealing with girls' education and there being separate institutions to train women in Medicine and Teaching, must be equally welcome to us.

VOCATIONAL AND TECHNICAL EDUCATION.

In view to giving advanced vocational and technical education may be established at selected centres technical or professional colleges for students who have successfully completed the S. S. L. C. course or the Higher Secondary or the University Entrance course. These together with the Trade and the Technical schools of a lower grade (recommended in Resolutions 26 and 27) for boys who discontinue their education before successfully completing the Secondary school course, would, I think, well enough meet the purposes of both the country and its industries and the men proceeding to practical occupations. For the reason given in para. under Resolution 28, viz., that the scheme of work in lower schools may not become too vocational and that the provision for manual training and technical subjects is enough to prevent the course being too literary and "give the pupil just the bent for practical subjects" that would help him in later life, no very elaborate technical courses need be tacked on to the Primary and Middle schools, nor even to the University Entrance class. Neither is there any need, as has been said already, for the creation of institutions of the kind contemplated in Resolution 16—Institutions for Higher Secondary and Practical education—since they do not appear to fit in readily with the scheme of education, general and technical, recommended in the Report and will lead to wasteful expenditure.

The Government of India, it is said, have arrived at a decision to establish a School of Mining and Geology in Bihar and Orissa. If the experiment succeeds, more institutions of the kind will, it may be hoped, come into being elsewhere, too. The present one is an institution of the collegiate rank, and provision, it is said, will in due course be made for junior courses in the foundation sciences including geology. To determine the conditions of admission to the Engineering services in India and the relations between Engineering Colleges and Universities, the facilities for the development of post-graduate work and the purpose and scope of scholarships in England, a Conference of distinguished technical, educational and commercial men is said to have been held. That this is all a movement in the direction of our country's advancement is a matter for congratulation and it is to be hoped that something beneficial will come out of it. From all this one could see how greatly solicitous the Government of India are for the material prosperity of the people.

ADULT EDUCATION.

In respect of adult education much has to be done. Seeing that not more than 6 per cent. of the people in India are literate and seeing also that the majority of our people are sunk in poverty and seeing at the same time that the success of the New Reforms depends upon how people use their franchise, no well-wisher of the country and Government can help pressing the need for the proper education of the uneducated adults in the country. Schools of the kind recommended in Resolution 25, viz., Continuation classes,—in part technical and in part general in scope, Night schools and Continuation schools—must be necessarily opened. I am

not however for starting new institutions but only for adding an adult education side to the existing schools, where possible. New ones should be opened where such are unavoidable. As far as possible, the locally available teaching power and the teaching facilities, such as Reading Rooms and Libraries, must be fully utilized. Public funds should not be wasted. Needless duplication of machinery, educational or administrative, must be avoided. Periodical lectures or discourses or classes should be arranged for and, where necessary, they should be paid for. The provision of adult education is a concern of the State. Liberal grants must be sanctioned to public men or local bodies or institutions undertaking this philanthropic work. Every effort must be made to awaken and stimulate in ignorant adults an intelligent interest in the things about them and enable them to understand problems affecting their social and economic conditions. Who are better fitted to advise Government in these matters than ourselves?

TRAINING OF TEACHERS.

Resolution 29 reducing the period of training for Secondary-grade teachers to one year and making English or the Vernacular the medium of instruction in Training Schools commends itself to me. The reduction of the period would certainly make for reduction of expenditure and increased output of trained teachers. The percentage of trained teachers in Elementary Schools in our Presidency is only 38 and requires to be considerably increased. The trained teacher must be given every facility to pass higher examinations, general and professional. The more he improves his qualifications, the brighter must be his teaching and prospects. Teaching is a

matter of both intellect and emotion. What requires to be developed in a teacher under training is a good sense of duty, a clear perception of character, a true spirit of comradeship, sympathy, sacrifice, love and loyalty, which all make for success in teaching more than knowledge and the authorities of training institutions cannot be too careful in their work. It must be admitted that Government have not been slow to recognize the importance of training. They have opened additional Training colleges, schools and classes, wherever necessary, both in our Province and elsewhere.

DEPRESSED CLASSES.

The Committee recommend, as indicated in their Resolutions 35 and 36, that the education of the depressed classes is a matter of national duty and that pupils of these classes should be allowed full remission of fees in the Middle and Secondary stages as well as all possible boarding facilities wherever they study. Government have already moved in the matter and will doubtless do in due course whatever may be yet possible.

TEACHERS, THEIR PAY, ETC.

The Committee do quite recognize the unhappy lot of the members of the teaching profession and recommend the introduction of a unified system of Provident Fund under Government control, taking due cognizance of the teacher's entire past service, as well as the appointment of a Committee to draw up Rules pertaining to tenure of office, salaries, leave, etc.

A Government Order directing the starting of a Provident Fund in every Aided school on pain of losing its recognition has already been issued. It only remains for the Government to so modify the Order that contribu-

tions to the Provident Fund may fetch the contributors interest at least at 6 p. c. The 3 p. c. interest allowed under the present scheme is too low. Unless it is raised to 6% the poor teachers will have no reason to congratulate themselves upon what has been done to them.

Further, the schools, which have Provident Funds of their own, started already with Government's approval, must be allowed to continue them on the same terms as before. They should not be compelled to merge them in the Government Fund.

As regards their pay, a uniform scale of salaries for teachers of the various grades should be prescribed for adoption in all recognized schools and the net cost to their managements must be borne in full by Government. By way of preventing in schools all extravagance in expenditure and in view to meeting their entire net cost, it is of course open to the Department of Education to call for a statement of the anticipated charges beforehand from each recognized school and insist on the management incurring only such items of expenditure as have had its approval. Few schools in the Presidency seem to work at a surplus. Unless Government aid them adequately, they must languish and die. Private agencies undertaking the education of the people must be liberally patronized by the Government, since they spare them both the trouble of organization and supervision and the cost of carrying it on.

The total expenditure on education for all British India in 1920-21 is 16.7 crores out of a total revenue of about 180 crores: of this 16.7 crores, only about 11.7 form the direct expenditure on education, higher and

lower, general and special, the balance of about 5 crores being the expenditure on University, direction, inspection, scholarships, buildings and equipment.

From the foregoing figures it may be seen that the allotment of money for expenditure on education in our country is too small, in fact, much smaller than in many civilized countries, considering the aggregate revenue. The interests of the country demand a substantial enhancement. Not only is a larger assignment of revenue called for for expenditure on education in general but a larger proportion of this assignment is needed to encourage aided education. It is private educational agencies that do the lion's share of the educational work in the country and that, at very little cost to Government. It appears there are about 8 times as many scholars in private Secondary Schools as there are in Government Secondary Schools and 32 times as many pupils in private Primary Schools as there are in Government Primary ones. As for the annual cost of education, each pupil in a Government Secondary School is said to cost about Rs. 46 and each pupil in a Government Primary School about Rs. 13½ as against Rs. 10½ and Rs. 1½ respectively said to be expended in the Aided schools.

Financial help to Aided schools should be made conditional only upon efficiency of work in them and not upon any contribution by their managements. Few schools have any endowments of their own for the managements to draw upon to make their contributions. If pressed for any contributions, the managements would either withdraw or close down their schools. Neither contingency could Government view with complacency. The teachers in private schools, for the matter

of that, even those in Municipal schools, are having a bad time of it in respect of salaries and very many are hard put to it to make both ends meet. In these days of expensive living and extravagant demands in other directions, there are few teachers who are not indebted. Seeing that they are doing public work and as such are servants of the State, it behoves Government to arrange to keep them above want. The question of teachers' pay and prospects is too important to be lightly dealt with and it requires all the wisdom and care which the Government can exercise to dispose of it satisfactorily.

TRAVELLING FELLOWSHIPS.

To enable teachers to be up-to-date in their knowledge and methods of work, travelling fellowships, nay, whatever other facilities Government can afford by way of improving their qualifications, must be liberally accorded. They must be welcome to teachers of ability and enthusiasm. The May number of the *Modern Review* speaks of the Government of Japan sending out as many as 485 college professors to foreign lands in view to their equipment for higher college work. Does not our country need such accession of knowledge and training?

GRANT-IN-AID CODE.

The Code, as it is, does not help private schools sufficiently. It must without further loss of time be amended so that schools incurring expenditure with the sanction of the Department may have their net cost met from provincial funds in full. The Code should indicate further for the guidance of managers of schools what scale of salaries for the several grades of teachers should be adopted in all recognized schools, public and private.

CHEAP MEDICAL AID IN RURAL PARTS.

It is a pity that the contemplated provision of cheap medical aid in rural parts has been dropped. To my mind such a provision is essential. Poor country people can ill-afford to move out for first class medical aid. Ten to one, they will suffer or die for lack of medical aid in their own villages. Even first-aid must be welcome to them. The rejected suggestion is well worth reconsideration.

MUHAMMADAN EDUCATION.

There can be no two opinions as to the desirability of opening up additional educational facilities to this community. Government have already started additional schools for them and raised a Second-grade College to the First-grade and are also allowing liberal fee concessions. Further facilities will certainly follow in due course.

DIRECTION AND SUPERVISION.

Whatever the direction and supervision arranged by Government, success in teaching depends upon the energy, enthusiasm, knowledge, and personality of the teacher. In our ancient *Gurukula* system the *Sishya* had in his *Guru* a living example of what a man ought to be and ought to do. He could readily learn by his association with the *Guru* self-effacement, endurance, loyalty and devotion. Spirituality was the aim of all schooling and the *Guru* had no care about food, lodging or clothing, the State and the public—the wealthier section of the latter at all events—supplying the material wants of the *Guru* and even of the *Sishya*, where necessary.

But times are altered and, the struggle for existence getting keener and keener, the schoolmaster of the present day can scarcely

lose sight of his material wants. All the same, while making every effort to better his position and prospects in life, he can keep in mind the spirit of the ancient system and strive to bring it to bear upon his work as teacher and exalt life and character all round. The Headmaster, like the eldest member of a family, has no small responsibility to fulfil. He should be an ideal man and worker, an example for those below him to follow and in the exercise of his supervision, which is a necessary part of his duty as Headmaster, he should assume an attitude of sympathy, helpfulness and guidance towards his Assistants. Should a genuine feeling of comradeship, love and sympathy, actuate every member of the school staff, the school must properly progress and command the sympathy and support of the Department of Education on the one hand and the gratitude and co-operation of the public on the other. Whether Government appoint Administrative Inspectors or Tutorial Inspectors or both, to direct and supervise our schools, we need not trouble about it, so long as we keep our house in order.

DISTRICT EDUCATIONAL BODIES.

In view to improving and extending Primary education, Government have, we all know, passed the Madras Elementary Education Act and established *ad hoc* District Educational Councils. Compulsory free education is following in its wake. There are indeed heard on all sides loud complaints against these arrangements. As there can be no two opinions about the usefulness of these measures, it is to be devoutly hoped that the authorities concerned will soon see their way to remedy the defects noticed. The District Educational Councils, constituted as they are at present, have one bad drawback, which

can be easily rectified: the teaching element concerned which alone can guide properly is not sufficiently represented on them and steps should be taken to increase its representation without further loss of time. And the scheme of free compulsory education introduced can progress and fructify at all only if the managers of the schools concerned are fully compensated for their loss of fee-income and the schools are properly organised and suitably staffed. Government should not stint expenditure at all in this direction.

Further, with a view to set right the working of the scheme of Secondary education in vogue and improve it, where possible, arrangements are being made to create *ad hoc* District Secondary Education Boards and have the Text-Book Committee re-organised. In order that these efforts of Government may not fail of their purpose, the authorities concerned ought to endeavour to put on these Boards and Committees men who know their trade and would put their hearts into the work. Mere honor-seekers with little stake in the concern and with less knowledge of the requirements of the post won't do.

NEW UNIVERSITY.

From a conviction that all is not well with our University and its work, a New Act has been passed and is soon to come into operation. It is apprehended in more than one quarter that the Reformed University will be only the old University with a new name and new appendages and that the work turned out will be no wise better. It is said at the same time that the old University Act does provide for the expansion of the University activities in the directions contemplated in the New Act and if only the policy of "*hasten slowly*" had been followed, Govern-

ment could have achieved their purpose most magnificently with little trouble to themselves and with no great expenditure of public funds. According to the New Act the University is to be *residential*. Professors and students will have to live together and work. A true academic life and spirit must be created as well as the necessary facilities to extend the domain of knowledge. Will not a mint of money be required for the purpose? How are Government going to find the money required? Is it by starving Secondary and Primary education, which God forbid, and which is the apprehension of all concerned? Whatever new educational bodies be created, be they connected with the University education or the Secondary or the Primary, they cannot work on sound, enlightened lines, unless they have intimately associated with them persons actually engaged in teaching and willing to give them the full benefit of their knowledge and experience. As ardent lovers of education and as persons vitally connected with it and keenly interested in its expansion in all directions, we shall hope and pray that the Giver of All Good may bless the new schemes and guide them to complete fruition!

Gentlemen, I think I cannot close this address of mine better than by mentioning such of the more important objects of our Association as have been realized already. I propose to mention them here not from a feeling of gratification that the Association has achieved much but from a hope that a grateful acknowledgment of the favours already received will fetch us further favours in fulness of time. I need hardly say that teachers in schools are at present having increased salaries, though the increase is small,

and are likewise having the benefit of a Provident Fund free of income-tax, though the rate of interest allowed is too low. Headmasters of schools are, as we all know, at present more largely represented on the S. S. L. C. Board than before and are further allowed the privilege of making their own selection of Vernacular text-books for Forms IV and V. Orders have already been issued by Government regarding the establishment of additional Engineering and Medical Schools in suitable localities and the opening of a course of hand-and-eye training or a vocational side in schools. Last but not least, the age-rule relating to the S.S.L.C. and the Matriculation candidates has been, to the relief of all concerned, relaxed. Any further proposals we may submit and any further concessions we may solicit as the result of our deliberations at the Conference, I have no doubt, Government will sanction, provided we approach them in proper form and spirit.

Gentlemen, I wish no more to tire you and I therefore close, thanking you once again for your kindness and forbearance.

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VOCATIONAL TRAINING.*

BEFORE detailing to you our experience in the matter of Vocational Training, I shall give you a brief sketch of the foundation and the subsequent development of the Home; for it is only then that we can understand the natural course of events. The Home owes its inception to Swami Ramakrishnananda (one of the direct disciples of Sri Ramakrishna Paramahansa) who came to Madras as the first President of the Ramakrishna Math here. He had an intense love for the poor and therefore he could not brook the sight of the poor boys wandering in the streets of the city, ragged, starving and care-worn, not knowing from where the next meal would come. It was, in fact, the sight of such an orphan that made him start the Home. Once, the Swamiji met a boy whose parents had been suddenly carried away by plague and who was thus left all alone in the world with nothing to fall back upon. He was then reading in the Junior B.A. class. Unable to bear the sight of such suffering the Swamiji approached many sympathetic friends and with their help started the Home.

At its foundation in February 1905 the Home contained seven boarders. They were lodged in a small rented house and carefully looked after. But gradually as the public began to appreciate its use-

* An Address delivered by Rao Sahib C. Ramaswamy Aiyangar, B.A., at a Special Session of the 15th Provincial Educational Conference, held in the Ramakrishna Home on the 5th May 1923.

fulness, the numbers steadily increased until in 1912 there were 25 boarders.

As the days passed by, the number of students steadily increased and it became more and more difficult to find suitable accommodation for them. After several years of struggle therefore the idea of having a permanent habitation for the Home was taken up, especially in view of the timely gift of 15 grounds of land, kindly made by Mr. S. G. Srinivasachariar, son of the late Dewan Bahadur S. Gopalachariar, one of the former Dewans of Travancore. Encouraged by this an appeal was made to the public for funds and it met with a generous response from all classes of people. The Government also were kind enough to sanction a half-grant; and thus we were in a position to erect the new buildings at a cost of Rs. 2½ lakhs roughly.

After the occupation of the new buildings in May 1921 there have been several improvements made. A small hospital with the necessary equipment has been attached as the gift of the Maharajah of Bobbili. A workshop for Vocational Training is now reaching completion. Plans and estimates have also been prepared for the building of a school and it is under contemplation to have some residential quarters for the staff in the near future. The object of the Home has been to provide free boarding and lodging to the absolutely indigent yet brilliant students reading in the various educational institutions of Madras. At the same time it is our idea to teach the rising generation the importance of 'Character' above all things; to impress

on their minds the dignity of labour and to make them appreciate the glory of work.

It was only the other day that our maid-servant absented herself without notice; but the boys cheerfully cleaned the vessels and swept the floor and did all the other work in the most satisfactory way. No one lagged behind in the hour of need. Even on ordinary days, the internal management of the Home rests entirely with them. They wash the rooms and keep them tidy; they go to the market and the bazaar to buy the necessary provisions; they get milk, curdle and churn it, they look after the garden and water the plants; they serve the food and do the cooking whenever necessary; they nurse and tend the sick; they attend to the motor for pumping the water from the well; they conduct the daily worship with great devotion; in fact they do everything and it is a great pleasure to watch them at work. Our aim has been to make them *manly* in every sense of the word, to train them in habits of self-reliance, co-operation and service to fellow-men.

Till June last, religious instruction alone was given in the Home, the boys being sent to the various educational institutions of the city for their *secular* instruction. But there was a feeling that if the boys were to have the full benefit of the Home they should get their secular instruction also here. After long deliberation, this idea took a definite shape owing to the offer of some of the old boys of the Home, who were graduates, and who with a commendable spirit of self-sacrifice consented to work as

residential teachers here on such salary as was absolutely necessary for the maintenance of themselves and their families. I may be permitted to add that this in itself is a vindication of the value of the training got here.

Not only this; the old boys are helping us in various other ways. They are of immense service to us in maintaining accounts and in supervising the general welfare of the students: some of them also serve in the Lower Secondary Department as honorary teachers.

Cheered by the encouragement received from other quarters as well, we put into shape a scheme for a Residential High School and submitted it to the Government. It was viewed with much favour and sanction was at once granted to the opening of Forms IV, V and VI.

During the current year (1922-23) the classes were held in the first floor. No large outlay was needed for furniture, etc., as the boys were made to squat on floor with a sloping desk in front.

The syllabus of studies adopted here closely follows the S. S. L. C. scheme, the only two important deviations being a compulsory study of one vernacular and Sanskrit up to Form V; and the attempt to teach all subjects (except English) through the medium of the vernaculars wherever possible. These attempts have been fairly successful. For example, in Form IV, Elementary Science was taught in Tamil, and this secured a better understanding of the subject by the boys, besides giving them a training in the expression of modern scientific ideas accurately in Tamil.

From what has been said above, it will be seen that there are several points of difference between this Home and other institutions of a similar type. As the teachers and the boys are living here throughout the day and night, it is possible for us to regulate their daily routine and thus have close supervision on the formation in them of right habits. With this view it is that we insist on their early rising in the morning, their attendance at Puja in the evening, and their devoting, at least a few minutes a day, for singing hymns in praise of God (either in Tamil as in the Thevaram classes or in Sanskrit as in the Stotra classes). Again they are taught practical lessons in cleanliness, in the choice of provisions by going to the market and the bazaar and in self-reliance by being able to do any odd duty that may crop up from time to time. For instance, last year our cook ran away and the Home students, especially the elder lot, ably filled up the gap and cooked and served for all here.

Physical Education as such is also well cared for here. All the boys have drill in the early mornings for twenty minutes and they have plenty of exercise in the garden in the evenings, besides games. Many indigenous games are taught here and two competitions are held annually—one during Dasara and the other during the Home Day Celebrations—and prizes are awarded on both the occasions to the successful competitors. We have appointed a Physical Instructor, who, we are glad to note, has thrown himself heart and soul into the work and spends all his leisure hours

herein attending to the physical well-being of the boys.

An education that aims only at the training of the body and the intellect is of little or no use in the present circumstances in India, when unemployment is staring us in the face, especially for the educated classes. The cry has therefore been to make our education more practical and less theoretical; to make the boys earn their livelihood even when they are learning at school; in short, to make education, as far as possible, self-supporting. The idea has been in the minds of many for a long time; but it is just now taking practical shape owing to the keen economic stress in the land. Our aim is that no boy should go out of the Home without something to hold to in life, which unfortunately is the case with many to-day. Even if a boy fails in the examinations he must not be seriously depressed. There must be a second string to his bow and he should feel that he would still be in a position to earn his living by applying himself to some remunerative work. This could be rendered possible only by the introduction of Vocational Training, and we have therefore been making an experiment in that line for the last one year.

The introduction of the training in our Home began in this way. During the last summer vacation we had in the Home a number of students who had finished their Examinations and who had therefore a comparatively free time of it then. It was thought advisable to use their leisure hours in some manual work which would be a sort of diversion, combining with it at the same

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time some utility. Hence a manual training class was started with rattan-work first and carpentry a few days later. Not much of capital was required for this enterprise, about Rs. 20 to Rs. 30 being spent on rattan-work and some Rs. 50 on carpentry. All that was necessary was to engage the services of two experienced men—one for rattan-work and the other for carpentry—and to provide them with a few necessary tools to start work with.

By the end of the vacation it was found that several boys had cultivated a genuine love for the work and as the articles manufactured by them were sold to the public fetching decent prices, they were really proud of their work. The articles thus produced were trays, boxes, flower-baskets in rattan work, and planks, stools, book-rests, etc., in carpentry. They also made the small sloping desks needed for our school, besides such small things as test-tube stands, lens-holders, drawing-boards, etc., for the laboratory.

A few spinning wheels were also presented to us by kind friends and the boys who worked at them produced yarn of really good quality, part of which was sold and part preserved as specimens.

With this experience behind us, we confidently approached Government for help in this direction as soon as the school term began. Detailed plans and estimates for a workshop were drawn up, together with a list of tools for use in the carpentry, rattan-work, spinning and weaving sections. The estimates went up to Rs. 15,500 on the whole consisting

of Rs. 10,000 for the building, Rs. 2,500 for the initial equipment and Rs. 3,000 for the annual recurring charges. The Government were pleased to sanction a full grant for the purpose; with their help therefore the workshop building has almost been completed and when we begin work in the next term we hope to be able to use it.

During the last few months that the scheme has been in operation it might be pronounced to have been a success. Several distinguished visitors who came here and saw it working were pleased with the way in which things were being done here. For instance, the Hon'ble Sir Charles Todhunter remarked: "I am quite a convert to the grant for Vocational Training about which, I must confess, I was sceptical, until I saw your Home." The Hon'ble Mr. A. P. Patro, the Minister for Education, said: "The establishment of Vocational Instruction as part of the General Education is an admirable feature of the Home. I observed types of work executed by the students and there is no doubt that the skill and the bias which the students obtain here, if developed further, will enable them to make a living without any great difficulty."

The fact is, that much depends on the method of work adopted. Every plan for Vocational Training must be made with a view to make it self-supporting. For, it is only by making such training pay, that really satisfactory work can be had. In these things monetary valuation is the only and perhaps the surest test of progress.

Hence our plan of work is to effect the greatest economy possible in every way.

We thought it would be a waste of time and money to leave the instructor idle after imparting a few hours of theoretical instruction to the students. So we have also taken up some working-class lads whom the teacher has to train during off hours. And these working-class lads are given a certain amount of general education also in the evenings.

In order to facilitate the working of the scheme still further, we may throw out a suggestion, that a few workmen also might be employed whom the boys might watch at work and thus learn more. Very often our boys are in a position to make parts of more elaborate furniture which the workmen easily fit up. For instance proper planing, making accurate joints, mixing up a really good varnish, and actual varnishing—all these our boys can do very well—at least there are a dozen students here, whose work is up to the marketable standard. Again the boys are also made to supervise labour, which is an education by itself.

Still it is a complicated affair to fit this training into the general curriculum and get the work satisfactorily done by boys undergoing general education. It will be for members of this Conference to go into the general question as to how far this diversion into manual training will interfere with a boy's general studies at school; also whether Vocational Training is not of sufficient importance to be admitted as one of the optional subjects in the S.S.L.C. scheme. It will be for members of this Conference to go through the syllabus of studies for the IV, V and VI Forms and to suggest whether any one of the subjects cannot

well be omitted to make room for Vocational Training.

As a layman I cannot speak with authority on such topics. All that I can do is to narrate our experiences in the Home. To begin with, we made all boys work alternately at rattan-work and carpentry for a period of two or three months. By that time it was easy to find out the particular bent of each individual student; thereafter, the class became divided up and was more handy so that more of individual attention was paid to the boys.

To help us in the additional work a qualified instructor, who had undergone the Manual Training Course in the Teachers' College, Saidapet, was appointed; and we have great pleasure in finding that this young man has thrown himself enthusiastically into his work and spares no pains to make the scheme a success.

Under his supervision a scheme of studies has been drawn up. The models which the boys are asked to do, are arranged in the order of difficulty and the work-sheet is prepared in the form used in the laboratory for experiments.

To be brief, the syllabus is as follows:—First of all they are taught what Vocational Training is, and what its advantages are. Then they are made to learn to draw the plan, elevation and section of the models they would be working at. Next comes the handling of the tools themselves which is preceded by a correct description of them. Then they are taught about the varieties of timber used in cabinet-work, the difference between seasoned and unseasoned wood,

the way in which timber has to be guarded against the liability to crack, shrink or warp in the process of work.

In practical work, the first lessons are in sawing and planing wood to given dimensions. From this they proceed to the making of joints. Then easy exercises are set requiring a thorough knowledge of these joints—such as the making of photo-frames, picture-frames and stools of different dimensions. From this again they proceed to more advanced work such as making teapots, letter-racks, boxes, hat-stands, chairs, tables and almirahs.

Similarly, in rattan-work the student begins with dressing the cane by removing the knots, then splitting it and drawing it into thin strings. Then come easy models such as trays, flower-baskets and waste-paper baskets. Advanced work in this grade would mean the making of cases for thermos-flasks, tiffin-boxes, chairs with ornamental work and the weaving of mats.

In order that this Vocational Training might not disturb the general lessons, the students work at it outside school-hours and in holidays. Our school hours are from 9 A.M. to 12 noon and 2 to 4-15 in the evening: and our school time-table is so arranged as to repeat itself every third day. So our boys work in the Vocational Training Shed between 12 and 1-30, the Fourth Form the first day, the Fifth the second day, and the Sixth the third day, thus going on in a cycle. The Lower Secondary classes are let off at 3-30 P.M. and they work in the Vocational Training Section for an hour afterwards before going to play.

But this does not mean that the Workshop is empty or the instructors idle during the other hours (which would mean a waste of time and money); for, as has already been pointed out during this period it is, that the working-class lads are being taught.

In carpentry the exercises done so far, are sawing and planing along and across the grain, joints of various kinds, picture-frames, teapots, trays, boxes, letter-racks, chairs, tables, stools, almirahs, etc. Each model is given a number and the time required to finish it is also indicated. In the attendance every day against every boy, the number of the model he was working at is entered, so that at a glance the teacher is able to find out what time a student takes over every model and what progress he has been making throughout.

Drawing has also been taught to the boys in connection with carpentry so that they may draw accurate sketches of the models they are to work at beforehand.

So far then it has been possible for us to introduce only carpentry and rattan-work. We are at present anxiously looking forward to occupy the new workshop so that spinning and weaving might also be in full working order. Our idea is to turn out at least a portion of the clothing necessary for our boys. This will bring in healthy rivalry, as the produce of their labour goes back to the boys. It would in all cases be advisable to give the boys a part of the benefit of their labour, when they have made good progress, to encourage them to work well. We have

therefore a Scholars' Common Benefit Fund to which we credit a part of the sale-proceeds of the finished goods—approximately equal to the wages earned; and such of them, as are in need, are helped from it occasionally for their school-fees, books, etc.

The finished products are mostly sold away at our own premises to visitors. If a large number of them get stacked, the boys go out on Sundays and other holidays taking with them the articles made and finding a sale in the streets. The youngsters are clever at this business and they also canvass orders during these sales for many household articles.

And just as they learn to sell articles, they are also taught to buy things. Some of the senior boys are sent with the Instructors to buy canes, well-seasoned wood without flaws, tools for work, etc., which developes powers of observation and quick decision, which is by itself an art.

I am mentioning to you these trifling details—because it is they that form the conditions of success if Vocational Training is to be established elsewhere on a stable basis. First of all the classes have to be handy so that individual attention may be paid to every one of them by the Instructors. Secondly, not a bit of material is to be wasted—some use or other being found for those parts which are usually thrown away as being superfluous. Thirdly, a variety of subjects would have to be introduced to cater to the different tastes of the pupils. In this connection the list published by the Department of Public Instruction is of great use, the subjects they recommend being carpentry, rattan-work, spinning

and weaving, telegraphy, tailoring, book-binding, aluminium and other metal work, electric wiring and fitting, mat-weaving, etc. Even of these the choice of subjects would depend largely on the condition of the locality where the schools are situated. In the Tinnevely District where the *Coar* grass abounds, mat-weaving can be started with advantage. In the neighbourhood of Nandyal in the Kurnool District, where we have good cane growing in plenty, wicker-work can be started with profit. In Coimbatore, Madura, Ramnad, Tinnevely and other cotton-growing districts, weaving and spinning will be most suitable. In centres like Kumbakonam, Palghat and other places metal work especially in brass, tin, bronze, etc., can be easily made to pay. In the sheep-farming districts like Cuddapah and Bellary, weaving wool into blankets might easily suggest itself while in sea-side districts string-work and the weaving of nets and woodwork applied to the various needs of the fishermen could be followed with advantage. Toy-making may also be made a speciality as in some of the Andhra Districts. On the other hand, subjects such as electric wiring and fitting would have to be confined to Schools in the City of Madras.

Fourthly the time devoted to the Vocational Training must be at least half-a-day per week so that the instruction might not be intermittent but continuous and effective. Then again the usual excuses of students from attending such classes should never be admitted; for, once they become irregular, the instruction would be of no benefit whatever.

Fifthly, the models made by the students must be sold in the market. To facilitate this, it is advisable to maintain a show-room where the finished articles will be on exhibit to visitors and therefrom sold easily to the public. The articles should bear the name of the maker and the selling price—so that it would be an inducement to the boys to give the best finish they can to the work in hand.

Many people would be willing to buy their requirements through such an agency. Chairmen of Municipalities, Presidents of Taluk and District Boards, and Heads of Government Departments might be induced to place their orders with the school for their requirements. Also school-requisites such as tables, benches, chairs, desks, boards, map-stands, etc., may be made in the workshop with advantage.

It has been our experience that the boys who are very backward in their general studies show a marked aptitude for manual work. They should be specially encouraged in this direction. For this would be their only way of earning an independent livelihood. They might not perhaps become millionaires but certainly they would get an honest living by this means and what is more they would become centres of usefulness to themselves and others.

And now I shall try to meet the common criticisms levelled at against Vocational Training as such—especially because the controversy is at present raging in the press. The argument is trotted out and speciously supported by means of a quotation from the 'Times

Educational Supplement' that because the Carnegie Foundation in America denounces the system of Vocational Training as an Educational Farce, it must be also a failure in India. Now conditions in America are quite different from those in India and so it does not follow that because it is a failure there, it must be a failure here too. And if we are to start on such a basis there will be no progress whatever. Further, it is much better to evolve our own solutions for our own problems than imitate wholesale whatever is being said or done in foreign countries.

The second argument brought against it is, that the boys thus trained in Vocational Training would be let adrift on society without any means of livelihood, thus increasing the problem of the unemployed rather than giving a solution to it. Now this arises from a mistaken conception of facts. As I have already pointed out, these young men after the three years' training (in the IV, V and VI Forms), and an additional year or two if necessary, would not only be earning something during their period of study but would become trained workmen and masters of their craft, fit to hold their own with professional men. And for such young men the field of employment is practically unlimited. They may go out as Manual-Training instructors and teachers in other schools which are at present deterred from introducing Vocational Training for want of suitable teachers; if they are fairly well-to-do youths they may take up contract-work and thus fill a long-felt need in the business world: for, contracts entrusted to these young, intelligent and

enthusiastic workers will be better done than those given to the present-day illiterate men. Or they may start a small shop of their own with a capital of Rs. 1,000 or thereabouts and in a year or two they would be making an honest and independent livelihood by themselves. Or, yet again, they may become steady, honest and intelligent workmen, earning a rupee or two per day and with every prospect of becoming Foremen and increasing their prosperity as the days pass by. In every way they would be much better as employees than the usual workmen we have at present in India.

But the fact is that such criticisms as are made in the newspapers arise, not out of a lack of genuine desire to understand facts as they are and to suggest improvements and out of distrust of any forward movement. They like the older order of things and are averse to all kinds of progress. I am not unaware of such damping criticisms, for I have had more than my share of them. For example, when we were about to start this Home, several gentlemen whom we approached for help seriously asked us what was the use in giving English Education to our young men when the cause of Female Education was in dire need of help. When they were asked for help in the cause of Female Education they would turn round and say that it was a waste and that attention should chiefly be directed in the matter of reviving our industries. When again they were approached to take up shares in some industrial concerns they would quote the instance of one or two Indian companies which failed and ask what

chance of success the new venture had. Thus they would be arguing in a vicious circle leading nowhere except to blank despair.

As men of commonsense and prudence what we have to do is to go on with our work heedless of such hostile criticism from interested quarters but to throw ourselves with the greater earnestness into our work so that it may result in success, sure and certain.

Our own experience here leads us to think that perhaps during the first year Vocational Training classes may not be self-supporting. As against it there is the satisfaction that our boys have learnt a practical art in a practical way. But later on it is sure to be a self-supporting concern, thus profiting all parties and being a source of instruction and inspiration to our boys. To illustrate this general statement I may add that even during the first year here we were not working at a great loss. No doubt we were working at some loss during the first half-year; but matters improved during the second half. The loss is mainly due to the fact that during the early stages, boys waste the materials in learning work. But even this loss is compensated by the grant so kindly sanctioned to us by the Government. In fact the recurring grant sanctioned by the Government is intended only to cover this wastage of materials, besides, of course, meeting the establishment charges, etc.

In this connection, it is a great pleasure for us to convey our heart-felt thanks to the Government of Madras in general, and the Educational authorities and the Hon'ble the Minister, for their

ready help whenever we approached them for advice or guidance or financial assistance. The more we work at it the greater is our conviction that Vocational Training is a valuable supplement to general education and that therefore it must be given a fair trial and a sporting chance in order to make its influence felt here.

Gentlemen, one word more and I have done. I confess I am not an expert; I have been only giving out the experience that I have derived from my blessed privilege in having been connected with the Home in such an intimate and thorough manner. I am also aware that I am addressing a gathering of teachers—those who belong to one of the noblest professions in the world. And so I beg to tender my apologies if I am in any way falling short of the standard expected.

As those who are accustomed to the training of youth, may I suggest to you the necessity of starting such Homes elsewhere in the Presidency also? One Home for the whole Presidency is hopelessly inadequate for our needs. In other populous centres such as Madura and Trichinopoly there is doubtless scope for the starting of such Homes. Now that I am talking to you about the starting of such Homes, may I tell you that it is not really *infra dig*, to receive paying boarders. It was only the other day that I saw a small Home started on novel lines by a humble teacher at Cuttack on the banks of the river Mahanadi. He has got with him twenty boys to look after. Not all of them are free boarders. Those whose expenses can be borne by

their parents are allowed to pay for their boarding and lodging. For the rest the teacher gets help from the public and supports the poor boys. The main advantage of such Homes is that it would be an easy solution for the question of training the character of boys who have to live in large cities and towns, away from the steadying influences of their parents or other near relations.

If some of you present here will take up the idea and work it, modifying it of course to suit local conditions, I am sure we can have the great advantages of the ancient *Gurukula* while not foregoing modern conveniences.

In such problems we may well copy the method of the Christian Missionaries at work. Last year, for example, I had the pleasure of visiting the Jesuit Home at Kodaikanal and if I was struck by any thing there more than by any other, it was by their practical teaching of the dignity of labour. There the Fathers do all the work themselves, from cleaning and washing, to buying and selling articles, from lecturing to students and reading books of various kinds, to cooking and washing their clothes, everything is being done by themselves. And what is even more remarkable, the man who lectures to College students on Literature, Philosophy or Science, does not consider himself in any way more important than the man who cleans the vessels or sweeps the floor and serves the meal. All labour is blessed: all work is dignified in their eyes; and it is only when the glory of work, of all kinds of work, especially manual work, is correctly realised in India, that we can see the dawn of a new era of prosperity. That would indeed be the blessed day when he who works with the brain, hails his brother who works with the muscle, as a comrade in every sense of the term. When will that Blessed Day dawn in India—Oh when!

THE ART AND VALUE OF BLACK-BOARD ILLUSTRATION.

THE intellectual value of the sense of sight is universally recognized, and its importance as a potent factor in education has never been disputed. Educationists have called this sense the king of senses. Much of our knowledge comes through this sense. If one has seen a thing he is supposed to know all about it. It is a common adage "Seeing is believing," and to it may be added, "seeing is understanding." When we have explained a matter to any one, we quickly ask, "Do you see?" Similarly when we have described a thing or a place, apparently hard to believe, we quickly add, "and I tell you I have seen it with my own eyes." The words carry conviction and dispel the gathering doubts of the listener.

Although we all admit what has been said above, yet how little we practise it while teaching children. How many of us simply talk and talk without supplementing it with visual instruction. We forget that the direct knowledge given by the eye is more vivid and therefore more lasting. A teacher who does not take help of the sense of sight is simply teaching boys names not things. The boys simply learn the names of things without forming any acquaintance with the things themselves, and grow up without any intimate knowledge of them. The difficulty is increased by having to teach foreign ideas and images through a foreign language, and when visual instruction does not supplement the teacher's oral instruction, the inevitable result is that the pupils simply get hazy notions of things and places. This is one of the reasons why our boys talk of things in a vague and

uncertain manner, and at once betray their ignorance when asked whether they have seen a particular object or thing which they are describing.

A teacher should therefore, while teaching, make as many appeals to the sense of sight as possible. One means of doing so is by Black-Board Illustration which should always accompany the teacher's oral instruction. How little does a teacher realize what a very powerful instrument he possesses in his Black-Board which is often relegated to a distant corner of the class-room to be used only for writing mathematical sums or home-work!

Every teacher should therefore have some knowledge of the art of Black-Board illustration. He need not be a master of the art—for that is neither expected of him nor required of him—he should only possess the ability to draw rough and ready sketches to illustrate his teaching.

A teacher without this art lacks one of the most powerful aids to his teaching. For howsoever much advisable and profitable Black-Board illustration is in general, it is absolutely necessary in some cases. In such cases, the teacher cannot proceed without this aid; and he has only two courses open at that time, viz., to draw a sketch of the object under discussion, or to rest content with merely a word picture of it which, at its very best, gives only a poor image and perhaps an incorrect one to some boys.

The first two principles of this art are intimate knowledge of the subject and incessant practice; and with a little patience and assiduity a teacher can acquire the skill necessary for his purpose. The Training Colleges might well give the necessary

instructions and practice to teachers in this respect. It might be said that "the use of the Black-Board" forms part of the curriculum of the Training Colleges. It might well be in theory, but no systematic action is taken to put it into practice beyond teaching a few theoretical facts about it and, drawing a few maps in a half-hearted and spiritless manner. But the important part is not the theoretical instruction but practical training.

The two characteristic features of Black-Board Illustration should be simplicity and rapidity of execution. As said above, the sketches should be rough and ready, and no attempt should be made to make a sketch elaborate or complete in detail. The time spent in this way is wasted. A few strokes here and a few strokes there, and the image should stand out distinct and clear. Besides, elaborateness involves the risk of overdoing, and may lead to absurdity. A teacher had once drawn a picture of a ship on the Black-Board in various colours and complete in every detail. When the Inspector entered the room he very shrewdly asked "and pray is this for me?" The sketch was no doubt beautiful but not suited for class-room purposes. It should also be borne in mind that the idea should not be lost sight of in the illustration. We must not forget that we are illustrating not for its own sake but to make the idea clearer. The above risk is likely to be present when the drawing is made too elaborate.

The sketch should also be thoroughly intelligible and profitable, else it lacks the reason for its existence at all.

Further, objects which are quite familiar to the boys should never be illustrated. Thus

to attempt to draw a sketch of a crow or a cat or an earthen jar—objects with which every Indian boy is familiar—is absurd, and waste of time, and is not unattended with the risk that the sketch may not be quite faithful to the original, and thus throw the pupil into a mental confusion on account of the conflict between the image that he has already formed in his mind by seeing the object in real life, and that presented to him by the teacher.

Another tendency to be guarded against is to illustrate each and every object on the Black-Board. This can be avoided by keeping the general principle in view that, wherever possible, the object itself rather than its sketch should be presented to the pupil. It must not be forgotten that a sketch is only a substitute for the actual object—and a poor substitute at that—and that it can never come up to the actual object. So there is nothing like presenting the objects themselves as it saves so much time and one is sure of giving the correct image to his pupils.

Care should always be taken to see that no faulty sketch is allowed to appear on the Black-Board. The harm done in this way is often incalculable. For a faulty sketch helps to produce a faulty mental image of the object on the minds of the young at their impressionable age. The result is that when they grow up and come across the object they do not recognize it at first, and when they realize their mistake they are thrown into confusion, for they feel that the mental images formed by them in their youth are unreliable. Consequently it is better to have no sketch at all than a faulty one.

Thus Black-Board illustration employed in the right manner and at the right time will help to make teaching more profitable and interesting to the pupils.

T. J. BHOSWANI.

THROUGH OUR OWN EYES.*

WHEN Mr. R. V. Seshayya, M.A., proposed that I should read a paper in connection with this Exhibition I hesitated if I would be quite in place at all. It was then suggested that a discussion of a general nature on any branch of education would be quite in keeping with the spirit of to-day's function. Strengthened by this opinion I have emboldened myself to appear before you, this evening.

I suppose I need no apology for the subject I have chosen. Scientists and philosophers say that the best study of man is himself. Proceeding on the same lines, what can be a better study of a teacher than the teacher himself? And even here nothing can be more profitable than an introspection. An introspection is a method of adjusting the future on the experiences of the past. On the closing day of the teacher's work in a year, an introspection, I believe, is quite profitable. It may be that some hard facts, not quite to our liking, are to be faced and recognised as such. But then there is no danger, but positive benefit on the whole, in an honest survey of our past.

I will not take up more than six or seven minutes of your valuable time, and I hope you will kindly bear with me these few minutes, if as I have already said I may happen to hit upon a few dark spots in the course of my discourse.

It is one of the weaknesses of man that he always likes to see himself painted in attractive colours. We as teachers share with others in this weakness, to a considerable

* A lecture delivered by Mr. K. Krishnamacharya, B.A., L.T., M.R.A.S., in D. H. H. School, Tirupati, on 30th April, 1923.

extent. If any one outside our profession chooses to humour us by a flattery that our profession is the noblest, we never wait to consider how far we have deserved the epithet, but go straight on to record our silent vote in favour of the statement, and feel a temporary secret satisfaction that after all we belong to the noblest of professions. Most of us, as individual teachers, have seldom realised the nobility of the profession in our work-a-day life. There may be honourable exceptions here and there, and we are not concerned with the exceptions. Our daily work is conveniently brought under routine; and routine, you know, has no poetry in it. It is dull and prosaic, and deadens our very spirit. Under its influence we see our worn out "yesterday" in every one of our "to-morrows." We go through the same round of subjects, notes, methods and classes; and in this round we welcome now and then what we conveniently believe to be an excusable remiss in duty, at least for the sake of variety in the unbroken dullness of the routine. Very rarely we have striven to rise up to our ideals. A great many of us do not have, alas, any idea of ideals at all. They have chosen to fall in with us, either by a mere stroke of accident or for want of any other walk of life.

In these days of so-called individual liberty, a hard and unpalatable truth has no chance of expression. You cannot speak of it in a 'decent' society; to do so is a sure offence against 'propriety' and 'decorum'. You have to exhibit a comely appearance, however ugly the thing inside. Ugliness thrives in darkness and secrecy; and you cannot drag it into the day-light and expose its nakedness. You have to create an artificial light in which the ugly untruth appears in fascinating

colours, and you have thus to deceive yourself in the false belief that there is nothing wrong anywhere.

This is exactly the pass we have now come to. It is time we stood up in revolt against it. In the thought of our own individual selves we have let go the thought of the morrow of the profession. That we are among the makers of the future very few of us realise. We have cultivated a sort of indifference to our work. We consider it a clock-work that requires a setting once a week or a month, and no more. That we wield a strong but silent influence on the future men of the land we refuse to realise. We rest content with the arithmetical calculations of the number of pages of notes dictated in the class. A few of us are even shy of identifying themselves with their pupils in the class. Their sincere belief is that they and their pupils are worlds apart, and that they have nothing in common between them—not even humanness, if I can use the expression.

There is yet another class among us. In addition to an indifference to the realisation of the unconscious influence of the teacher on the young hopefuls of the morrow, they have developed a culpable indifference to their own sense of duty. They are among the worst sinners against the wholesome discipline of the school. The intelligent student community loses no opportunity of a mental record of the weaknesses openly exhibited by such weaklings in the profession. When sufficiently advanced, the young pupils are naturally tempted to indulge in a playful mimicry of every action of the teacher in its detail, until a sufficient number of such exhibitions of mimicry emboldens them and lands them finally in an open warfare with the un-

fortunate teacher. Nothing but the rod can, for a time, assist the poor teacher in maintaining some discipline in the class-room. When a teacher always depends upon the rod, and not upon his own capacity and the human love between himself and the pupils, to maintain some order in the class, he has betrayed the nobility of the profession, and has no longer a title to be counted among the teachers of the future men of the world.

Yet a different class of men has arisen among us, which has one eye on the duty and the other on the material emoluments of the profession. Contentment is a veritable vice in the eyes of such men. To simplify the wants of life is nothing short of reversion to the savage state of man, in their honest opinion. According to them, discontent is the very essence of life, and want of ambition for material comforts leads to stagnation and ultimate extinction. They set a very high economic value on their teachings and dole them out, as they make others believe, in proportion to the monetary returns. Their logic has no moral support, and yet a school of thinkers among us is in their favour. An extreme section of this class is quite insensible to the utter moral depravity of their stand, when they begin to justify, on occasions, their gross neglect of duty, on the ground of inadequacy of the salary paid for the work.

One other section we have among us; not a negligible one, though in a feeble minority. With no wealth of knowledge in their subjects to back up their claim on pupils, they are obliged to have recourse to extraneous embellishments to cover up their defects. They cannot brook the sight of a powerful rival in the profession. Their constant anxiety is to see that they are not eclipsed in the effulgent

radiance of the intellect of a magnetic personality in the profession, near themselves. Their activity revels in darkness, and is shy of day-light, like the owl.

But a true teacher is none of these. He finds pleasure in his work. He does not build up his hopes on any recognition of his work by outsiders. He is a student all through life, and he desires to be let alone in his world of children. His enthusiasm in work is contagious. To his pupils he is the living example of all that is best in man. His love of duty, respect for discipline, contentment in life, and indifference to material prosperity, naturally make him the deserved centre of attraction for his pupils. While maintaining a dignified self-respect, he is unperturbed by any shallow criticism of his work. Always ready to admit his fault and correct it at the earliest opportunity, he is bold and has his dealings with his equals and superiors, never in secrecy. His 'yesterday' leaves him in full satisfaction of having done his duty, while his 'to-morrow' brings him always a fresh message of encouragement.

So far we have dealt with the teacher in his class-room. But he has another and a wider field of influence. Any system of education depends on the teacher for its success or failure. As one with an intimate knowledge of every aspect of a system of education, it is the duty of the teacher to open the eyes of the world to the merits or demerits of the system. Whether a system of education is suited to the genius of a nation is seen only through the eyes of the teacher. But if he shuts his eyes and indulges in an extreme indifference, he betrays the cause of the nation. It is for him to judge, before he finally sends them out, if the products of a

system of education in whose manufacture he has a large share, are mere human-looking machines, or real men that are to be among the builders of the future. Even if a system is circumscribed by being devised to produce some particular products, not quite in keeping with the spirit of the nation, an enthusiastic teacher can, without much of a revolt against the system, turn it, to a certain extent, to produce better products, since it is not the system alone that produces them. He can in this way help to minimise the evils of the system in its actual working.

If we claim to be true and enthusiastic teachers, let us search our hearts if we have lived up to this ideal. If we have lived, let us work on, at the same pace; but if we have not, let us honestly strive at it at least in future, so that when the time comes for counting, let it not be said of us that we were 'weighed and found wanting.'

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THE PERIODICITY OF THE CHEMICAL ELEMENTS.*

By Mr. R. VIRARAGHAVA SARMA, B.A.,
late of the Madura College.

ONE of the most comprehensive laws enunciated by chemists that captivated the imaginations of men, that made men think that Nature was no hotch-potch scheme and that a study of Nature was no gallimaufry of disjointed facts but was a coherent and ordered study governed by an organic law, that laid open a glorious vista of future possibilities for scientific research, and that still wields a profound influence on the development of scientific knowledge is the Law of Periodicity of the Chemical Elements, formulated in an almost perfect form and propounded by the seventeenth child of a Russian Director of Gymnasium,—I mean Dmitri Ivanowitsch Mendeleeff. This law was the outcome of no ingenious brain. It was the legitimate induction of verified phenomena and the inevitable result of accumulated facts and of laborious experiments conducted in laboratories in the sixties and seventies of the nineteenth century, and this is the "raison d'être" of the Periodic Law.

It has always been a tendency of the human mind to classify variegated things and diversified phenomena into a systematised whole, the object of such classification being "to arrange the facts so that we can acquire the greatest possible command over them with the least possible effort." Such a tendency has long since been in the minds of scientists, who had been attempting to classify the several chemical elements into

groups. One of the oldest of classifications was Berzelius' Electro-chemical division of elements, according to the different quantities of electrical charges conveyed by the atoms of the elements. Other classifications were based on other properties of the elementary substances. It was observed that no tolerably good classification could be arrived at, one element occurring more than once in the system, or elements having properties wide apart falling in one class.

Classification according to properties thus becoming futile, chemists sought other methods of grouping the elements, and pitched upon the atomic weights of the chemical elements as the basis of all further classifications. Here was the open sesame to unlock the hidden mystery of Nature. In the twenties of the 19th century, Dobereiner observed that in many cases one member of a group of three analogous elements has an atomic weight which is almost the mean of the atomic weights of the other two. In some other cases, chemically related elements have almost identical atomic weights. Thus, to quote one example of the first class, the atomic weight of sodium is midway between the atomic weights of lithium and potassium, so that sodium-lithium = potassium-sodium. And, the analogous elements, iron, cobalt and nickel or osmium, iridium and platinum possess very nearly the same atomic weights. This arrangement of the elements in sets of three is known as Dobereiner's "Triads." It was only a puerile attempt of a more elaborate classification which was to develop later.

In 1862, de Chancourtois of France classified the elements along a spiral line, according to their atomic weights; but his work too

* A Lecture delivered under the auspices of the Town Students' Literary Union, Madura.

was not first-rate and of general applicability, and passed away into the limbo of oblivion.

An almost complete classification of the elements depending on the masses of their atoms was that due to J. A. R. Newlands. In 1863 this English scientist noticed that when, starting from one element the other elements were arranged in the ascending order of the magnitude of their atomic weights, every succeeding eighth element was a kind of repetition of the first, "like the eighth note in an octave of music." Thus, starting with fluorine, we get the series:—

F Na Mg Al Si P S
Cl K Ca Cr Ti Mn Fe

Here, the eighth element after fluorine, *viz.*, chlorine behaves just like fluorine. The eighth element after sodium has properties similar to those of sodium and so on. This principle of recurrence was enunciated in the so-called "Law of Octaves." But owing to incorrect atomic weights that obsessed the scientists then and owing to the fact that this law of octaves was viewed by some as a work of mechanical ingenuity, it did not create much attention and support.

It was left to the genius of D. I. Mendeleeff to resurrect the work done by the early pioneers in the field and formulate a system of classification that could compel the support of the scientists. In 1869, this Russian arranged the elements in series according to the ascending order of their atomic weights and discovered a striking gradation of their properties and a periodic recurrence of these at intervals. In other words, when the elements were arranged in series, the properties of the elements varied from member to member in a definite manner but returned almost to the same value after a fixed interval or

period. The mutual relationship between the mass of the atom and the properties was in the nature of a periodic function, a periodic function being one that repeats itself at intervals. If we leave hydrogen aside, and starting from the next element having a greater atomic weight than hydrogen, arrange the succeeding elements we get the series:—

Li Gl B C N O F

The eighth element sodium has properties similar to those of lithium and hence if it is placed under lithium and the succeeding elements are arranged, we get:—

Li Gl B C N O F
Na Mg Al Si P S Cl
K Ca — Ti V Cr Mn

In this table, striking analogies will be noticed in the properties of the elements falling in the same vertical column. Next to manganese we encounter iron, cobalt and nickel, which, for reasons that are obvious, cannot be grouped in the same column with the alkali metals in the first group, and so a separate eighth column is opened for them where they are placed and thus left out of the system proper. Next comes copper which has been questionably classed with the alkali metals. At the end of this series beginning with copper we have another set of incorrigible elements, *viz.*, ruthenium, rhodium and palladium, which are left out of the system once again. Then regularities manifest themselves.

A study of the relationships between, and the similarities in, the properties of the members of particular groups in the periodic system is not within the scope and aim of this lecture. Suffice it to point out how periodicity is illustrated in the properties, physical and chemical, of the elements found in the table.

Taking first the variations in the chemical valencies of these elements, it will be noticed that the combining powers of the elements vary regularly with the atomic weights and repeat themselves at intervals. For example, if we consider the valencies in a particular series as determined from the compounds of the elements therein with hydrogen, we notice that boron (in Group III) is trivalent, carbon quadrivalent, nitrogen trivalent, oxygen divalent and fluorine monovalent. Or, if we take the valencies as displayed in the following compounds of the elements in a particular series with another univalent element like chlorine:—

NaCl, MgCl₂, AlCl₃, SiCl₄, PCl₃, SCl₂, ClCl, we find a gradual increase in the valencies upto the middle element in the fourth group, after which follows a gradual decrease. If similarly we compare the oxygen valencies, that is, the valencies found in the highest typical oxides, we notice that they increase by unity regularly from left to right, as can be seen from the following typical oxides:—

Na₂O, MgO, Al₂O₃, SiO₂, P₂O₅, SO₃, Cl₂O₇, and O₂O₄. Many other properties such as the stability of the hydroxides, the heats of formation of the chlorides, etc., have been shown by later experimentation to be periodic.

Thanks to the labours of Lothar Meyer and other investigators, it has been shown that most of the well-defined physical properties of the elements wax and wane, in following up a series, thus showing that they constitute what is essentially a periodic function. Take density for example. It is seen that the densities of the elements in a series vary regularly, attaining a maximum value in the central member of the series. The relationship between density and atomic weight is

better exhibited by taking the atomic volumes instead of the densities, *i.e.*, the volumes occupied by the atomic weights of the elements (obtained from the ratio, atomic volume = atomic weight/density), and plotting these values in the form of a curve. A glance at the crests and troughs in Lothar Meyer's "Curve of Atomic Volumes" will show the periodic nature of the atomic volumes of the elements. Many other physical properties such as compressibility, co-efficient of expansion, melting-point, electrical conductivity, etc., have been shown also to vary periodically.*

Having seen how the properties of the elements exhibit a periodicity in their nature, let us proceed to determine how far the periodic law is valid. The validity of a law is judged by two criteria, *viz.*, (1) how far that law operates as a potential instrument of control of present knowledge, and (2) how far that law helps us in prying into and disclosing the hidden mysteries of Nature. The periodic law apart from being intended to manifest the systematics of the chemical elements, has been applied in the correction of atomic weights and in the discovery of new elements, and it is from these two applications that the law has derived its strong support.

The first application of the law, *viz.*, the correction of atomic weights has been of two kinds: (1) the correction of the atomic weights, and (2) the accurate determination of doubtful atomic weights. If an element shows some discrepancy in the regular course of periodicity of properties, the atomic weight

* Reference may be made, for graphical representation of some of these properties, to Professor T. W. Richards paper "concerning the compressibilities of the elements and their relations to other properties" in the Journal of the American Chemical Society, for July 1915.

of that element is probably in error and hence it is re-determined. Some of those elements whose atomic weights have been thus corrected are caesium, platinum and osmium. Again, the atomic weights of some elements, owing to difficulties in their determination from the analysis of volatile chlorides and from other processes then known, were uncertain since they were assigned on some doubtful grounds. For example, the equivalent of indium being 38.27, the atomic weight of this element was arbitrarily taken to be 76.54. If this atomic weight were correct, then, in the classification of the elements, indium falls between arsenic and selenium, where it exhibits dissimilarities in chemical properties. Lothar Meyer made it trivalent, and its atomic weight then becoming 114.81, dovetailed it in the table between cadmium and tin, where it fits to a T. Bunsen's determination of the specific heat of indium has confirmed this change in the atomic weight. The doubtful atomic weights of beryllium and uranium too have been corrected in this way.

Perhaps the best title and charter of the periodic law to a strong hold on the scientists is its capacity to predict the existence and properties of the undiscovered elements. When the Periodic Table was published in 1869-70, it contained only sixty-three then recognised elements, and many other elements now known to us were not known to Mendeleeff. Taking cognisance of the principle that the properties of an element are the mean between those of its immediate atomic analogues in series and group, and with an intense belief in the truth of his own law, the author of the Periodic system made bold to predict the properties of a few of the un-

known elements, blank spaces for which were left in the table. And be it said to the great credit of the fundamental truth of the law that these audacious prognostications of Mendeleeff crystallised into an actuality when the elements were discovered. At the time of the announcement of the Periodic Law, scandium, germanium and gallium were not known. To avoid the introduction of new names, Mendeleeff provisionally called them eka-boron, eka-silicon and eka-aluminium, from their analogy with these elements, and prepared a list of their properties. These predicted properties turned out to be almost quite true when Nilson discovered scandium which corresponded to the eka-boron of Mendeleeff, Clemens Winkler found out in 1886 the metal germanium corresponding to eka-silicon, and Lecoq de Boisbaudron in 1875 discovered, by means of the spectroscope, the metal gallium which was none other than the eka-aluminium of the Russian scientist.

Of course, in an impartial consideration of a law, we must not be blind to the imperfections and shortcomings that are noticeable in it. The Periodic Law, with all its merits, has got some defects too. The position given to hydrogen in the scheme, where it is isolated, companionless, and questionably placed, is pointed out to be the Achilles' heel in the entire gamut of the Periodic table. A second defect is the fact that, in the case of argon and potassium, tellurium and iodine, the principle of strict sequence according to the ascending order of the magnitude of the atomic weights is violated in order to cope with facts, for, in both cases, the element having a larger atomic weight comes first and then the other having a smaller one. We should also take note of a third defect mani-

festated in the allocation of some elements in the table according to their atomic weights in opposition to their chemical properties, and in the separation of some elements which show many similarities in their behaviour. Thus, the heavy metals of the first group copper, silver and gold, scarcely show any likeness to the lighter alkali metals with which they are classified, and though in such typical compounds as Ag_2O and Na_2O , AgCl and NaCl , AgNO_3 and NaNO_3 , etc., they are similar, yet their properties are divergent. Again, such metals as copper and mercury, barium and lead, which are in many ways similar, are separated in the scheme. The formation of two series of compounds, the mercurous and mercuric compounds, justifies the grouping of mercury with copper. But there are several dissimilarities also in their properties, which necessitate no change in the existing order of things. The physical properties of copper are apparently different from those of mercury. Cupric chloride and mercuric chloride do not behave in the same way. If each is separately treated with KOH solution, in one case we get $\text{Cu}(\text{OH})_2$ and in the other case a yellow precipitate of HgO . And, whereas CuSO_4 is stable in the presence of water, the mercury analogue of it is rapidly hydrolysed, yielding a yellow substance called "turpeth mineral" (Hg_2SO_4). Lead and barium can be classed together in a group because:—(1) both form white sulphates, isomorphous with each other, insoluble in water but soluble in concentrated sulphuric acid, (2) their nitrates too are isomorphous, and (3) both form yellow chromates insoluble in water and in acetic acid. But there are differences also between the metals and their compounds. To mention a few, lead chromate is acted upon by KOH with the formation of a basic chromate of

lead, whereas barium chromate is unaffected by the alkali, and the constitution of PbO_2 is not the same as that of BaO_2 .

The Periodic classification has got these and similar defects. Naturally the question here crops up: "What should be our attitude towards these imperfections?" We cannot better answer this question than in the words of Wilhelm Ostwald: "We are here not dealing with a law of nature in the strict sense, but with a principle of classification of not very exactly defined things. What we call the chemical character of an element and employ for the estimation of its similarities and differences with respect to other elements, is made up of the sum-total of the chemical processes and physical properties known to us which this element and its compounds exhibit. It must, however, be at once admitted that our knowledge of these processes and properties is incomplete and one-sided. To employ a picture, we know only a certain, and in part, somewhat arbitrarily cut section of the great organism of chemical facts, while the rest of the body remains almost a secret to us." With all the imperfections in the Periodic Law, the validity of it remains undisputed. It has had wide and far-reaching applications in the domain of Chemistry. Discoveries of new elements have been made by the Periodic Law telescope in the boundless realms of chemical evolution. And, despite many attacks to shatter it, it still occupies a supreme place in the temple of chemical philosophy. Kant, the German philosopher, is reported to have said that there are in the world "two things that never cease to call for the admiration of man: the moral law within ourselves and the stellar sky above us." To these two things we are tempted to add a third, the inner harmony of the chemical elements so magnificently displayed in the Periodic system.

THE IMPORTANCE OF THE TEACHING OF LANGUAGE.

"DOCTORS differ" as to what should be the best method of education, but probably all will admit that the system of education which is carried on at present is not so useful to its recipients and the society as it should be. Why does the present system not yield the desired fruit? Perhaps the present method of educating our children is not a native plant of India or perhaps it does not "inspire any courage of thought" as our students are not trained and educated in their own culture. This defect can be removed if our schools and colleges give lessons through the vernacular medium, if our students are made to be familiar with their own languages and cultures. This can only be possible if the teaching of language occupies the most important place in schools and colleges.

It is a matter to be greatly regretted that vernacular is not a compulsory subject even in High Schools in some of the provinces of India. The result is that most of our boys in High Schools who do not take up vernacular cannot translate Hindi pieces well if they are a little flowery and ornamental. I, therefore, think that vernacular must be a compulsory subject at least in High Schools. In support of this view let us briefly trace the origin of language and describe in short, the important part it plays in the growth of human mind.

The teaching of language is essentially important and indispensably necessary for the development of human mind. Its importance can be appreciated from the history of modern times and its necessity can be felt if we but go back to the history of primitive ages. A gradual evolution of language has ever been going on from the iron age.

Man, in order to respond to some needs of the organism, suddenly hits upon the device of using certain forms of expression and these forms of expression give birth to language. So language may be defined as a form of expression by means of which one individual conveys his own "emotional states" to some other individual. At the very early stage of human society language was in a very crude form and was associated with certain signs and gestures with the hands. Gradually there develops the ability to communicate ideas and interchange thoughts in a more decent form, and with the growth of civilization language becomes the medium for the interchange of thoughts from one individual to the other. For man there is not only the capacity for education, but also the necessity for education and for the purpose of education the study of language is very important.

When ideas and thoughts of an individual mind are expressed in a permanent form of words, we get literature. So the culture and development of literature depend upon the development of language, i.e., literature and language are inseparable. Language as literature expresses the ideas and thoughts of great men, and in order to enter into those thoughts and ideas the teaching of language is essentially necessary. Man possesses two characteristics that make him superior to all other creatures. One of these characteristics is the capacity to profit by the experience of the race and this experience is chiefly obtained through the culture of language and literature. "The natural elements in education are passed on to the young chiefly by language, for, language as literature is a reflex of the inner mental habit of the people." Man is a social being, "society, friendship and love divinely bestowed upon man." In

his every walk of life he comes in contact with his neighbours. In order to communicate his ideas and thoughts he requires some forms of expression, i.e., language. There is no aspect of human life, either simple or complex, which language as literature does not convey. It is through language man inherits everything which the past has bequeathed to him, and restores many things of the past from the womb of oblivion. A systematic teaching of language is necessary for the study of ancient literature, replete with higher ideas and thoughts of our forefathers as well as heroic sentiments of the race to which we belong.

The vernacular language should be the supreme subject in all education. Boys begin to express their thoughts and ideas in the language taught at home. They can easily understand what is taught in the language, spoken round their mothers' knees. All sorts of development, intellectual, moral and spiritual, depend upon the teaching of language. A real study of language will help a man to understand fully what is religion and what

are his duties towards God and his country. Education without the teaching of language is just like the play of Hamlet with Hamlet's part left out. Language as literature "conveys the substance of thought" and presents to the forms of the ideal by which "we can make our lives sublime."

The aim of education will not be fulfilled if a vigorous stress is not given upon the teaching of language at the proper time. Rabi Babu (Dr. Tagore) has truly said that Indian boys should have the opportunity to form their own judgment, through the medium of their own vernaculars and their own cultures. If they get such opportunity, then and then alone can they fully assimilate the best culture of the West and can profit by learning all that the West has to teach.

So, from the very early stage of our life the teaching of language is useful and important, for, language "feeds and trains the mind, and teaches mind its courses."

ANATH BANDHU CHAUDHURY.

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ELEMENTARY EDUCATION— NEW PROBLEMS FOR THE INDIAN EDUCATOR.

By MR. S. JAGANNADHAN,
Assistant, Teachers' College, Saidapet.

THESE are the days of reform and re-organisation not only in the domains of politics and society, but also in that of education. In the field of higher education, the starting of Residential Universities all over the country is chiefly noticeable. Vocational training in the Secondary grade is gradually making headway. Free and compulsory education in the Elementary grade is increasingly recognised as the ideal to be kept in view and the area of Primary Education is slowly but surely expanding. The object of this paper is to draw the attention of those who are mainly connected with the expansion of Primary Education, to a few important ideals that have to be kept in mind by them and also to point out how far these ideals can be realised by them in actual practice.

THE TEACHER.

The very first problem that one has to encounter with is that of the teacher himself. The various reasons as to why it is he that should first and foremost be looked upon may be gathered by the readers in the course of this paper.

(a) *His Personality*:—Much depends on the teacher's personality as it is he that is looked upon as a model for the children to copy. He should set a high standard of morals by himself putting and showing in practice what all he preaches and intends to preach to children. Any deviation on the part of the teacher from such a practice is likely to be discovered by some shrewd child who may put at any time some inconvenient question to the teacher concerned. His responsibilities are manifold and they may be summed up in the words: 'He should be a

guide, philosopher and friend of the child.' More than all he should love children and should show a keen and sympathetic insight into the ways and workings of the child mind.

(b) *His status*:—'A healthy body has a healthy mind,' so goes the motto and this should be applied most certainly with respect to the teacher. He is expected to be all watchful, energetic, enthusiastic, systematic and what not. Hence the very first point that ought to be deeply considered is to place the teacher above want. All Associations of Teachers of different grades throughout the Presidency have expressed this fact in no small degree and it is for the State, the public and private bodies to meet the situation sympathetically and give redress. This difficulty solved, he would be able to devote his whole time to his main work of education. This alone to a certain extent enables the teacher to raise himself in the social scale.

(c) *His vocation*:—Encouragement should be given to greatly experienced teachers to write text-books to children of Elementary Schools on rational lines. There are ever so many Readers prevalent in schools and one can find that the authors, most of them at least, are not in immediate touch with the method of instruction and teaching in Elementary Schools. And now with the advent of free and compulsory education the number of school-going children and the corresponding number of schools are bound to increase, so that there is ample scope for different sets of readers according to different localities. The sooner the matter of writing text-books is looked into the better. There is sure to be a great out-put of books in the educational mart of the present day; and great care has to be exercised in the matter of selection and if books written by ex-

perienced teachers are selected we cannot go far wrong.

One point worth mentioning in connection with text-books is this: If the book is solely to be a language book, the language of the book can be maintained at the required standard, only by means of story lessons selected from folk-lore and epics. The language will seem to flow naturally as the story proceeds. If the book is to be other than a language-book, i.e., a book on Nature-Study, Geography, and Elementary Science, then each lesson will have to centre round some technical words and phrases that come under the particular subject. A mixing up of story lessons and lessons on common animals, things and industries in one book is not very much desirable. The reason is that we aim at the improvement of language in language lessons, and in other lessons we aim more at imparting information on topics in Geography, Nature-Study, etc. For example a lesson on ostrich, camel, lion, scorpion, rain, vulture, iron, air, gold, house-construction, the Ganges, the aborigines, human body, plant-life, etc., will have more bearing on Nature-Study, Geography or History. All lessons of the above and similar types have to be taught to children first orally introducing wherever possible concrete illustrations; and reading of lessons on these topics from text-books should only be considered as supplementary to oral lessons, and which is calculated to impress on children the facts they have been taught orally. Under the circumstances, the best thing seems to be to have two vernacular books, one for the improvement of language, and the other for the acquisition of general knowledge in the other subjects of school study. So far with regard to Readers.

THE PARENTS.

It is an admitted fact that the relationship between the school and the home should be cordial. The parents are responsible for the early training of the child [*vide* Early Training of the Child: *Educational Review*, April 1920.] All matters regarding the child's health, good surroundings, both in respect to places resorted to by the child, and the companions he is likely to take to, require careful investigation by the parents. A well-trained child in a family may be sometimes tempted to utter falsehood, at the instance of his bad companion. He may sometimes try to absent himself from the school and yet hide the fact from his unsuspecting father. Such instances are not wanting but may be rare.

The teacher in his own turn has to take note of some of these faults in the pupil that come to his knowledge and make a report of the same to the parent through letters or by personal interview. It is to be borne in mind there are different types of parents, each having his own notion of education. A description of the different types of parents may not be out of place here and I shall indicate three or four types.

1. *An illiterate parent.*

[P = Parent; T = Teacher].

T. Your boy comes very often untidy to the school. Can you not see that he comes clean, please? In his studies, especially in English, he does not take a keen interest.

P. I am an ignorant man and therefore I do not know anything about his books or lessons. We no doubt ask him to sit at his studies both morning and evening. Please tell him, sir, to be very careful about his studies as we depend upon him in our old age,

2. *A business man and a merchant.*

T. Your boy seems to be too weak to be engaged in any lesson for more than a very brief length of time. Is he under any medical treatment, please? Probably this is the reason why he very often stays away at home. Will not his frequent absence tell upon his studies?

P. We do notice all these defects in him. I cannot do anything in the matter. Personally speaking I am always confined to my business; probably it is his fate to suffer. You better advise him, sir. He does not listen either to me or to his mother.

3. *An officer.*

T. Dear sir, Your boy seems to be very backward in number-work and spelling. Can you not devote some of your leisure time in giving him some drill in these subjects, please?

P. Dear sir, You know my difficulty. I hardly find time even to bathe and sit at my meals. When my position is such I am really sorry I do not find time to look to my boy's studies. I would like you to give your best attention on my behalf. Give the boy sound warning, sir.

4. P. He is very playful. He does not feel inclined to take to his studies even for at least an hour at home. What I observe in him is only a very strong desire to play at marbles with a boy who comes from the neighbouring street. He does not even mind playing under the scorching sun. I do not know what to do with him. I am in a fix. I would very much like you, sir, to give him a sound thrashing (as though the same remedy does not lie in his hands).

5. Then there is the parent who is not in a position to interview the teacher, the

teacher-parent who does not find time to educate his own son and there is also the parent who throws the entire responsibility for the education of his son on the teacher himself.

We find in all these cases that *two great obstacles stand in the way*, namely, *poverty and absence of leisure*. The first is no doubt very keenly felt by very many parents of the lower classes, so then the education given should be free first and compulsory afterwards. The children of such people should be sent to those schools which have as their aim the giving of instruction in the R's only. Otherwise if they come to schools which are attached to Secondary Schools and impart instruction in all subjects suitable for young children, there is a greater likelihood for the parent to meet very many extra school charges, as the payment of school-fees, purchase of more text-books and note-books. Thus we see that the village and the town schools have to greatly differ in their aim of instruction and in the types of children which they are going to educate. We shall speak about this in greater detail later on; but poverty is certainly no excuse for personal untidiness.

As regards the parent's excuse of want of time he should first learn the motto 'a stitch in time saves nine.' The fact that the parents have first to be educated in the matter of educating their children cannot be ignored, with the above concrete instances before us. One small but very important matter in which the parent can very well take interest is in paying proper attention to hand-writing. The parents would be doing themselves a great service if they do bestow a little attention to this matter. They can make their children sit and write neatly in copy-books and see that whatever home-work they do, they do thoroughly, neatly and well.

For the sake of parents some such rules of guidance may be prepared by the school

and given prominence. These may also be distributed to parents, whenever they come to the school for the first time and perhaps best when they come to the school for admitting their children.

RULES FOR THE GUIDANCE OF TEACHERS, PARENTS AND CHILDREN.

1. Each child shall come clean to the school at the appointed time.

2. All children shall assemble in the hall and maintain perfect order under the supervision of the class Prefects, say their prayers and answer to the roll-call.

3. They shall then march to their respective classes and sit quietly in their places, and on the teacher's entering the class, stand up and salute the teacher and shall resume their seats after the teacher has taken his seat.

4. Parents are requested to intimate the teachers of their children's absence from school.

5. Children who, owing to any reasonable cause, are obliged to be absent from school, may go to the class-teacher or any bright pupil of the class and get instruction regarding the lessons taught during their absence. The parents are also requested to look to this matter as one of importance. This applies to children of the higher classes alone.

6. Teachers are requested to pay periodical visits to children's homes and study their home conditions personally and suggest to the parents any possible improvement. They may also draw the attention of the parents to such of the defects in children, physical and mental, which they have observed in the school. Any form of moral delinquency should at once be reported to the parent through letter or by any other means and should also be dealt with suitably in the school.

7. Admission and promotion will be determined on consideration of class-work, oral responses and results of periodical tests. Parents are requested to see that any leniency in this direction will not be conducive to the child's mental development.

8. The presence of parents on important school occasions, such as prize-giving, sports, etc., is very much welcome.

9. The parents are requested to view all new ideas on education as occupations, games, Nature-study, etc., sympathetically as these find a place in the school curriculum after being found to be very conducive to the steady growth of children, physically, morally and mentally.

10. The formation of parents' associations and periodical conferences of parents and teachers are desirable steps in the improvement of education.

THE CHILDREN.

The problem of the dull child:— Great difficulty is experienced in classifying children. Children when they are first admitted are taken into a class to which their age and mental capacity as revealed in a short, oral and written test befit them. But even then in the course of the school year some children are found to be bright and others backward. The presence of both backward and intelligent children in the same class is disadvantageous not only to both sets of children, but also to the teacher himself. In this connection may be quoted an extract from Herbert Woodrow's 'Brightness and Dullness in Children': "Whereas the dull child is an ever present source of trouble to the teacher and a hindrance to her work with the children who are more justly entitled to her time, the exceptionally bright child takes care of himself..... If we continue to use a large portion of our energies in training

children of the lower levels of intelligence without simultaneously devoting special attention to the exceptionally bright, we shall produce an unbalanced system, which must in time tend to pull downward the general level of education."

Suggested remedies:—Under the circumstances what is all possible to be done with regard to the improvement of the child may be summed up thus:—

1. To put the boy under the special care of an experienced teacher who will look after the development of the individual not certainly with a view to push him up to the next higher class to that in which he is studying.

2. To advise the parent to give him any suitable occupation in which he takes a natural interest apart from school study.

3. To provide enough facilities for the child to improve himself by giving him suitable story-books and other concrete material by which he will be able to learn his number-work, reading, writing and spelling, more steadily and thoroughly than in the allotted time in the school.

4. To be sympathetic towards the child and give him encouragement in his little successes but not to find fault with his shortcomings.

EXAMINATIONS AND TESTS.

The present system of examination gives great room for criticism and this should not be the only test of the child's capacity. Mental tests have come to stay as a permanent factor in the field of practical psychology and pedagogy and the sooner they are introduced the better. But a good deal of ground-work has yet to be done. A beginning was made in the Kindergarten Department attached to the Teachers' College, Saidapet, in examining

children with the Binet Simon Tests (Stanford Revision) and the report thereof published. That may be had as a suitable one to start with in other schools and adapted whenever there is a necessity for the same. The result of such tests revealed the backwardness of those pupils as were also found backward in the class. But then, what is the use of such mental tests? Whereas class tests in certain subjects bring out the proficiency or otherwise of the child with much schooling and that in a particular direction, mental tests bring to light such of those children as with or without schooling, are below the ordinary level of intelligence. Secondly in examination tests, it is the standard and opinion of the particular teacher that goes very much in determining the degree of a child's attainment. While in the case of intelligence tests, they have the advantage of proving the capability of children of a particular age, they having been standardised previously to application. But in their introduction at this moment, there are some points which we have to consider. The foremost factor is the devising of new or adapting of existing tests to our conditions of home and school life, standardising them as far as possible and then translating the same in the several vernaculars of the country. Another point for consideration in connection with the test is the disproportionately long time taken to examine each child in a series of tests and determining his mental age as opposed to his chronological age. The third factor is the natural inclination of the teacher himself towards such tests. If he undertakes the task, stimulated by a desire to discover the inner working of the child mind, he would find the task a pleasant one, but not a drudgery.

Leaving all these one could certainly incorporate into the actual educational methods

some of the salient features which are given as a result of such investigation.

1. To give plenty of scope for the child's spontaneous development by providing in school pieces of apparatus for the education of the senses, construction of buildings, exercise in colour work, doing of small occupations with paper, knives, scissors, gum, etc.

2. To provide enough facilities for the development of self-activity and self-expression of the older children in school by introducing different occupations and games.

3. To develop the reasoning faculty of the child by teaching Nature-study, Number-work, etc., on rational lines.

4. To adhere to the well-known principle in teaching, namely, of 'learning by doing.' (a) Let the child work out the same sums he worked in school, again at home in the presence of his parents. Let the parent see whether he is able to work them out individually and whether he has understood the principles taught. This test will certainly bring out whether the boy did the school work out of his own ability or simply copied the same from his neighbour. (b) Let him take down the questions set by the teacher on the black-board. Let him sit at home and answer the same on the opposite page. When he brings the answers the next day to school the teacher can point out where he is wrong and lead him to find out the correct answer from his text-book. Thus the child will see that he has not read his lesson properly. (c) Let him learn to be good by doing good to others, by helping others, by sympathising with those that are placed in circumstances less fortunate than his own and by doing anything in his power to alleviate the suffering of any miserable man or animal.

5. To impart education to the child in all subjects according to the true psychological principles and methods and thus create a lively interest in the child in everything connected with school-work.

LANGUAGE TESTS.

Taking for example language, a series of tests as the following may be devised and set for the children, the teachers correcting them when they go wrong. Though these may not be new, yet these are simply suggested here to be gone through more systematically in any school work than up till now. I have not mentioned the exact class or classes for which these tests are applicable, which I shall leave for the teachers to be judged.

A (i) Tell me as many words as possible with beginnings in *அ*, *எ*, etc.

(ii) Tell me as many words as possible with endings in *ம்*, *ள்*, etc.

(iii) Pick out words with the following characters:—

1st group.

வ	ள	ழ

2nd group.

ஈ	ஓ	ஔ

3rd group.

॥	॥

This is found to be a difficult type of exercise for the boys at the beginning. Hence this

test may be prescribed for all the classes.

4th group.

ॐ	ॐ	ॐ	ॐ	ॐ

Words with S a n s k r i t characters.

(iv) I shall tell you a short story. Reproduce the story orally.

(v) Tell me what all a carpenter or a goldsmith does. Can you name some of the tools of these workmen?

(vi) Look at this picture. Tell me what all you see in this picture.

(vii) Write down a dozen words from the picture.

(viii) Read this passage once, twice or thrice. Tell me what is said in that passage. (This test applies to the higher classes also).

B. (i) Split up the combined words into separate words.

(ii) Combine these words into one compound word.

(iii) These are unfinished sentences. Make them into finished sentences by adding suitable words, which will make their meaning clear.

(iv) These are the new words you learnt in your lesson yesterday. Give out from

memory the sentences in which they have been used.

(v) Now make your own sentences containing these words. Let them be complete sentences.

(vi) I am going to tell you a short story. After listening to me, you will reproduce it. I have written some words on the black-board to help you in the reproduction.

(vii) From the story in such and such a lesson from your text, make out half a dozen questions which you can put to your friends during the next lesson in the class.

(viii) Write to dictation the passage I shall read to you.

(ix) Learn to write some letters in your vernacular. First tell me what all you desire to write to your father about the sports that took place in our school the other day, the excursion you took to the quarries, the floating festival you witnessed the other day in the local temple, or your progress in school.

Now write the same in the form of a letter.

(x) Answer the following questions from your text in complete sentences of your own or using sentences in the text itself.

Number work is a difficult part of the school curriculum and I shall take another opportunity to discuss some important aspects of it and will then suggest some observations to make the work more practical than it is now.

CONDITIONS NECESSARY FOR EFFICIENT INSTRUCTION.

The following conditions are necessary for the efficiency of school instruction. These are briefly stated as follows, the importance of which is known to all engaged in educating children:—

1. The teacher, the parent and the State should show an intelligent and enlightened response to any change effected in the system of education owing to progress in pedagogy.

2. There ought to be close co-operation between the parent and the home on the one hand and the teacher and the school on the other.

3. Each class must not contain more than twenty pupils and ought to be in charge of a single teacher. Schools that can afford to do so, may employ extra teachers for imparting instruction in special subjects like Hand-work, Drawing, Drill, etc.* The current educational practice of a teacher handling simultaneously two or three classes and very often in the same room has absolutely no educational utility whatever, and ought to be abolished at once.

4. Every school ought to be provided with the necessary apparatus and appliances for efficient instruction, and must also have a library of books both on method and matter. [Vide Some Thoughts on Kindergarten: *Educational Review*, May 1919].

5. The translation of important standard books on method and matter, so far as they relate to primary education and thus placing the knowledge contained in them, at the disposal of the large body of primary teachers.

6. The more enlightened and enthusiastic teachers in each linguistic area ought to organise themselves as a committee of experts. It must be their duty to suggest outlines for the procedure to be followed in writing text-books and also to make known in their respective areas, any new developments in the field of primary education. They may do these by issuing periodical pamphlets.

7. The starting of a magazine of Elementary Education dealing exhaustively with the varied aspects of the subject both on the

theoretical and the practical sides. It must of course be first written in English, but may be translated into the different vernaculars.

N. B.—With many of the above objects in view, an 'Association for the Study of Child Nature and Education' is being started and organized in the Teachers' College, Saidapet.

DIFFERENT SYSTEMS OF EDUCATION.

Let me take one or two important topics that will have to engage the attention of the Elementary School-master at the present day and deal with them briefly:—

1. *The Kindergarten System*:—A good amount of literature on this system exists only in English. But how could the Elementary School teacher know the advantages of such a system and its application to the education of the infants of his locality? A leaflet ought to be published in the various vernaculars dealing with this system practically and showing by practical examples where this system can be adopted to our own conditions and needs. The exposition of these should be in simple vernacular so as to be understood by parents, teachers, managers, and members in District Educational Councils, Municipal Councils and Taluq and District Boards. Such of these men ought at first be convinced as to the utility of new departures in Elementary School instruction and the heavy responsibility that rests on teachers in discharging their duties with many an ideal before them.

This system as was originally found by Froebel was the outcome of a good deal of work done by himself as a teacher of children in Germany. He found that the child should be given plenty of opportunity to express himself and for this sake he discovered a series of apparatus known as 'Gifts' and included in the school subjects such subjects as hand-work, occupation, story-telling and nature-

study. All these in a way satisfy the varied instincts of childhood such as self-activity, creativity and self-expression. By applying the same principle to our own children, we could pick out plenty of stories from our own epics suited to children, devise a series of occupations for villages and towns, and devote some time of the school-day to Nature-study and Agriculture, and Practical Geography and History. All these are however to be taught to children through play, games, occupations, etc. We can in this way adapt this system to the requirements of our children.

Under the present condition wherever Kindergarten is in vogue it is simply taken to mean a series of occupations as stick-laying, ring-laying, bead-threading and things of that kind. Even instances are not wanting where teachers ask, 'Where can we see Kindergarten?'

'Is this Kindergarten?' (seeing a class learning their mother-tongue).

'Can we see Kindergarten in the fourth and fifth classes?' and so on.

No doubt such cases are few, but still the idea that the Kindergarten is a method of instructing children has not yet been grasped by the teachers as a whole. Only then they can really think about and devise a real workable scheme on rational lines which will enable the child to grow according to its own nature.

BOOKS FOR CONSULTATION.

1. Kindergarten—Subjects and Methods: R. McLeod.
2. Essays on the Child and his Education: C. Gordon.
3. Teaching in Indian Elementary Schools: C. Gordon.

(Tamil and Telugu editions of this are also available).

4. The occasional and humble contributions of the writer of this article in the columns of this *Review* from March 1918 are also calculated to throw some light on the education of the young on rational lines.

2. *The Montessori System*:—This is the present day method as founded by Dr. Montessori in her dealings with the backward children of Italy. Many educational enthusiasts have adopted her method. Her system deals with the education of children of ages from 3½ to 7 only. She lays great stress on the education of the senses and has herself devised a series of apparatus towards the fulfilment of the abovesaid purpose and has given the name of 'Didactic Materials' to them, a description of which has already been given in a previous issue. [Vide Lessons for Infants, *Educational Review*, July 1920]. A supply of these in any Infant School will certainly add to the interest of the school-going children and give them good scope for engaging themselves in constructive work and will stimulate their reasoning faculty. But again the cost of the same stands in the way. As far as possible the lowest class children should have plenty of things to play with, cut, model, etc., so that they might occupy themselves in occupations that are congenial to them. The teachers could thus observe the varying tendencies of each child and could therefore adopt his method of instruction according to the requirements of the individual child.

There are many other good features in these systems provided they are taken only in right spirit and not slavishly followed. The 'Didactic Materials' give the children and the teacher great opportunity at learning number-work easily and readily.

BOOKS FOR CONSULTATION.

1. Montessori Method in American Schools: F. Ward.

2. Montessori Schools as seen in the early summer of 1913: Jessie White.

3. Montessori Experiments: Blackburn.

4. The Montessori Method (English Translation): Maria Montessori.

3. *National Education or Village Education or both*:—The cry of national education is heard through out the country. All rational systems of education will only have to be on national lines. Both are interdependent and only then the education imparted will be effective. If we apply this principle to the education of children, we can have stories selected from the literature of our own nation and country, specifically teach in each school the occupations that are pertaining to a particular locality, with Agriculture and Gardening taking their important places. The teacher himself can, as far as possible, see that whatever knowledge is given to the child, is based upon the country's traditions and in keeping with the national sentiments.

I shall briefly sketch a list of occupations for a village school.

Agriculture and Gardening will go together and some periods out of school may be devoted to the same.

Such hobbies as Collection of different kinds of reeds; Collection of different kinds of grains, especially paddy; Collection of different kinds of timber; Ornamental and design work with grains, seeds and reeds, etc., may be suitably encouraged.

New methods of gardening and agriculture may also be imparted to older children through whom the parents may also be enlightened on the matter.

VILLAGE OCCUPATIONS—ITEM A.

Material.	Occupations.
Plantain	Flower garlands.
	Baskets
	Screens.

Material.	Occupations.
Reeds	Mat-weaving Basket-making.
Clay	a. Free modelling for younger children. b. Difficult models for older children. Colouring models and baking them in a kiln in the school compound is also desirable.
Palmyra.	Fans: Different sizes. Fans with ornamental designs.
Date-palm.	Screens or Thattis. Small mats which serve as seats.
Cocoanut-palm.	Making of coir out of fibre. Making of ladles out of shell using a bamboo stick for the handle. Screens out of leaves.
Bamboo.	Basket-making. Different kinds. Large screens.
Pandanus (<i>grecory</i>)	Screens. Country umbrellas.

Paper work:—This includes paper-folding, cutting, weaving, cardboard modelling, etc. Under the last may be included such articles as, boxes, houses, trays, envelopes, hand-carts, clock face, soap box, temple with tower, and similar other toys. A little bit of money is required in their connection for the purchase of cardboard, coloured papers, scissors, knives, etc.

Note 1. These occupations are very common and even if the teacher requires help, he could easily rely on the services of any one in the village who is well-versed in these,

2. Free scope may be given to children in choosing occupations according to material available in the locality and to their natural bent and desires. Useful models after being finished may be allowed to be carried to their homes, so as to be exhibited to their parents. These may also be of some use to the household.

ITEM B.

Note:—Some outlay of money is however necessary to meet extra school charges by way of equipping the school with tools and materials required for children in learning the following handicrafts and in employing special teachers to teach them:—

- | | |
|---|---|
| (i) Hand-spinning and weaving. The latter may be introduced first as the former cannot be effected quickly and readily. | } General. |
| (ii) Carpentry | |
| (iii) Tinning vessels. | } For special children |
| (iv) Smithy | |
| (v) Masonry | |
| (vi) Pottery | |
| (vii) Oil-extracting | } For special children in special localities. |
| (viii) Leather-work | |
| (ix) Cane-work | |

How far village school life may be made attractive and useful to the child, the villagers, etc.

To give village children all facilities for sound education in the village itself, our endeavour should be to make the village school as far as possible a close approximation to the city school. The following suggestions are offered for consideration in this connection:—

1. The village school is a dull, dreary, if not a hideous place. It has therefore no attraction for the child. The school and its surroundings must be such as to naturally

draw the children towards them. A costly building is not necessary. A simple building with some open space for a garden, can be made to provide all the attractions to a child in its first school experience.

2. Some money may be spent in the purchase of suitable pictures that have an educational value, and these may be hung on the walls, and thus adorn them. A part of the school-house may be set apart for a museum.

3. Some money must also be spared for the purchase of materials, with a view to the introduction of some occupations. The learning of some occupation will enable the child to be of some service to his needy parents.

4. Education in the village school must be made free. Compulsion might come at a later stage. This should be preceded by occasional tasks to villagers on the value of education by the educational officers visiting villages.

5. Subjects other than the Three R's like Nature-Study, Geography, must also be taught.

6. Occasional excursions must be arranged, by taking the children to various places of a busy town-life or an industrial centre. They would provide the children not only delight, but also useful instruction.

7. The teaching of English might be made a part of school instruction if a suitable teacher could be had and if the parents demand it.

8. That some provision for some training in First Aid, Social Service and if possible on Scouting might be made at the end of the school course.

9. That girls attending such schools might be given some training in Needle Work and Sewing, Household Economy and Hygiene and First Aid in Accidents.

But one thing should not be forgotten. The simplicity for which the village school is so famous for, should always be kept in view. Secondly there should be clear moral instruction if not solely religious instruction. Moral instruction should however be based upon the country's traditions and learned people of the village may be invited to address the older children on the cultivation of good character—never in any case trespassing on the religious faith of any individual child or parent. The teacher himself can have occasional meetings of the children and their parents, say in a moonlight night and open a discourse on any important topic connected with school teaching and devising means for its welfare. Such meetings should be the outcome of involuntary effort on the part of the teacher, whose enthusiasm in these and other right channels is expected to be met with due encouragement and recognition.

In passing, I may refer the reader to an article on 'Village Education in India' by 'Educationist' in the 1922 October-November issue of the *Calcutta Review*. 'Educationist' in that able and well-thought-out article points out various ways in which the village school-life may be made really useful to the child and his parents. The following features are worth mentioning:—

(a) That the education should include instruction in such handicrafts as hand-spinning and weaving, agriculture, carpentry, pottery and smithy and taught by the respective workmen of the village.

(b) That at least eight acres of land as the village common property be set aside for educational purposes and out of which the teacher enjoys two acres, and the rest set aside for demonstration purposes in agriculture and gardening.

(c) That the school be located in a central place in a group of four to eight villages, the

villagers of which try to maintain the same as above said.

(d) That the teacher himself should have both the experience and training in an Agricultural as well as a Normal school and that he be made the village postmaster in addition to his duties as a teacher.

(e) That suitable text-books should be written with lessons on the country's stories, history and geography with additional lessons that impart new ideas on Agriculture, Nature-study, Natural-phenomena and simple sciences.

These, says the 'Educationist', will certainly clear the misapprehension that the villagers entertain towards a purely literary kind of education.

TYPES OF SCHOOLS.

1. *Model Elementary Schools:*—At least two model elementary schools of the village type and one of the town type must be maintained by each Taluq Board. A Municipality might also maintain a model elementary school. These must be completely equipped and set the standard for other schools to follow.

2. *Technical Continuation Schools:*—These schools are intended to give suitable technical instruction to boys of ages from 12 to 18 who may be too poor to study in any advanced industrial school. These schools are a necessity and these may be established in at least two centres in each District under the control of the District Board. All major items of handicraft as previously shown under Item B will have to be systematically gone through in this school. The instructors may be recruited from trained and skilled workmen of the villages.

3. *Part-time Schools for Labouring Classes:*—Such schools will have to work prefer-

ably in the night, the only time when the children of the workmen will be free from work and receive some instruction in the Three R's, Civics, Hygiene and general knowledge. Such schools have been termed as 'Night Schools' in towns, most of them being maintained by philanthropic individuals or charitable societies. But the area to be covered is very vast and if a popular appeal is made in the name of education, this proverbial land of charity will not fail to respond in an adequate manner.

Even labourers themselves, if they will, may go to the school and receive some knowledge in current affairs, civics, moral lessons and general knowledge. That may be looked upon as a sort of moonlight discourse to labourers by an educated member of the village.

4. *Infant Schools*:—These schools are otherwise termed as 'Nursery Schools' where instruction is given to children between the ages of three and six. The aim of such schools is to suggest to parents and teachers the real and proper way to train young children. Societies and Associations such as Health Associations, Infant and Maternity Welfare Leagues, Child-Welfare Leagues, have been started in various places under able-bodied men, and these may take up the responsibility of opening such Infant Schools as part of their propagandist programme. This is no doubt one of the ways of effecting educational reform at the root itself. It may be pointed out here that, in the Child Welfare Exhibition held at Delhi some three years back, a separate section was opened for exhibits bearing on the education of the child. The course of instruction required to be gone through by children of these Infant Schools is not any formal instruction in the Three R's

but a proper training in self-conduct and exact observation. A quotation from 'Nursery Schools' will bring home to the readers the objects and workings of such a school. "Most important of all, the teachers of the school above the Nursery school must not be given the slightest encouragement to expect any definite achievement in Reading and Arithmetic from a child promoted from the Nursery school. They should expect to receive active, intelligent children, trained in good habits of observing and thinking, speaking and behaving, but without scholastic attainments." I have dealt with the organisation, equipment and working of an Infant School exhaustively in a previous issue of the *Educational Review*: [vide January 1921].

Conclusion:—I have in the foregoing pages endeavoured to sketch the ideal which the educational reformer has to keep in view in the matter of re-organising elementary education. One thing that will seriously hamper him in his work is want of finance. A policy of retrenchment may be necessary and even beneficial in other departments of national activity, but such a course will be a retrograde step in the matter of education. The view is gaining ground all over the civilized world that money spent in the matter of education is not an expenditure but an investment, as it enables the country to produce an efficient body of skilled labourers and therefore of higher wage-earning capacity. May we not therefore hope that money will be available for the advancement of education? Let us therefore not lose heart but try to achieve the ideal set before us to the best of our ability.

GOVERNMENT CONTRIBUTION IN THE NEW PROVIDENT FUND SCHEME.

FOR convenience of reference, we begin with certain relevant extracts from the Annexure to G. O. No. 140, Law (Education), dated 22nd January 1923.

Annexure.

"Scheme of Provident Fund for teachers in Non-pensionable service."

"2. Admission: The Scheme shall be compulsory on all certified teachers, pundits, munshis, instructors, librarians and clerks employed in all educational institutions under private management, which are recognised under the Madras Educational Rules or under the Rules framed under the Madras Elementary Education Act whether aided or unaided, whose pay is not less than Rs. 20 per mensem.

"3. The contribution to the Fund shall be a percentage of $6\frac{1}{2}$ on the pay.

"4. The management.....shall contribute a sum equal to half the contribution of the subscriber which shall be paid into the subscriber's account along with his own deposit every month.

"The contribution of Government shall take the form of a single lump payment at the time the

subscriber retires.....equivalent to one-third of the amount standing at his credit.

"8. Interest shall be allowed on all deposits at the rate of 3 per cent. per annum, or such higher rate as may from time to time be determined for deposits in Post Office Savings Bank."

A little calculation will show that para. 8 of the Annexure completely nullifies the benefit, the G.O., which, in other respects, is very acceptable, contemplates to confer on the poor-paid teachers. For, it must be remembered that, whereas the Government proposes to pay only 3 per cent. interest on the Provident Fund deposits, the market rate is $5\frac{1}{2}$ to 6 per cent. The Railway Companies pay $5\frac{1}{2}$ %. Many Banks pay 6% on deposits. Even the Post Office Cash Certificates carry 6 per cent. As a result of this, in the case of teachers of long-standing service—say fifteen years or over—so far from the Government contributing anything to them, it is the teachers and the management that contribute substantially to the Government, in spite of the apparent Government contribution. How this probably unsuspected reversal of position is brought about can be seen from the following.

For convenience of calculation, but without any loss of generality, we have taken the case of an ideal teacher, who contributes annually 'Rs. 66 $\frac{1}{2}$ '. The management adding its share of Rs. 33 $\frac{1}{2}$, deposits the total of Rs. 100 into the Savings Bank.

Fig. I.

Table I gives the figures assuming the market rate to be 6 per cent. Column 2 gives the amount that will stand in the account of the teacher at various stages of his service, *without any contribution from the Government*, if the market rate of interest is allowed on the deposits. Column 3 gives the amount that is due to the teacher, according to the scheme, *i.e.*, with 3 per cent. interest together with the *Government contribution* mentioned in para. 4 of the Annexure. Column 4 shows the real or the net contribution by the Government (+ denotes contribution by Government, and — denotes contribution to the Government by the teacher and the management.)

* * * *

Table II gives similar figures, assuming the Bank rate to be $5\frac{1}{2}$ per cent.

* * *

Figures I and II show graphically the Government contribution at various years. The figures will show that in case i, the maximum *real* contribution by the Government occurs if the teacher retires in his tenth year and even then the contribution is only Rs. 210. There is *nil* contribution from Government if he retires in his eighteenth year and if he is unfortunate enough to stick to the profession to any longer period, an appreciable part of his earnings goes to the Government and in particular if he serves his full term of 30 years, the Government will gain from this ill-paid teacher not less than Rs. 1,559! Surely the Government could not have meant this!!—and this Provident Scheme is compulsory and no school can escape it without losing recognition!!!

* * * *

The teacher may read out the corresponding figures for the second case from Figure II.

TABLE I.

No. of years of service.	2	3	4
5	563	708	+ 145
10	1318	1528	+ 210
15	2327	2480	+ 153
20	3678	3583	— 95
25	5567	4861	— 706
30	7902	6342	— 1559

TABLE II.

No. of years of service.	2	3	4
5	557	708	+ 151
10	1284	1528	+ 244
15	2233	2480	+ 247
20	3474	3583	+ 109
25	5095	4861	— 234
30	7210	6343	— 867

"ARITHMETICUS."

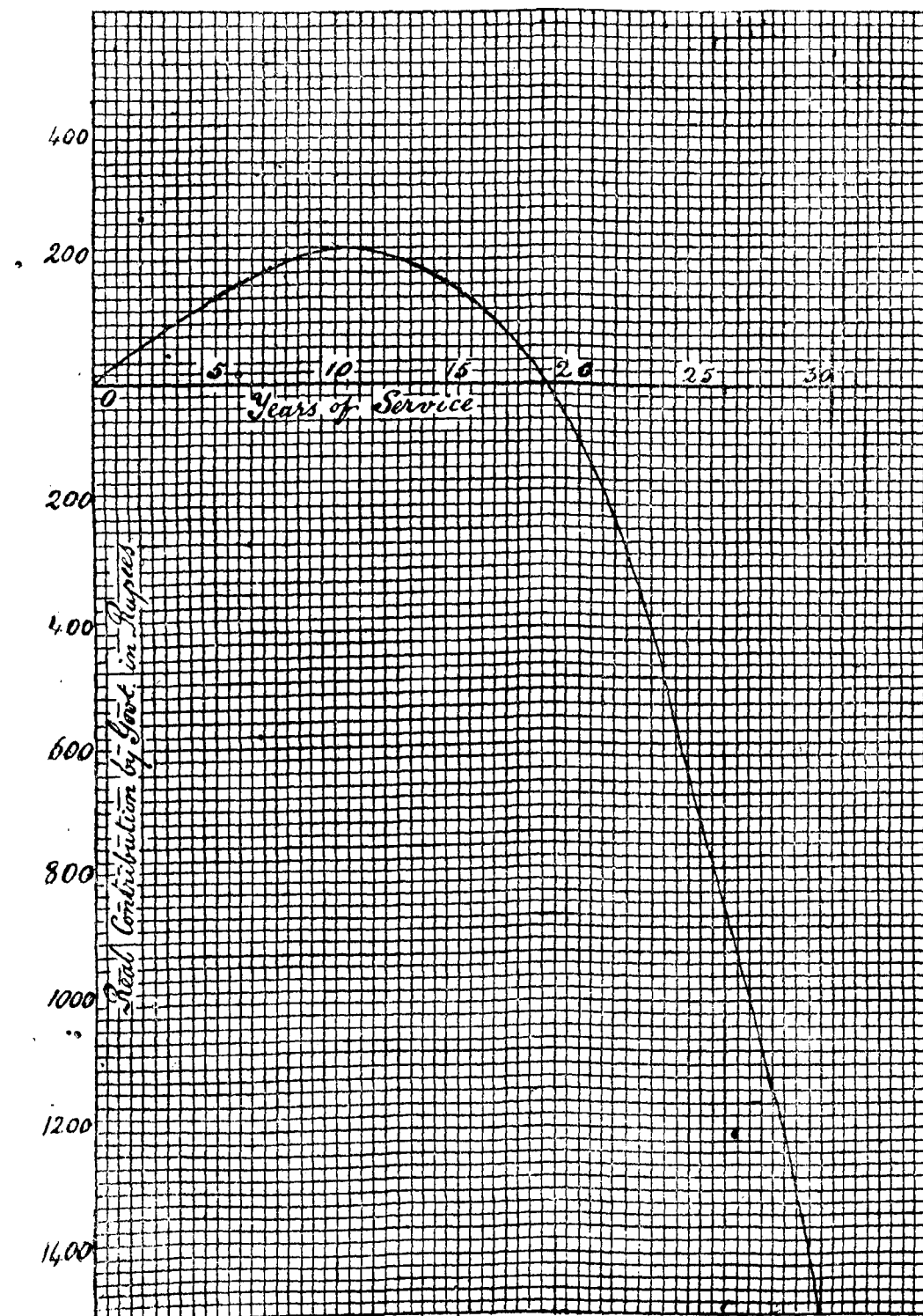
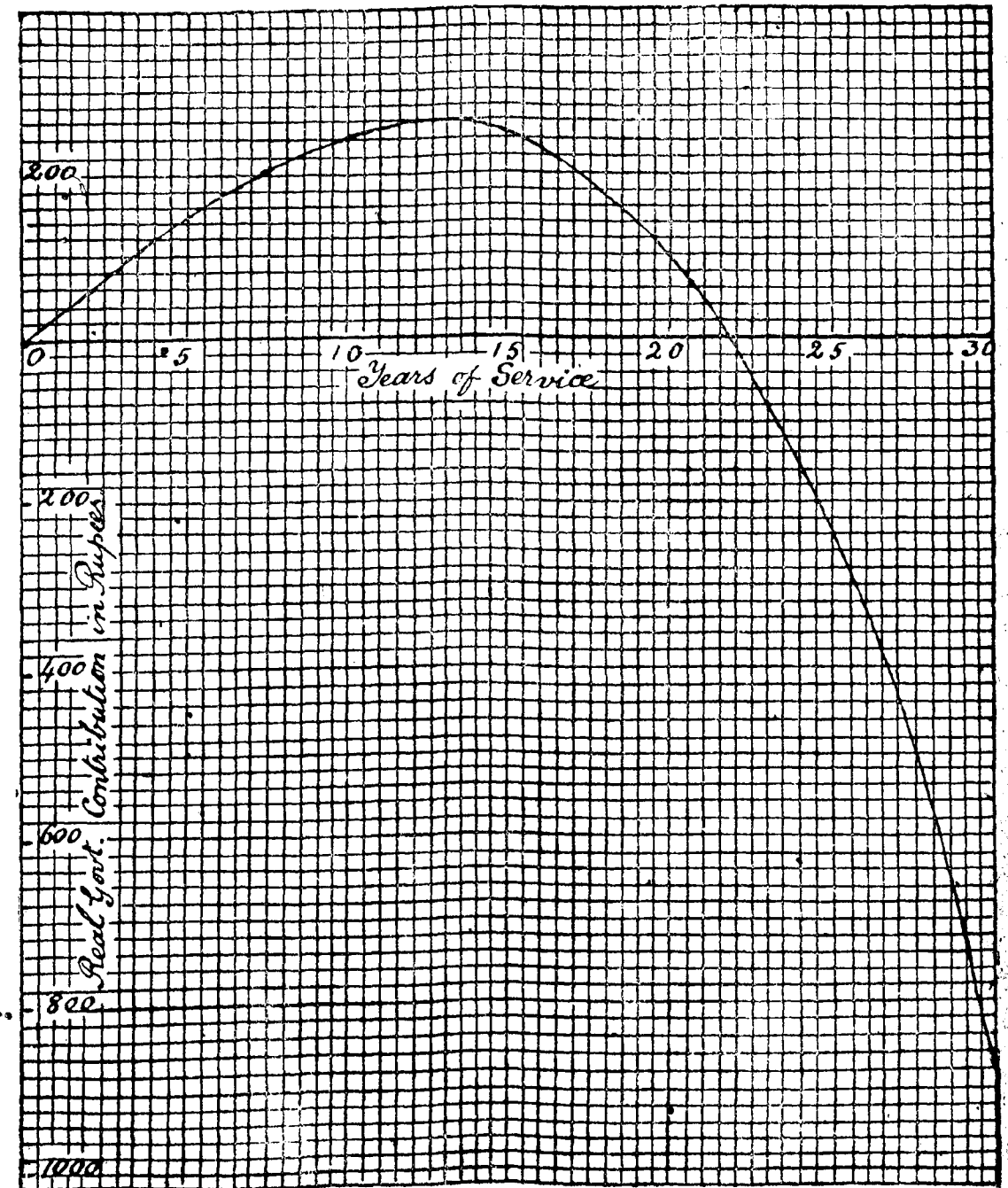


Fig. II.



PHYSICAL TRAINING—ITS IMPORTANCE AND METHOD*.

THE field of physical education is not limited to one subject but includes many subjects. As we speak and think of education, or to be more specific, general education, there at once comes to our minds such subjects as Mathematics, Geography, Psychology and the Classics.

As the realm of general education embraces numerous subjects, so too does the realm of physical education include many subjects. Its field is health. In dealing with health we find such matters as hygiene (both personal and general), dietics, sleep, bathing, etc., first-aid treatment to the injured, massage and exercise. This paper deals only with the last phase of the subject, that of exercise, or physical exercise, more commonly known as physical training.

The purpose of this paper is to set forth some of the aspects of Physical Training, a subject that vitally concerns not only India but every nation on the earth. It is a subject that is stimulating thought and action of thinking and doing people world over.

With the advance of knowledge, the vital importance of a strong and healthy physique is becoming increasingly clear. It is essential alike for the happiness, vigour and success of individuals and for the welfare, prosperity and power of nations. As an educational factor it is recognised that the development of the muscular system helps to build up the brain and improves the mental powers, while throughout life bodily fitness makes for morality and health. Moreover, the physique of the living is the fibre of posterity. To thinking men and women this fact alone must give rise to a sense of deep responsibility not only for the future of their own people but of that of the whole human race.

* A Paper read sometime back by Mr. F. Weber, of the Y. M. C. A., and Physical Director, attached to the Patna Educational Institutions, before a meeting of the Bihar and Orissa League of Educationists.

CIVILIZATION AND PHYSIQUE.

Under primitive conditions of existence it was necessary for every active member of the family and community to perform a variety of daily occupations which afforded a complete amount of exercise for the whole body, with the result that it usually became well-developed and fitted in all its parts to do any work required of it without special effort. With the advance of civilization the ordinary occupations of men gradually became less general and more specialized. This specialization of occupation was accompanied by a steadily increasing tendency to limit the quantity and variety of physical exertion incidental to life by the application of mechanical devices to its requirements.

Despite its vast benefits and innumerable advantages over primitive conditions of life, it is easy to understand how civilized existence tends to react prejudicially upon physique through the limitation and specialization of muscular effort. Under ordinary conditions, civilized men, even when engaged in labour involving physical exertion, bring only part instead of the whole body habitually into play. In consequence its development becomes to a great extent confined to certain groups of muscles which are necessary for carrying on a particular kind of work and the body is constantly subjected to a more or less uneven strain which may be termed the special strains of occupation or habit. Unless measures are taken to counteract the effect of these conditions, they must result in certain parts of the body becoming developed or over-developed at the expense of the health and fitness of the whole. The body may be affected even more adversely in the case of sedentary and other occupations which do not involve physical exertion but necessitate its being kept in fixed and usually unfavourable attitudes for long periods of time. There is no doubt that the neglect of systematic physical training specially during childhood and the important years of adolescence (up to 17 or 18) is one of the chief

causes of poor physique and ill-health, together with the numberless evils which these conditions create. The consequences of these evils are widespread in adverse influences upon the vigour and vitality of a race, for the relation between the industrial power of a nation and the physique of its people is direct and intimate. The wealth and power of nations, together with their influence upon the world depend ultimately upon the health and strength of individual citizens.

It is unfortunate enough that the conditions of civilized existence tend to re-act unfavourably upon physique, through the fact that as a rule only part of the body is habitually brought into play thereby causing the body to become unevenly developed at the expense of general health and perhaps deranged or malformed by what may be termed the special strains of habit and occupation. But the change of time brought with it a change of conditions in other respects. With primitive man the stress of work bore heaviest or practically altogether on the tough muscular system. This became tired and recuperated over-night. Man has very largely exchanged this life of muscular effort for a life of brain-work which falls heaviest on the nervous system; he has changed from a life of simplicity to one of great variety and complexity. His work has passed from that of muscular effort to that of nervous strain. If the national physique is to be preserved from prejudicial effects of these conditions, it is necessary to counteract them.

So far as the remedy lies in the development of the body it consists of systematic physical exercises of a preventive and corrective nature combined with active games and athletic sports. If the remedy of bodily development is to be thoroughly efficacious, it must be applied through the general, continuous and progressive physical training of both sexes as part of their education throughout childhood and adolescence while the body is plastic and not in latter years when opportunities for training are more difficult to find and the body is less responsive to its effects.

Accordingly, comprehensive systems of physical training have come into being and are in practice in many parts of the world. Some of these systems deal only with boys, others with boys and men, others again with both sexes during the important period of growth—from childhood (6 or 7) through adolescence up to maturity (17 or 18)—still others that carry on throughout maturity. The most inclusive systems deal with both sexes from childhood through adolescence and throughout maturity. Some of these systems are national in scope and the motive behind them is for military reasons. Japan, for instance, has brought to the world's notice some startling results in the improvement of her boyhood by inaugurating a compulsory cadet drill system, which has in it a large phase of purely scientific physical training.

Some of the nations are solving the problem of systematic and continuous physical development throughout adolescence by compulsory military training of boys in cadet corps from the ages of ten or twelve to seventeen or eighteen years and the same principle on a voluntary and partial basis is in effect in other countries. Where the cadet system is the foundation of compulsory military adult training, the physical development of the entire male population of a country can be carried out systematically throughout adolescence in the national schools and cadet corps, and finally completed in the national army. This solution, however, leaves untouched the vitally important problem of a similar scheme of physical development for girls and women. Possibly the solution to this problem is the application of the same principles through training centres for girls and women.

A system of training which is practised widely in many parts of the world is known as the Swedish system and it consists of a judicious combination of scientific, corrective and preventive exercises, active recreative games and athletic sports. This system includes both sexes and deals with the individual and the mass from childhood

onward and throughout maturity. The progression of exercises are as well worked out as are the academic courses in the world's best educational system.

Some parts of the world are working out a mass games and sports programme. It is frequently referred to as the "Play for Everybody" movement and is based upon the principle of what may be termed comparative sports, the object of which is to distribute the benefits of exercise among as large a number as possible and develop a good average degree of health and fellowship among all who take part in them as opposed to the championship system which tends to develop a high degree of skill in a few who represent the rest in competition. The sponsors of the "Play for Everybody" movement point out drawbacks in the present system of conducting sports. Their claim is based upon the fact that, besides breeding professionalism in sports, only the few are physically benefited (the actual contestants) and those who need the benefits the least are benefited at the expense of the mass (spectators) who need the benefits the most. They claim also that large numbers are induced to sit and watch a few experts perform when the numbers would much prefer themselves to play. Still another drawback is pointed out, that of over-strain, particularly in the youth, by being urged to exceed his endurance in the keenest of the competitions. The need for this precaution has recently been emphasized very strongly with the weight of medical authority as the result of wide experience over a number of years. A prominent and leading medical authority declares that the remedy lies in distributing the benefits of training more generally through co-operative games and sports where groups compete by their averages in place of individuals.

THE PROBLEM IN INDIA.

The solution of the problem of national physique rests primarily not with any individual, but with the Legislative Councils backed by educated public

opinion. In India the problem, so far as training in schools can solve it, is complicated through the fact that there is wide difference of opinion among the leaders in educational circles of some of the provinces. It is in the school age from 6 or 7 up to and through the period of adolescence until maturity 17 or 18 is reached that the years are most important for physical development. What is required here, if the physique of a nation as a whole is to be built up and fortified thoroughly against the strains of occupation, motherhood and the artificiality of modern life conditions, is a uniform system of general, continuous and progressive physical development throughout adolescence. This solution is further complicated through the fact that though the schools and colleges of the country constitute the natural and proper medium for education of all kinds they do not cater to a very large element whose constituency falls outside this realm. Consequently, the problem of general and continuous physical training during adolescence cannot be solved through educational establishments alone.

The solution of the problem of physique, so far as it concerns the youth of the nation, seems at present to lie in the commonsense and voluntary initiative of the people particularly the educated classes. The proper channels through which to give physical development with regard to the younger generation would seem to be the home, school and industries. Given a slight scientific understanding or the knowledge of a few sound technical principles the parents, school-masters, and employers of the nation could at least help very materially.

Let us now look to India and confine our attention to her people. She has no compulsory military system for her adults; no cadet drill system for her boys; no inclusive physical training system, for both sexes, children and adults. She has a crude means of giving her boyhood and young manhood some inadequate exercise in the form of marching and drill, supplemented in certain localities by some gymnastic apparatus.

It appears that India might place her emphasis upon the physique of the boys in her schools first, by giving them the advantages of systematic physical training; the results of a few years' experience, no doubt, would prove the value of such an undertaking as has been the experience with school systems and nations that have put this into practice. Health in this way is purchaseable, and by comparison the cost per pupil is insignificant. After all, the foundation of an education is a healthy body. It is for this reason that all leading educators concede a place to physical training in the general education programme.

NEED OF PHYSICAL TRAINING.

It is clear from the foregoing considerations despite their very general nature that an efficacious national system of physical training is an essential condition for the solution of more than one problem of vital importance to the welfare of every civilized people, including the inhabitants of India. To be really efficacious, the systematic training of both sexes must begin early in life, preferably at 7 or 8 years of age and be continued progressively, without interruption, throughout adolescence. It is during this period of growth and general development when the mind is receptive and the body plastic that the best results of both mental and physical training can be obtained. Apart from the benefit which the mind derives from a healthy body, the development of physique is known to be an important factor in developing the mental powers and character. Physical training in fact is an essential part of general education and it is not possible to get the best results from the development of the mind if that of the body is neglected. One leading educator writes: "The basis of education is and must be physical."

THE INSTRUCTOR.

The actual value of physical training depends to a great extent upon the instructor. The best results can only be obtained when the training is carried out under the supervision of a skilled teacher, otherwise not only will much of its benefits be lost, but in some cases actual harm

come to those who participate. Physical training, like other sciences, requires skill in practical application. As it deals with the delicate mechanism of the human body, the interference of ignorant or irresponsible agents should be entirely avoided. Such agents tend in the application of science to undesirable or disastrous results. The services of skilled instructors are absolutely essential in applying the right methods and principles involved in physical training.

MEDICAL EXAMINATION.

Before entering upon a course of physical training a medical examination is recommended, the purpose of which is to discover if any weaknesses or mal-formations are present and if so, determine the nature and extent of same. The reason for this is to fit the right corrective or preventive exercises, as the diagnosis shows, to the individual cases.

The value of all properly regulated, scientifically applied physical training lies firstly in its preventive and corrective or remedial effects upon the body and secondly in the careful avoidance of undue strain upon any of its parts or organs. Exercises which result in exhaustion will do more harm than good, and training must be carried out throughout on the principle of continuous and gradual progression.

The terms preventive and corrective are used in connection with physical training in relation to any bodily faults or weaknesses peculiar to individuals, and the general influence upon young and growing boys and girls of bad habits of carriage when walking or sitting, together with the effect of positions ordinarily assumed at the school desk during lessons, all of which may ultimately give rise to an unequal development of the body, and to more or less serious mal-formations such as flat chests, rounded or stooping shoulders, or spinal curvatures, besides adversely affecting the health and physique generally. The object of physical training is not only to develop the body propor-

tionately in all its parts, but also through special exercises to prevent or correct its faults and weaknesses, and the prejudicial effects upon it of bad habits of occupation. In many cases such exercises applied in time by competent instructors will prevent or cure physical tendencies, which, if neglected, may result in life-long weakness or deformity. For these reasons it is necessary that instructors should be informed by medical opinion as to the health and physical condition of each of their pupils, if they are to benefit fully from the training. If they are to avoid throwing undue strain upon a pupil throughout exercise, they must know exactly in what respect he is weak.

All properly qualified instructors should be taught practical knowledge of anatomy and physiology, including the functions of the various vital organs. If they are to succeed in preventing and correcting adverse physical tendencies they must know something of the structure and functions of the human organism.

PHYSICAL EDUCATION IN THE EDUCATIONAL SYSTEM.

Physical education should begin with the general instruction of a child when he first attends school. If commenced at an early age, its object, besides being broadly educational and recreative, should be preventive rather than corrective as the child will not have had time to contract bad habits of posture, which, if their physical training commences at a later age, often necessitates the application of corrective exercises to counteract their effects.

It is extremely important that the physical training of children should be very gradual and progress by easy stages. It is also important that it should be continued throughout the years of growth. If it is commenced early, due care is exercised in its continuity. Subsequent training should be comparatively easy because good foundation will have been laid for physical development and bad habits in carriage and other respects,

which are so difficult to eradicate, should not have been contracted.

From infancy to the commencement of the school age adequate exercise is ordinarily obtained by means of the natural instinctive movements of play. On arriving at the school age the physical training of the child should take the form of periodical relaxation from mental work and the cramped position assumed at the school desk. The restlessness natural to the boys should be given full scope and great freedom of movement encouraged from the start. It is unnatural for children to keep still for any length of time and they should not be made to do so longer than is necessary. The commencement of mental education in the school is a somewhat severe tax on children. Their physical training for this reason should be of a largely recreative type. This requirement in the first place is sufficiently met by the employment of organized games of a light, easy and amusing nature. The simple but definite rules of such games also teach early lessons of discipline and self-control. The exercise involved trains the muscles and acts beneficially on the heart, lungs and other organs, while the mind is interested and the brain gradually improves its control over muscular movements.

By degrees certain definite ordered movements should be introduced into the training without any attempt at first to exact great accuracy of performance. Later on attention should gradually be devoted acquiring some degree of accuracy to the performance of essential features of the exercises while plenty of free movement and elements of interest and recreation are still introduced. The recreative spirit should never be lost sight of, and in all its stages interesting and amusing features should be introduced, together with exercises which promote a healthy rivalry without inducing over-strain. The various phases of physical training from childhood to manhood may be described as follows:—

First phase—Natural voluntary movements and play.

Second phase—Games with the gradual introduction of simple ordered movements, the former predominating.

Third phase—Regular lessons consisting of definite but simple exercises and games, the former predominating.

Fourth phase—Regular lessons, consisting of definite exercises into which occasional games are introduced as a recreative feature.

There is no definite dividing line between these phases, but the work should be steadily progressive, and gradually merge into the one which follows it.

The importance of progression cannot be overestimated. It is essential that this fundamental principle of all education should be kept constantly in view and adhered to. The progression in physical training may for convenience be considered under the four following heads:—

1. Co-ordination
2. Strength
3. Speed
4. Endurance.

In the process of developing the body, progress under all these heads should be arranged more or less concurrently. They are, of course, closely inter-related, and to a great extent inter-dependent. In considering the subject however they must be dealt with separately bearing in mind that in the practical application of physical training they must not only be considered, but applied together with the object of obtaining full and perfect development.

1. Co-ordination of movement—This term implies power of the nervous system to control and regulate the action of the muscles.

2. Strength—It is a sound principle of physical training never to devote special attention to the mere development of muscular strength in any part of the body. For following such a course would be simply to strive for development of certain muscles in local parts. By systematically

subjecting the body as a whole to a progressive course of training in all its parts with a view to making it throughout as perfect an instrument as possible, the strength of the muscles will receive an adequate degree of attention, without throwing undue strain on them or the internal organs.

3. Speed—The question of speed in relation to muscular activity is closely connected with that of nerve control or co-ordination of movement. All muscular movements in a greater or less degree depend upon the action of the nerves. An essential principle is to render the muscular system sensitive and quickly responsive to the stimulus of the brain, through the nerves, with a view to developing the power of quick movement. Quickness or speed is developed by practising rapid movements after commands given by a leader and through the medium of playing games which require swift decisions followed by immediate action.

4. Endurance—The power of endurance is one of the most valuable of all physical qualities. Children are not adapted by nature for undertaking sustained physical efforts which tax their powers to any considerable extent, and progression in this branch must be slow. Thus the quality of endurance, like that of strength, is best developed by a gradual progressive training of the body as a whole. Methods which are too direct in these respects tend to defeat their aims. This fact serves to illustrate the peculiar instructional value of games as distinct from drill or gymnastic exercises.

Games undoubtedly develop the qualities of speed, strength, endurance and co-ordination of muscular movements without the danger of concentrating unduly upon the attainment of any one physical quality, or the development of a special group of muscles, apart from the comprehensive training of the body as a whole. It is for this reason that a judicious mingling of games and gymnastic exercises constitutes the best system of training.

Sports and games in the development of national physique.—It is commonly supposed that sports and games alone can and do develop satisfactorily, and to a sufficient extent, the body as a whole. It is recognized that games and sports contribute very largely to the life of individuals and masses. It is from such forms of exercises that come educational, moral, recreational and some hygienic values. Some one has said that "We all are protectors of happiness." If this be so then we must find happiness in the daily walks of life where the seeking is oft times difficult.

The imagination of the child leads him into all kinds of adventure. Play is the expression of the exercising of the imagination. Should the child be denied the privilege of play, should its visions never find expression, should its mental adventure fail to find adequate physical experiences, a great musician, a great engineer, a great statesman, or a master of some great art may be sacrificed. So we see that the natural environment of the child is a play environment. Play is Nature's method of education.

Activity is life. Directed activity means directed life.

If we recognize that in play the child is under the tutorship of Nature, we should seek to encourage rather than discourage the process. By directing the play we are training for life, yet more, we are creating life. As play creates in the child, it re-creates in the adult. Activity is essential to growth. Having attained physical growth, the adult does not demand as much physical activity as does the child, and as years increase the tendency towards physical activity decreases. There is real danger in this becoming too meagre to maintain efficiency, and we recognize more necessity for vacation periods when some of the old spirit or of joyful activity may be indulged in and recreation process be set up. This recreation is simply reawakened activity, making for greater abundance of life.

The spirit of play and the spirit of youth travel hand in hand. If we allow the spirit of play to depart from our life, we lose our grip upon life itself. Every man and woman should cultivate and vigorously maintain a play-spirit. This might be done through individual or group games into which they can throw themselves with abandon periods of time, frequent, if brief. They should thoroughly enjoy the experience. The joy on the faces of those who are playing games, the merry laughter, the jest, the shouting, place this type of activity on a pinnacle among those producing happiness.

Games bring to young and old alike the opportunity for joyful activity, kindly feeling, the experience of good-fellowship, exhilaration, and improved nervo-muscular co-ordination. Thus, recreational, moral and educational values are the recompense received for indulgence in games of a recreative nature, and for these reasons play and informal games should hold a large place in our homes and schools, particularly among the children and youth.

It is true that some element of danger from overstrain is involved in sports, but this can be greatly minimized or entirely eradicated by careful supervision.

The benefits of athletic sports, no doubt, are narrowed by the growing tendency of persons interested in them to sit and watch the performance of a few skilled or professional athletes instead of taking active part themselves. But this is not the fault of athletic sports, this fault lies in the present methods employed for promoting athletic sports. The remedy for this would be, where space and facilities permitted, mass or co-operative sports, where all or the whole mass compete by averages.

For those who have not the means to provide the equipment necessary for the playing of sports and for those who reside where the proper kind and amount of space is limited, informal games serve the same purpose with a large degree of freedom and recreation. By informal games we mean those games requiring little or no skill that any one and everyone can play without previous knowledge or acquaintance with them and are governed by a few simple or no rules. Hundreds of such games, in which no equipment is required, are available and they can be played in small areas of ground.

RECAPITULATION.

A judicious combination (proportion) of both active, informal games or athletic sports and corrective or preventive setting up (calisthenic) exercises form the ideal and only safe and sure system of effective physical training, if the ideal of physical, mental, moral, spiritual manhood and womanhood is to be approximated or consummated. It would seem for India that she ought at least to institute a systematic course of physical training for the development of her younger generation, particularly that portion of it being educated in the schools.—*The Collegian*: April 1923.

Reviews and Notices.

THE HERITAGE OF INDIA SERIES—(1) THE COINS OF INDIA, BY C. J. BROWN, pp. 120; (2) GOTAMA BUDDHA, BY K. J. SAUNDERS, pp. 111. (ASSOCIATION PRESS, CALCUTTA. 1922).

When we had occasion to review some previous volumes in this series, we pointed out that, as the Editorial Preface says, no section of the people of India can afford to neglect her ancient heritage. The Joint-Editors of the Series are Bishop Azariah of Dornakal, a cultured Indian divine, and J. N. Farquhar, a well-known scholar of Hinduism and the Indian vernacular literatures. The books already published cover a variety of subjects from the Hymns of the Rig-Veda to the Psalms of the Pandharpur Saints, from the Sankhya and the Mimamsa Schools of Philosophy to a study of our great present-day poet Tagore. All the volumes are written by experts and specialists who have to produce matter that must be scholarly and at the same time sympathetic; that is worth knowing and at the same time enjoyable. "This series of cheap books has been planned by a group of Christian men, in order that every educated Indian, whether rich or poor, may be able to find his way into the treasures of India's past."

Mr. Brown's monograph on Indian Coins has been written with a two-fold object; viz, (1) to describe the evolution of the coinage itself and (2) to show its importance as a source of history or as a commentary upon economic, social and political movements. Coins struck on foreign models and by completely foreign agencies have been excluded from the purview of study but the coins of resident foreigners have been included when they were issued with the permission and in the style of Indian rulers. From the round and rectangular punch-marked coins of the earliest period and the earliest die-struck coins of Taxila, attributed to the fourth century B.C., through the coins of the Sakas, Pahlavas, Indo-Greeks and the Kushanas, we are taken to the age of the Guptas whose earliest coins are closely similar to the Kushana models. The silver coinage of the Guptas starts with the overthrow of the Western

Satrapes; and their copper coinage is far more original in design.

After the magnificent coinage of the Guptas, the Huns introduced Sassanian types into India; and these latter were the prototypes of the degenerate base silver-pieces which formed the currency of the early Rajput States. The coinage of South India is treated at length; and here the legends are generally short and the dates are rarer still. Gold and copper were the metals used almost exclusively, the *huna*, *varaha*, *pagoda*, *kalanju kasu*, etc. The coins of the early Tamil States, of Mysore, of Vijayanagar, etc., are of particular interest to us. Chapters VIII—XI treat of Muhammadan coins. The Muhammadans set up a new standard of weight; their coins are historically most valuable. The *rupee*, ancestor of our present-day standard coin, is well explained in its origin and growth, down to its reproduction by the East India Company. The book is well studded with plates of illustrations and it covers the entire field of study in a lucid and well-proportioned way.

Mr. Saunders' Biography of Gotama Buddha is based on the canonical books of the Theravadin School or Hiriyanas. He has preferred to use largely only the *Nidānakatha* being the introduction to the *Jataka* written in Ceylon in Pali about the 5th century A.D., the *Mahāvagga* which carries the narrative of Buddha's life on from the point where the previous work leaves it; the *Majjhima Nikaya* and *Dhammanada* and *Itivuttaka*. These all portray the Buddha as a human personality unlike later works like Asvagosha's *Buddha Charita*, the *Lalita Vistara* and *Jina Charita* of Buddhadasa in which the process of deification is great or almost complete. Other sources of information used are the early Buddhist monuments in which only symbols expressing the events of the Great One's life are expressed, later portraits and statues of him which began to grow in volume from the first century A.D. and tradition. The estimate arrived at by the author is that "the Buddha's story is that of a singularly gracious and noble life and of a character which reminds us...now of Socrates, now of St. Francis of Assisi, now, though less vividly of some Hebrew Prophet; for Gotama

combined in his person a passion for moral and intellectual truth with a gracious compassion and simplicity which endear him to our hearts."

The Buddha grew up in his father's hall the son of a patriarchal age; and in his enlightenment, he was "a son of fact" and a teacher of morals; when he spoke of the *Nibbana* he was trying to describe his own experience and being a moral teacher, he strove to describe it in ethical terms (p. 28). His goal, the goal of the Thathagata, was to be reached by moral effort, a *summum bonum*, the characteristics of which are calmness, ineight and serene joy, the end of the solicitings of craving.

Mr. Saunders describes how the new religion was at heart a democratic movement and not essentially anti-Brahmin. Gotama had two orders of religious men and women, giving their whole attention to the Good Law; and a third order of lay people including kings and warriors who kept a simplified rule of life and helped the spread of the faith. Gotama was clearly subjected to temptations from within, which the Buddhist books naively attribute to Mara, the Prince of Darkness and Death. There were disputes within the Sangha. A chapter deals with the daily life of the Master and his disciples and with the corporate life of the Sangha which was a real democracy including an assassin, a barber, an acrobat and a scavenger. Devadatta, the schismatic, is also described. We are taught that it was the individual Buddha that captivated men and it was his teaching that fired enthusiasm; and the secret of his greatness lay in his charm, kindness and humility. He was a practical curer of the ills of men; and it is as a teacher of morals that he is to be finally judged.

We get in this small book varied and valuable information regarding the Buddha and the Sangha, information culled from original sources as well as from great writers like de la Vallee Poussin, Hopkins, Bigandet, Dr. and Mrs. Rhys Davids and Bhikhu Silachara.

THE DEFENCE OF INDIA, BY "ARTHUR VINCENT." (OXFORD UNIVERSITY PRESS. 1922). pp. v & 95. (INDIA OF TO-DAY SERIES, No. 2).

This small hand-book written evidently by a very well-informed person who is in actual touch

with the political questions and issues involved, aims at describing the problems of defence which confront India at the present time in plain and untechnical language, free from all bias of political and military controversy. The first chapter deals with maritime defence; and here the chief danger seems to lie not in the West but in the East; and Singapore and the Straits of Malacca seem to be the key-routes; and if they should be strongly guarded, the northern portion of the Indian Ocean wherein India lies will remain a *mare clausum* to hostile battle-fleets. But the possibility of minor operations on the coast (like those of the Emden), the transport of troops and protection of ports, dockyards, etc., require a fairly large mobile fleet with machinery for its repair and maintenance. India is not yet in a position to furnish a fleet unit manned by Indian personnel; and the present Royal Indian Marine is not a combatant service.

The Northern, North-Eastern and Burma frontiers are normally tranquil; and except for one section of nearly 1000 miles adjoining China which is of strategic importance owing to Chinese affairs, they present normally no source of anxiety. The second part of the book deals with the North-Western frontier and contains an account of its birth and growth and of the Indo-Afghan relations. A strong and allied Afghanistan may lessen largely our problem of defence (but could not eliminate it altogether). "A Bolshevik Afghanistan is still no impossibility, and its eventuation could but affect the frontier tribes gravely and speedily.....The new (Afghan) treaty is a pact of good neighbourliness; it is in no sense an alliance" (p. 33).

The middle stretch of the North-Western frontier from Bajaur to the Bolan Pass contains the great passes; it is of the utmost strategic interest, its tribesmen are fierce, fanatic and untamed. The real subjugation of these is a matter of great difficulty. The author would recommend as the best course a gradual extension of real rule up to the Durand line by peaceful penetration wherever possible and only by force as a last resort. The later chapters deal with the organisation of the frontier armies and with the Russian menace. But

in the final chapter the author shows his real purpose and he puts in a vigorous plea for maintaining the present high military budget in the name of efficiency; and also for maintaining the *White Man's Burden*, the ceasing of which is still distant and its entire shouldering by Indians is "still far off."

THE HOME OF MAN, PART V: AUSTRALASIA, BY W. C. BROWN. pp. 122. (G. G. HARRAP & CO., LONDON). INDIAN AGENTS: P. T. I. BOOK DEPOT, BANGALORE. 2s.

This volume comes out just now, and is based largely on information supplied by the Australian and New Zealand Year-Books. The first chapter deals with the structure of Australia which is the highest part of a vast continental platform, the submerged western portion being narrow, breaking suddenly to the depths of the Indian Ocean. The climate, minerals, agriculture, animals and communications and towns have a chapter each. Tasmania, New Zealand and the Pacific Islands have their map-studies described. Each chapter has got instructions, exercises and questions. Appendices deal with statistical information regarding Australia, the coral reefs, and a few examination questions for purposes of revision are given. These enhance the value of the book largely.

THE AMERICAS, BY JAMES BRUCE. (EXPLORER GEOGRAPHIES). pp. viii & 216. (LONDON: G. BELL & SONS. 1922).

This book, one of a series of Explorer Geographies, aims at interesting the student in the story of geographical discovery primarily, but gives good information about the features of the various regions of the country and about the waterways, railways, industries and towns. The first lessons are extended to enable the student to go through map-reading, climatic and orographical. The story of the explorers and adventurers connected with the New World comes next; and in this respect

the treatment is detailed, going by regions, river-basins, etc., and stage by stage. The great natural belts of prairies, mountain and plateau, and the waterways like the St. Lawrence, the Mississippi and Panama Canal are also treated well. There is the usual treatment of the nations and States. Eight good plates illustrating the Amazon Basin, the Canadian prairie, the Colorado Canyons, an Argentine Cattle-ranch, the Panama Canal, a West Indian plantation, Californian scenery and a great industry, enhance the attractiveness of the book which has as its frontispiece a good orographical map of North America and another of South America. This is a useful addition to our school collections of Geography books.

MANIMEKALAI, BY A. MADHAVIAH, WITH A FOREWORD BY DR. S. KRISHNASWAMI Aiyangar. pp. xv & 144. (MADRAS: THE INDIAN PUBLISHING HOUSE, LTD. 1923). TAMIL CLASSICS FOR ENGLISH READERS. Price Rs. 1.

This English rendering of the great Tamil classic has long been a desideratum, as the learned writer of the Foreword says, and the fact that the rendering comes from the hands of such a facile and graceful writer as the author, contributes to its value very largely. The story of Manimekalai, the daughter of Kovalan, through a left-handed connection, of her renunciation and of her becoming a Buddhist nun is of great dramatic-epic interest and sheds light on the manners, religious condition and society of the Tamils in the Sangham Age. A good prose rendering in Tamil of the original epic was given by that venerable scholar, Mahamahopadhyaya Pandit Swaminatha Iyer; and this could be said to form its English counterpart. The introduction gives an account of the other Tamil Classics, the author of this work and the social, religious and other setting of the story. Incidentally there is a description of Kaverippattinam, an ancient Chola city known to Pliny and Roman

mariners and celebrated in *Pattinappalai*. The Holy Never Failing Grail, how it came into the hands of the heroine and her wanderings and final renunciation at Vanji—these are well told in a simple and charming style which recalls to one's mind the style of Lamb's Tales from Shakespeare. We commend it to all masters and students in the High School and College alike, as a book equally productive of enjoyment and knowledge.

VISVASI alias KONDALA MINDADU: A BALLAD IN POPULAR TELUGU, BY MR. Y. JAGANNADHAM, B.A. WITH A FOREWORD BY RAO SAHEB G. V. RAMAMURTHI, B.A.

The author intends this narrative poem to be a ballad to be sung just like the popular "Bobbili Pata." But some special features of the latter and of ballads in general such as clearness, vigour, enthusiasm, action, some stirring spirit and an appeal to feelings like courage, patriotism and the like, are not somehow conspicuous in our *Visvasi*.

The basis of the story of the ballad the author finds in the present Non-Co-operation movement, a subject of intense political controversy. There is an inner meaning to almost every canto of the ballad though not to every incident depicted there. His Purnamangalam is India; the assembly is perhaps the Indian National Congress; and the Siddha who in the end turns out to be Visvasi is really Mahatma Gandhi, some of whose exploits such as his work in South Africa and his preachings to India in the present political juncture are directly or indirectly characterised. The production of Khaddar, the campaign against drink, the boycott of courts and schools and the removal of untouchability—these items of the Non-Co-operation propaganda are interestingly depicted though with the dominant note of the author's individual and personal views. The Mountain in the ballad seems to be the British Government, the attempt to remove which is in the end depicted as in the old grandmama tale of the man and the mountain,

the man first undertaking to carry away the mountain on his back and later asking the people to place the mountain on his back so that he might carry it.

To some readers the author's portraiture of the present political movement is correct and just while others see in it a deliberate caricature. To still others it is nothing short of a mock heroic and an entertaining something. The author ought not perhaps to have chosen the Non-Co-operation movement as his theme of poetic expression; for high grade poetry never seems to have subsisted on controversial politics.

Still the book has some admirable virtues. The language is sweet, easy, natural and popular. The author's descriptions of the various processes of agriculture, spinning, weaving and toddy-tapping are really master-pieces. On the whole the book offers a delightful reading and promises a glorious future for the cause of modern Telugu.

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The Educational Review.

After lying dormant for a few years, **Headmasters' Conference.** the Headmasters' Conference again put in its appearance in Madras before the public the other day. The Third Conference met about the time of the general Educational Conference under the presidency of the veteran Headmaster, Mr. R. Swaminatha Iyer, of Kumbakonam. He delivered an able and comprehensive address surveying the educational problems of the day, though we are afraid much of it had no special bearing on a *Headmasters' Conference*. The resolutions passed at the Conference dealt mainly with the proposals now before the Government for the reorganisation of education in the Madras Presidency. We endorse the recommendation that the duration of the school-course might very well be reduced. We are glad to see that the Conference is keen on Technical Education and lays down the principle that every pupil should learn some technical subject in addition to the general subjects of study. In view of the discussion in recent weeks in England of the provision of alternative courses for girls in High Schools, it is interesting to note that the Conference recommends a consideration of the subject in India and asks for the appointment of a Committee consisting mostly of educated Indian ladies for the purpose. We congratulate the organisers on the success of the Conference, but we cannot help observing, as we did on former occasions, that there is nothing in the proceedings of the Conference which could not have been brought under the auspices of the general Educational Con-

ference. We still feel that the Headmasters might concentrate their best endeavours on improving the South India Teachers' Union and its annual Conferences.

The *Leader* of Allahabad has made the **The Claims of Educationists.** astounding discovery that it is not educationists who make the best Vice-Chancellors but politicians and administrators! Mentioning such well-known Vice-Chancellors as Sir Asutosh Mookherjee, Sir Gurudas Bonnerjee, Sir Narayan Chandavarkar and others, it asks if its statement is not true. The *Leader* forgets conveniently that educationists have not had much of a chance till recently, to show their capacity as very few of them got appointed at all as Vice-Chancellors. In their anxiety to placate a politician or have one whose position was sufficiently exalted, Government went in for Lawyers and Judges—whenever Indians were thought of—who did their work as best as they could. We have no doubt that, other circumstances being equal, the educationist must be better than the non-educationist for the special purpose. In every profession, expert knowledge and training are considered very valuable qualifications, but apparently these things should not count in the higher ranks of educational work and administration, for Vice-Chancellorships, for Educational Ministerships and Educational Memberships with the Government! The Vice-Chancellorships of the new unitary, residential Universities are again different from the Vice-Chancellorships of the old days which entailed only conducting Senate and Syndicate meetings occasionally on the part of the

occupants of the office. If Sir Asutosh Mookherjee has been a great success it is not because of his not being an educationist, but because he is an eminent scholar and an educationist in temperament and spirit. It is only by accident that he is Judge of the High Court. He could if necessary be a Professor of several subjects in any University, but it is hardly possible to say it of any of our political or judicial friends who aspire to such office. It has been suggested that all this special pleading on the part of the *Leader* is in view of the forthcoming candidature of a political *protege* of the paper who is anxious to replace Sir de la Fosse and it is for the public to judge how far it may be true. It is well-known that an eminent Indian educationist, Dr. Ganganath Jha, D. Litt., Principal of the Sanskrit College, Benares, is being thought of for the place but the candidature does not apparently commend itself to the *Leader*, because his crime is that he is an educationist and he is also not a politician!

It is well-known that for the last many decades students in American Universities have often been able to pursue their education with the help of their own earnings acquired outside college hours, sometimes even by strenuous manual labour. Within the last two or three years regular organised attempts have been made in Germany to help students to pursue their education with similar facilities, Industrial organisations actually aiding the work. The recent occupation of the Ruhr has unfortunately

upset all these arrangements and thousands of students have been left helpless because of these abnormal conditions. An attempt is being made to prevent these disastrous consequences by an appeal for help from foreign countries, and we hope it will be successful.

We trust we have given enough evidence in the course of our comments from time to time that we are second to none in upholding the highest traditions of discipline and character in University life, but we cannot bring ourselves to support the recent action of the Madras University in connection with the Law Examinations. We understand that the Question papers of the Law Examinations were out and the University has resolved upon mass punishment, cancelling the examinations and compelling candidates to pay fees for a second time and appear for the October examinations. The Syndicate was responsible for this brilliant idea and when an attempt was made by some members of the Senate to redress this obvious injustice of punishing all because the authorities are too impotent to find the guilty, the attempt failed because of the opposition of the Vice-Chancellor and some of the senior members of the Senate. We were told that as soon as students had a suspicion that the papers were out, they should have rushed to the Vice-Chancellor and other authorities with all the information at their command! When people rise to the position of Vice-Chancellors and Syndics, it is obviously difficult for them to recall the tempera-

Madras University and Law Examinations.

German Students in the Ruhr.

ments of their student-days—especially when they are hardened by age or have grown weary and rich with the practice of law—but we ask these gentlemen to lay their hands on their hearts and say if they would have done so. We do not wish to give an answer but are content to leave them to a few minutes' silent introspection. This was the last act done by the expiring Senate, throttled ruthlessly by the Minister of Education and the henchmen of the *Justice* party, and we cannot help saying that it might have made a more graceful exit out of the stage. After all there seems to be an unconscious element of poetic justice in all these happenings.

The reactionaries have got the upper hand in England and the cause of education is to receive a set-back in the name of Retrenchment. Much of Mr. Fisher's good work is to be undone. There has been a reduction in the budget of the coming year of about two and a half million pounds from elementary and higher education, apart from a reduction of three quarters of a million in "local" grants. An admission fee is to be charged to the British Museum; there is to be a reduction in the amount of purchases to the Museum; a sum of £ 20,000 is to be cut from the grants for Scientific Research. The *Nation* rightly protests against this kind of foolish economy in such nation-building departments as education. "Mr. Amery can have his battle-ships and £ 11,000,000 for a new dock at Singapore," writes the *Nation*. "Sir Samuel Hoare is to have an additional million

for the Air Force. But the service upon which the future of our civilisation depends is to be cut to save the cost of a single aeroplane. The reduction looks small, but it is practically one-tenth of the whole grant. It means less for Physiology, less for Physics, less for Chemistry, and this at a time when our pre-eminence in these studies is more dependent upon these subsidies than at any previous period. The "economy stunt" never served us worse than when it attacked, with characteristic ignorance, the services upon which the very quality of our civilisation depends."

In no department of national life is freedom probably so essential for healthy growth as in Universities. Besides interference from external authorities against which we have protested from time to time, there is the danger of the freedom of the academic people being hampered even from internal authorities. A professor of independent opinion is apt to be looked upon as somewhat inconvenient, and efforts may be made to get rid of him under some pretext or other. Curiously enough there is a serious complaint to this effect even in America where it is generally assumed, the amplest conditions of free life exist. In a recent study of American education by Mr. Upton Sinclair, this is described as a serious evil. His picture of the demands made on University men for conformity to other people's opinions and generally for obedient behaviour almost amounting to servility is very discouraging. "It is a picture of men seeking to devote themselves to truth, and being

ruthlessly destroyed because their opinions do not suit the order in financial control. It is of University Presidents who become suppliants at the tables of the rich. It is of ardent scholars who are ground into subjection once their notions suggest that American capitalism was not conceived under the Providence of God. It is of great teachers who are made to toe the line as soon as they think for themselves. In Assyriology, of course, even in literature (especially the Romance languages) a measure of freedom exists and for the most part, receives beatification of the existing order." Lest any one should imagine that this picture is exaggerated, the author gives a number of concrete instances. One of the professors in a State University was dismissed because he asked inconvenient questions of an evangelist; another for criticising the mine-taxation methods of the State and another for proclaiming like the hero of the *Enemy of the People* that the water-supply of the town was unsatisfactory. We are afraid that such tendencies towards the curbing of freedom are not at all absent from India and it must be the endeavour of all lovers of University expansion and progress to war against them.

Two Conferences, one with educational experts and the other with Missionaries, have been held by the Minister of Education in Madras, to consider the question of the expansion of Elementary Education

in Southern India. Having a school for every village of five hundred inhabitants is a proper ambition and we hope it will be realised, though the Conferences do not seem to have given much useful guidance with regard to finances. The Missionaries reported that they had almost reached the end of their financial capacities and it was not possible for them to do very much further in the matter of Elementary education. The problem of the training of teachers for Elementary schools is also intimately connected with that of the expansion of Elementary schools and we are glad the matter was also considered at the Conferences. It is a practicable idea to get teachers trained at selected higher Elementary schools and we are certainly of opinion that the opening of schools should not stop for want of trained teachers. We trust that these Conferences will lead to some substantial progress of education in Southern India.

The last report of the Students' Advisory Committee shows a good record of work for one year. The report is very well-written and there are one or two paragraphs to which we should invite special attention:

Madras Advisory Committee for Students.

Two subsidiary but important functions of this Committee require some mention. The first is correspondence with or on behalf of parents and guardians here with regard to the welfare of their sons or wards abroad. Sometimes a young man is in financial difficulties, and the position has to be explained to a father,

who does not realise the necessity of regular large remittances. Sometimes a young man disappears and the Indian Students' Department is asked through this Committee to find out what has become of him. Two cases of this character during the last year may be noted. In one, a mother, whose son died some years ago in London, heard a rumour that he was really alive. Enquiry was promptly made and the fact of death clearly proved. In the other, correspondence is still pending for the recovery of a large deposit in an Edinburgh Bank for the widow of a student who died there two years ago.

The other function is the attempt to recover from students who have returned debts due either to the Distressed Indian Students' Aid Committee or to land-ladies and tradesmen. There are some half a dozen such cases on the Committee's books just now. It is unpleasant but necessary work. The most this Committee can do is to remind the delinquent that the reputation of Indian students abroad

depends upon him. It may be said that very rarely are there cases of wilful evasion. Much more commonly the cause of failure to pay up has been inability to settle a willingly acknowledged obligation as promptly as had been hoped. It is cheering to note from the Report of the Indian Students' Department for the year 1921-22, that Indian students in Great Britain seem generally to have a good reputation in this as in all other particulars. It is recorded for instance that for 15 years one Manchester Bank has been in the habit of advancing money to them on the strength of their promises to repay and has never found its confidence misplaced.

The honour of the Indian people depends on the way in which Indian students conduct themselves in England and no effort should be spared to make conditions absolutely secure for the highest conduct on their behalf.

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THE THIRD HEADMASTERS' CONFERENCE.

RESOLUTIONS.

The following is a summary of the proceedings of the Conference of Headmasters that met under the presidency of Mr. R. Swaminatha Aiyar on the 10th May 1923 and the two succeeding days.

After the Presidential Address was over, the Conference began to discuss the Report of the Secondary Education Committee published by Government in February last.

The first subject that engaged the attention of the Conference was *Primary Education*. It was felt that it was a pity that the Government Committee did not make any recommendations to Government under this head. The Conference resolved that the general recommendations in regard to Primary Education that the Sub-Committee made and are printed as Appendix I to the Report should be adopted subject to the modification that the duration of the course should be *four* instead of *five* years as recommended by the Sub-Committee, and that English should not be taught in any of the classes in the Primary Department. The question of Secondary and Intermediate Education was discussed at considerable length and evoked sharp differences of opinion; while a few held that the intermediate course of two years should be retained as such under the control of the University and that the Secondary course should extend over six years as is at present the case, a large majority opined that the School course was too long and that it should be curtailed and that one year of the Intermediate course should be added to the School course, the other year of the same course being tacked on to the University. The effect of this proposal would be to diminish the length of the entire School course, primary and secondary, by 2 years, to abolish the Intermediate course and to make the ordinary B. A. course one of three years' duration. At the same time the Conference was of opinion that the standard of the present Secondary and Intermediate courses need not be lowered. If Vernacular should be made the medium of instruction in non-language subjects as it ought to be, all that is done now in the six years of the Secondary School course and two years of the Intermediate course could be covered in 7 years, and that was all that was required.

The resolutions finally adopted were these:

The Secondary School course (excluding the Primary) should extend over seven years consisting

of (a) the Lower Secondary course of 3 years, (b) the Secondary course of 2 years and (c) the Higher Secondary course of 2 years.

II. The aim as regards courses (a) and (b) should be a good general education including manual training, while the aim of course (c) should be (i) to give education leading towards a University degree for those who wish to go in for such a degree; (ii) to provide the training necessary for entering the institutions for higher technological and technical training, and (iii) to give the training necessary for proceeding direct to various practical occupations.

The Conference then proceeded to discuss the recommendations made by the Government Committee as regards the subjects to be studied and the course to be covered in each, the public examinations to be held, etc. The following are the most important modifications suggested:—

1. *The Lower Secondary Stage* (corresponding to the middle stage as defined by the Government Committee)—(1) The list of optional subjects recommended by the Government Committee should be removed. (2) An introduction to Agriculture should be made an alternative to Elementary Science in the list of compulsory subjects. (3) While Vernacular Composition should be made compulsory for all pupils, they should be given the option of studying either the vernacular or a classical language.

2. *The Secondary Course* (corresponding to the High School stage as defined by the Government Committee)—(1) As in the Lower Secondary stage Vernacular Composition should be compulsory for all, but pupils should be given the option of studying either the vernacular or a classical language. (2) English, Elementary Mathematics, Elementary Science, Advanced Indian History, and Outlines of English History should be studied by all pupils, there being no specialisation in any of these subjects. (The effect of this recommendation would be to delete all the subjects included under "A—Non-Technical" on page 6 of Report.

3. Every pupil should learn *any one* of the subjects in the following:—

(B) Technical.

(i) Fine Arts (Music, Painting or some other subject);

(ii) Drawing, either Freehand and Model or Geometrical and Machine;

(iii) A course in Agriculture;

(iv) A course in one of the following groups of Industries:—Carpentry and Cabinet making;

Smithy; Mechanic shop and Fitter's work; Patternmaking and Foundry work; Printing and Book-binding; Weaving.

(v) A course in one of the following groups of Commerical subjects; Shorthand and Typewriting; Book-keeping and Commercial Arithmetic; Precise and Business Correspondence.

(vi) A special course adapted for girls (Needlework and Embroidery and Dress-making; Cooking; Theory and Practice of Indian Music).

4. The medium of instruction should be the Vernacular save in exceptional cases in which English may be used with the sanction of the controlling authority; a transition period of three years being allowed for making the Vernacular mostly compulsory as the medium of examination.

5. There should be a public examination at the end of the Secondary stage (corresponding to the present S.S.L.C. Public Examination), and it may be taken piece-meal by candidates.

6. For the conduct of this examination there should be as many Boards as there are Vernaculars in the Presidency. Each of these Boards should consist of not more than 15 members with the Director of Public Instruction as the President and contain a majority of those engaged in Secondary Education and some representatives of the Inspectorial staff.

7. Credit should be given to school-marks, but it is enough that the marks given to the pupils in the last year of the Secondary course be entered in the mark-books of pupils.

8. As regards moderation, the marks given to a candidate at school should be reduced to the standard of the school average at the public examination and be given the same value as the marks obtained at the public examination.

III. *Higher Secondary Course* (corresponding to the Intermediate course as defined on page 11 of Report).

1. The recommendations made by the Sub-Committee on page 21 of the Report should be adopted.

2. There should be a single Board for prescribing the curricula and the conduct of the public examination. This should consist of the representatives of the University, the Government and other interests involved, and one-third of the seats should be reserved for teachers in Secondary schools.

3. The medium of instruction and examination should be English. The Conference resolved that

in view of the fact that the new University Act would soon be brought into force and that the bodies constituted under it would take on hand the consideration of the University courses of study, etc., it need not go into the recommendations relating to the University made by the Government Committee. It resolved to recommend, however, that the B.A. Pass course should extend over a period of three years at the completion of the Higher Secondary course.

The following resolutions were next adopted:

1. That in view of the great need for continuation classes, in part technical and in part general in scope, Night schools and Continuation schools be established in fairly large numbers.

2. That Trade schools be established to take in pupils that have completed primary education, the vernacular being ordinarily the medium of instruction.

3. That technical institutions be established to impart training in technical subjects to pupils who have completed respectively the Lower Secondary and Secondary courses and the vernacular be ordinarily the medium of instruction.

4. That such applicants for courses referred to in Resolutions 2 and 3 above as cannot produce a regular certificate of general educational qualifications be admitted on the basis of an entrance test conducted by the institutions concerned.

Teachers' Training Schools.

5. That, in view of the revised course and the curriculum for Secondary education, the period of training for Secondary grade teachers be one year, that the medium of instruction for secondary students under training be English or the vernacular, and that as far as possible, men of qualifications not lower than the Higher Secondary grade be placed in charge of the second and third forms, and that in the case of Higher Secondary grade teachers who have taken *Education* as an optional subject, the period of training be reduced to six months.

6. That in view of the social customs and sentiments current in certain Indian communities, the possibilities of providing for Indian girls an alternative Secondary school course of studies, fairly complete in itself and extending possibly over eight or nine years, be considered, and that a Special Committee consisting mostly of educated Indian ladies be appointed to work out a scheme.

7. That rules in regard to the medium of instruction and examination be the same as for boys.

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8. That the staff of an institution for girls consist of women teachers as far as possible.

9. That women be adequately represented on all educational bodies dealing with matters involving girls' education.

10. That in the opinion of the Conference there is a great need for separate institutions to train women in Medicine and in Teaching.

Depressed Classes.

11. That fee remissions even to the fullest extent be made in the Lower Secondary and Secondary stages, the Government making good the loss to which private managements may be put on account of this concession.

12. That boarding facilities be provided for members of the depressed classes by private agencies aided by Government, as far as funds permit.

Teaching Staff.

13. That a Committee be appointed to draw up a set of rules pertaining to the tenure of office, salaries, leave, etc., and that adequate representation be given to teachers on such a Committee.

14. That special facilities be afforded to teachers for taking special courses of study or special training with reference to their teaching work by way of post-graduate research or foreign travelling fellowships.

Finance.

15. That the Grant-in-Aid system be revised and improved so as to admit of more liberal aid being given to private institutions and larger subsidies to schools under Local and Municipal Boards, and that to this end a Committee be appointed, consisting partly of Government officials, to investigate the question and formulate proposals regarding (a) the source for fresh funds and (b) the directions for further grants-in-aid.

In regard to the question of Provident Fund for teachers it was the general opinion of the Conference that the rate of interest allowed on contributions was too low, and that in certain other respects also the scheme, as it obtains in aided institutions as well as in schools under public management, requires material alterations. A Committee consisting of Messrs. S. A. Panobhagasa Aiyar, A. Sundaralingam Aiyar, K. S. Krishnamurthi Aiyar, and A. Thiruvengadatha Aiyangar, was appointed to go into the question and submit a report at an early date.

Other Resolutions.

Certain other resolutions not bearing on the Report were next adopted and they are the following:—

This Conference places on record its sense of deep sorrow at the premature demise of Mr. A. Santanarama Aiyangar, one of the Vice-Presidents of the Association, who for over a quarter of a century laboured hard in the field of Secondary Education.

This Conference associates itself with the remarks of the President of the Educational Re-Organisation Committee given in paragraphs 10 and 11, page 25 of the Report, and is emphatically of opinion that the success of the reforms in Secondary Education suggested above entirely depends upon a bold and generous policy being adopted by the Government in meeting the claims of private (Mission and Non-Mission), public and other educational efforts from public funds.

This Conference recommends that the Lower Secondary Education Certificate be regarded as the minimum general educational qualification for admission to Elementary Higher Grade Training Schools, and in view of this fact the course in teaching for these teachers be one year, and the medium of instruction be the vernacular.

That as far as possible men who have passed at least the Higher Secondary Grade Examination with Education as one of the optionals be placed in charge of the second and third forms.

That the Government be requested to restore to the Board and Municipal School teachers the right of appeal to the Government against punishments imposed by the Local Bodies.

That teachers in schools under the control of Local Bodies be also included in the teacher-electorate for electing members to the newly constituted District Secondary Education Boards and that the number of seats now offered to teachers in the District Secondary Education Boards be at least double the number already sanctioned.

That in order that the Government Educational Department may utilise the experience gained by teachers in Non-Government institutions, they be pleased to recruit from time to time to posts in the Provincial and in the Indian Educational Service teachers from such schools.

That following the practice in this regard obtaining in the Universities of Calcutta and Allahabad, and agreeably also to the recommenda-

tion under this head made by the Calcutta University Commission, the Madras University permit *bona fide* trained teachers of more than three years' experience to appear for the University Arts examinations in which a practical course in the Laboratory is not required as non-collegiate students without producing certificates of attendance at colleges.

That Government do increase the number of scholarships tenable in Secondary schools by 25 per cent.

This Conference has listened with great interest to the address on "The Organisation of the Junior Red Cross Society—Its Aims and Objects," and resolves that the Secretary of the Headmasters' Association be requested to correspond with Mr. Kershaw and others associated with the said National Red Cross Society, Madras, and communicate to the members of the Association any practicable suggestions that he may receive in that connection.

The annual subscription to the Association be raised to *Three Rupees*.

Active steps be taken by members to increase the strength of the Association by canvassing for and enlisting new members.

That a Committee consisting of Messrs. R. Swaminatha Aivar, P. A. Subramania Aiyar, S. K. Daivasikamani, M. C. Rajagopal Naidu and A. Tiruvengadatha Aiyangar be appointed to interview at an early date the Hon. the Minister of Education, and press upon his attention the resolutions adopted at the Conference.

The following are to be the office-bearers of the Headmasters' Association for the coming year.

President.—Mr. S. K. Daivasikamani.

Vice-Presidents.—Messrs. I. Gouripathi Rao, M. C. Rajagopal Naidu, A. Thiruvengadatha Aiyangar and L. T. Harris.

Secretary.—Mr. P. A. Subramania Aiyar.

Executive Committee.—Messrs. I. Kanakachalam, B. Ramachandra Rao, R. Srinivasa Aiyangar, Rig Vedam Kuppusami Aiyangar, Jesudasan, R. A. Manuel, S. A. Israel, S. A. Panchapagesa Aiyar, C. S. Rangaswami Aiyangar and A. Sundaralingam Aiyar.

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ANCIENT HINDU GEOGRAPHY*

(Continued from p. 330).

JAVA-DWIP (Further Notes).

DR. Radhakumud Mukerjee in his "History of Indian Shipping and Maritime Activity from the Earliest Times," says (page 56): "Ptolemy adopted the Sanskrit name of the Island of Java and mentioned its Greek equivalent, while modern writers like Humboldt call it the Barley Island." The observations of Dr. Gauranganath Banerji on this point are so very conclusive that they are again worth repeating: "From Java which was the particular centre of the Archipelago, the culture and the religion of the Hindus spread to the neighbouring islands, to Sumatra, South Borneo and other parts of the Archi-

pelago....The fact remains, however, that the Ancient Indians turned especial attention to Java which was known to them as Javadwip or Vulgo, 'The Island of Barley.' This name was given by the first Hindus to both Sumatra and Java on account of this cereal, which according to the tradition, they found there growing wild."

SUVERNABHUMI.

The name Suvernabhumi means the land of gold or 'the golden land.' This land has been the subject of greatest controversy among commentators who have always shown various divergent views. Alberuni has remarked that the Hindus call the Islands of the Malay Archipelago by the general name of Savarna Island. The French antiquarian, Reinaud, has interpreted it to mean the Islands of Java and Sumatra. Dr. Radhakumud Mukerjee in his book on "Indian Shipping and

* A Lecture delivered at the Behar Young Men's Institute, Bankipur.

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Maritime Activity" (p. 76) thinks that this Suvarnabhumi is, "probably either Burma or the Golden Chersonese or the whole Farther India Coast. Mrs. Rhys Davids also endorses this last view in the "Economic Journal and J. R. A. S.," for 1901. But it may be remarked that Suvarnabhumi may perhaps have been the same as Hirumaya Varsha, (i.e. the land of gold) which has been already identified before with the North-Western portion of Brazil and a part of Columbia and Peru—a region which even now is famous for the exploration of gold and attracts people from all parts of the globe. Or it may mean Lanka or Ceylon which has been described in the *Ramayana* as a country of gold or as the *Kanak-Kot*. But whatever may be the truth, it can very well be questioned as to why Java or Burma, as has been pointed out by Alberuni and Dr. Radhakumud Mukerjee should have been called *Suvarnabhumi*. What does the word Suvarna or gold signify?

THE LAND OF YAVANAS.

The land of Yavanas is another mysterious land, about which there is also a good many differences of opinion. It is true however that the Ancient Hindus were accustomed to calling every foreign race that invaded India by the name Yavana. Hence the confusion. Dr. Weber in his "Indian Literature," p. 220, says, that the name Yavana in old Sanskrit poetry is invariably used to denote the Greeks and that it is derived from the Greek word *laones*, the name of the Greeks in their own language. In Tamil also, the name is applied especially to the Greeks and the Romans. Mr. Pillay, who is an authority in Tamil Literature, says, "The poet Nakarrir addresses the Pandyan Prince Nan Maran in the following words:—'O Mara, whose sword is

ever victorious, spend thou thy days in peace and joy, drinking daily out of golden cups, presented by thy handmaids, the cool and fragrant wine brought by the Yavanas in their good ships."

ROMAK AND ROMIKAPATAN.

Much confusion has been made between Romak and Romikapatan. One view is that both are the same and can be identified with the city of Rome. Another view is that they two are different and a third view is that the two are the same and can be identified with Ethiopia or Africa on the ground that their literal meaning is the land of the hairy people. However the materials before us are so scanty that it is not possible for us at the present state of our knowledge to form any very conclusive opinion on this. But it may be pointed out that in the *Mahabharat* we find the Romaka coming to the Emperor Yudhis-thira with precious presents on the occasion of the Rajasuya Yajna at Indraprastha or Delhi. Dr. Radhakumud Mukerjee (p. 130) says: "Romaka is often mentioned as a Mahapuri Pattana or Visaya, i.e., a great city, state or dominion."

THE LAND OF THE PALHAVAS.

The land of the Palhavas seems to be a part of Persia as the Pahlavi language is still spoken in that area. This is also the view of Dr. Vincent A. Smith. The subject has been still a matter of controversy among commentators. Several attempts have been made very recently to smash the theory of Dr. Smith; but none have found favour as yet.

(To be continued).

DHYAN CHANDRA.

CONCEPT OF 'INFINITY.'

A CLASS may be defined as the aggregate or collection of entities or objects which possess a certain property; for example, the class of mathematicians, the class of positive integers. Mathematically, we may divide all classes into two groups, the Finite and the Infinite classes. If the number of entities in a class can be ascertained by counting, the class is said to be finite; but if the number cannot be exhausted by counting, we say the class is infinite, e.g., the class of rational numbers.

Next, let us consider $\phi(n)$ any function of n and let the values of the variable n for which the function is defined form an infinite class. Suppose n assumes successively the values 1, 2, 3,..... The word 'successively' suggests succession in time and there is no harm in our assuming the variation of n to occur in successive seconds. Then it is easily seen that however large a number we may think of, a time will come when n is larger than this number. This unending growth of n is expressed in the technical language of Mathematics as ' n tending to infinity' or symbolically ' $n \rightarrow \infty$ '. But this infinity is different from the infinity of the infinite class mentioned in the first paragraph. The infinity there is a number, but the symbol ∞ for infinity in $n \rightarrow \infty$ is no number and by itself means nothing. It acquires a meaning only under a convention in such phrases as 'tends to infinity,' 'a line at infinity.'

It is popularly stated that any number divided by zero is infinity. This is certainly mystifying and more certainly erroneous, for it implies vaguely that the infinity denoted by the traditional symbol ∞ is a number. If we recollect, for a moment, the definition of

division, namely, that to divide a number a by a number b is to determine a number x such that $bx = a$, we note at once that no number exists such that the product of that number and zero is equal to a finite number a and if a is zero, any number x will satisfy the relation. But, if we suppose b to be not absolute zero but a variable which is positive and continually diminishes becoming less than any quantity, however small, but not absolute zero, the fraction increases indefinitely in numerical value, and in fact becomes greater than any great number we can think of. This

we express by saying that $\frac{a}{b}$ tends to infinity

$\left(\frac{a}{b} \rightarrow \infty\right)$ as b approaches zero ($b \rightarrow 0$).

Thus if we write $\frac{a}{0} = \infty$, it does not mean that a divided by zero gives the number 'infinity' but merely signifies that as the variable approaches zero, the numerical value of the corresponding variable $\frac{a}{b}$ increases indefinitely.

Wherever the symbol ∞ is used, we have to give it an interpretation similar to the one we have given above. For example, $\tan 90^\circ = \infty$ means that the tangent of an angle which continually approaches 90° increases and becomes greater than any number we can think of. In geometry, again, we are familiar with the language 'two parallel straight lines meet at infinity,' 'a circle with infinite radius is a straight line,' 'a line at infinity,' etc. In all such instances, the phrase 'at infinity' means 'more distant from us than any distant object we may think of, for example, a distant star, say Canopus in Argo the rays of light from which take many millions of years to reach us.'

Thus the symbol ∞ merely connotes the idea of vague immeasurable greatness or endlessness of an operation or a process and may be applied indifferently to number, space, or time. It is the goal but an ever-receding one, which is gradually approached and even supposed to be ultimately reached by a continuously growing mathematical entity. As the symbol ∞ does not denote any number, its mathematical importance is rather slight and we may, indeed, dispense with it altogether, should we deem it necessary.

But the infinity spoken of in the first paragraph is a number which satisfies the characteristic properties of number just in the same way as integers. The German Cantor was the first to invent such infinite numbers and so they are known as 'the Cantorian Infinities or Transfinites.' The subject is abstruse and not yet placed on a very firm footing. The understanding of it, is, however, opening the way to new realms not only of mathematics but also of philosophy.

We have already defined a class and shall now see how two classes can be said to have the same number. If the elements of the classes are discrete quantities like the integers, then we can count the number in each and find whether the two classes have the same number. If the elements, however, be not countable like the points in a finite straight line, we can adopt quite a different method to compare their numbers, involving no counting at all. To illustrate by an example, supposing there should be no polygamy or polyandry anywhere in the world, no Census-staff need tell us that the number of husbands living at any moment is exactly the same as the number of wives. This relation of one husband for the wife and *vice versa* is known as one-one correspondence.

So if every element of one class can be coupled with a certain element of the other class and *vice versa* so that the two classes can be placed into a one-one reciprocal correspondence, then we say that the number of elements in each class is the same. The classes may then be said to be equivalent or similar. Thus 'number' may be defined as the class or group of all those classes that are similar to one another. This extended definition of number includes Cantorian transfinite numbers also and the principle of one-to-one correspondence enables one to compare classes having an infinite number of elements. The points in two straight lines, the odd and the even number series, the places in two maps of the same country of different sizes are examples of pairs of classes having an infinite number of elements.

The examples given above seem to imply an absurdity that part may be equal to the whole in the sense of having the same number of elements, but it should be remembered that the axiom that 'the part is less than the whole' applies only to a finite number of elements and not to infinite collections. In fact it is the characteristic property of some of (though not all) the infinite classes that a part of such class can be put in one-to-one correspondence with the whole. It is called the reflexive property. Any class having this reflexive property is an infinite class though the converse is perhaps doubtful.

A class which is not infinite, i.e., which does not possess the reflexive property is said to be finite and a characteristic property of this class is therefore $n \neq n + 1$. Thus in a finite class, no two numbers can have the same successor and every number n has a successor $n + 1$ and this property of the finite class is called the inductive property.

The class of real numbers and the points on a line do not have the inductive property, but the class of natural numbers possesses this inductive property though all are infinite classes.

The series such as that of natural numbers give rise to a progression and all progressions are similar relations, so that all of them are denoted by the same transfinite number. This number, Cantor says, is the smallest in the scale of infinite cardinal numbers and he denotes it by the Hebrew letter $\aleph$. (Aleph with the suffix 0 while others prefer the symbol α_0 .)

It is interesting to note a few of the properties of α_0 . For instance, $\alpha_0 + 1 = \alpha_0$, $\alpha_0 + 2 = \alpha_0$, etc., and generally $\alpha_0 + n = \alpha_0$ where n is an inductive number ... (1)

Again, by writing out all the ratios in their lowest terms, in the form of a double series as below

$\frac{1}{1}$	$\frac{1}{2}$	$\frac{1}{3}$	$\frac{1}{4}$	$\frac{1}{5}$	
$\frac{2}{1}$	$\frac{2}{2}$	$\frac{2}{3}$	$\frac{2}{4}$	$\frac{2}{5}$	
$\frac{3}{1}$	$\frac{3}{2}$	$\frac{3}{3}$	$\frac{3}{4}$	$\frac{3}{5}$	
$\frac{4}{1}$	$\frac{4}{2}$	$\frac{4}{3}$	$\frac{4}{4}$	$\frac{4}{5}$	
$\frac{5}{1}$					

we see that the number of such ratios is α_0^2 but considering them diagonally we can arrange them as a progression of groups of fractions such that the sum of the numerator and denominator in any group is the same and there is no repetition of any ratio and the number of terms in the progression is α_0 . Thus we get $\alpha_0^2 = \alpha_0$, whence, assuming $\alpha_0^n = \alpha_0$ it follows $\alpha_0^{n+1} = \alpha_0^n \cdot \alpha_0 = \alpha_0^2 = \alpha_0$ and therefore by induction $\alpha_0^n \cdot \alpha_0 = \alpha_0$... (2)

It is found that all infinite collections have not got α_0 terms, for example, the number of real numbers is greater than α_0 and proved to be 2^{α_0} . This number 2^{α_0} is, according to Cantor, also the number of points in space or of instants in time and in fact is the number of terms in any series which has Cantorian continuity. Cantor calls it the number of the continuum.

The operations of subtraction and division upon transfinite numbers do not give any definite results. For instance, if we subtract α_0 from itself, we may get any result from 0 to α_0 .

From the numbers 1, 2, 3, 4, 5, subtract or take away all the even numbers 2, 4, 6, 8, what remains is 1, 3, 5, i.e., α_0 terms; while if we subtract the α_0 terms 4, 5, 6, we get 3.

Taking the case of division, it can be easily seen that α_0 is not altered by multiplying it by any inductive number such as 7 or 10 or by α_0 (for $\alpha_0^2 = \alpha_0$) and hence α_0 divided by α_0 may yield any value from 1 up to α_0 .

On account of this ambiguity in the inverse operations of subtraction and division, there cannot be any analogue to fractions and negative numbers among infinite numbers. Thus addition, multiplication and involution are the only processes that can be legitimately extended to infinite numbers.

It will now be fairly clear that the symbols ∞ and α_0 or $\aleph$ (Hebrew Aleph) stand for two totally different notions differing widely in their mathematical character. The latter is a symbol of number having evidently no place in elementary mathematics, it is a comparatively recent invention; whereas, the other symbol ∞ is no number and has no precise significance except when it is used to characterise the behaviour of a function in such phrases as tending to infinity; or to describe the position in space of certain specific points, lines, and planes in geometry.

REPORT OF THE EDUCATIONAL REORGANIZATION COMMITTEE.

A REVIEW.

IN pursuance of a resolution of the Madras Legislative Council passed at its session on 1st September 1921, the Government was pleased to appoint on 25th September a Committee of Officials and Non-officials to consider the extent and desirability of the adoption of the recommendations of the Calcutta University Commission to the conditions of Secondary Education, in particular, to this Presidency. Dewan Bahadur R. Venkataratnam Naidu Garu, M.A., L.T., M.L.C., F.M.V., was chosen for the presidency of the Committee. *Re* the selection of the President, no better choice could be made. Unfortunately, it has now become a recognised though not a reputable practice for every Tom, Dick, and Harry to pose himself as an authority on educational topics, and pretend to speak on this subject with an air of seriousness and emphasis. The outcome of such a state of affairs is as might have been already anticipated. We are treated to a string of crochety considerations and crystallised clap-traps, all inextricably woven together into a web of lies, truths, half-truths and gross mis-statements. Whenever a humble yet responsible teacher, conscious of the need for a desirable change in our educational conditions, tries to express his own well-founded views on the matter, he is curtly cried down "to mind his own business" by our so-called big wigs. Mr. Venkataratnam Naidu stands apart from such gilded gentlemen. He is, to be sure, no educational dilettante, much less an educational crank, making merry for his self-edification with serious educational prob-

lems. He is—it is no flattery to say—every inch a very worthy educationist. He is "the man on the spot," using the expression in its best sense, rather in its proper sense, for unfortunately politics has profaned it, with intimate and practical experience gained through a long and worthy connection with one of the greatest educational institutions in our province—I mean the Pittapur Maharaja's College of Cocanada. Small wonder that under such happy auspices the labours of the Committee, very much unlike those of the proverbial mountain, would result in weighty considerations, deserving our close attention and amply repaying a patient perusal.

Regarding Primary Education, it appears there was considerable discussion whether it fell within the purview of the Committee's terms of reference. Finally, the majority of the Committee decided that it was outside their scope. However, the 'wishes' of certain members of the Committee on this subject were incorporated in the Report. But what I am, in the main, concerned with is the treatment accorded to Secondary Education by the Committee. Secondary Education is divided by the Committee into two stages, *viz.* (1) Middle School, corresponding to the present three lower forms, and (2) High School, to the three other higher forms. The Committee has rightly come to recognise that the aim of education at the former stage should be to give a good general education, not excluding manual training and moral instruction. So, in addition to the general courses of Study, which are almost those now obtaining, the Committee suggests the inclusion of technical subjects, *viz.*, Agriculture, Indian System of Banking and Accountancy, etc., which is a decidedly desirable change for the

better. The Committee also recommends that at this early stage vernacular should be the medium of instruction except under "special cases," when English may be so used with the "express permission of the controlling authority." Even now vernacular is the medium of instruction at this stage.

Coming now to the High School stage, the Committee avers that the aim of education here should be "to extend further the pupils' general and practical education." The courses of study are to consist of five general compulsory subjects, *viz.*, English, Elementary Mathematics, Vernacular, History and Geography (Advanced History of India, Outlines of English History, and General Geography of the World) and Elementary Science and Physiology. In addition to these compulsory subjects, pupils are to choose one from non-technical subjects, *viz.*, one language, either advanced English or any other, Algebra and Geometry; Physics; Chemistry; Civics and Economics, etc., and another from technical subjects, *viz.*, Fine Arts, Agriculture, Banking and Accountancy, etc. The courses in addition to these seven subjects—five general and two special—are also to include Moral and Physical Training, though the latter two are not encumbered with public examination. On the whole I feel certain that the suggested courses of study are well-arranged, quite in consonance with the cultural and practical aims of education. In particular, the Committee has, with good reason, made History and Geography compulsory subjects with public examination in them. Under the existing S.S.L.C. Scheme these two subjects are relegated to what is technically known as the 'B' Group in which there is no public examination. The 'B' Group subjects are a veritable collection of all

curios, corresponding not very much unlike, to the host of Transferred Subjects under the Montford Scheme, with school autonomy. A baffling array of subjects, like the 'Miscellaneous exercise in Arithmetic, are compressed into this 'B' Group 'basket.' They include Physiology, Hygiene, Physiography, Botany, Physics, Chemistry, Indian History, Imperial History and Imperial Geography. I do not remember if I exhausted the list. These may be more fittingly termed the 'Orphaned' subjects, for they are not 'fathered' with a public examination. Inspectors of Schools, now elongated as District Educational Officers are instructed to take 'special' care regarding the treatment meted out to these 'poor' subjects in schools. It is very much like enacting that all people should sleep at night with doors wide open, and at the same time applying the stringent Penal Code against all house-breakers. I am not to be taken as saying, much less suggesting, that this privilege conceded to these subjects—the freedom from public examination,—is abused in all or most schools. I am of the emphatic conviction—I am sure my numerous colleagues will bear me out in this—that even the most painstaking and conscientious teacher cannot do full justice to these 'B' Group subjects under the conditions now obtaining. This is the consensus of opinion of all the teachers. It is no mere bluff; but is based on the hard realities of school-life. I am, therefore, glad that the Committee has rightly come to recognise that the present 'B' Group subjects had not been a success, and that they should be abolished. Indeed, a fitting funeral, though much belated! History, specially History of India, and Geography are subjects of such prime importance that it will be a grievous disappointment if they are not to be

seriously studied by every one of the High School pupils, undergoing a public examination in them, as is aptly the case under the Matriculation. Mr. R. G. Grieve in his Minute of Dissent states that the proposed compulsory subjects, apart from Moral Instruction and Training, will be a minimum of ten, supposing as he does that History and Geography are really two subjects. I beg pardon on his behalf. By ten he means,—rather ought to mean eight. So, he concludes, quite oblivious of the Committee's other suggestions, that they over-burden the pupil. If Mr. Grieve takes into consideration the present courses of study with their top-sided specialisation, apart from the misleading number of subjects, I am sure that a little reflection on his part ought to convince him that the suggested courses are less burdensome, at any rate, or not more burdensome, than the present advanced courses. *A fortiori*, is it so specially in view of the Committee's findings that (1) outlines only are to be studied, (2) Vernacular may be used as the medium of instruction, (3) 35% be the minimum for a pass, and (4) the aim of Secondary Education at this stage should be to impart a wide general education, thereby doing away with the present pernicious too early specialisation which ought properly to belong to the province of University education.

Resolution 11 of the Committee aptly recommends the appointment of a Committee "consisting mostly of secondary school-teachers" to draw up syllabuses. The Committee cannot, in my opinion, be sufficiently thanked for making this much-needed suggestion. Teachers with practical knowledge of the requirements and limitations of the class-room are undoubtedly better fitted to

draw up syllabuses than those sitting on the Olympian heights, who make no secret of their pretensions to omniscience. As a case in point, the present courses of studies prescribed for 'B' and 'C' Groups History are anything but satisfactory. The syllabus of 'B' Group History is so vast and ambitious that it can, I think, only be justified on the ground of making our pupils worthy citizens of the far-flung Empire on which "the sun never sets." Regarding History C Group, in addition to a special period in English History prescribed annually, a special period in Indian History also is to be covered. For 1920-21, the special period in Indian History was from Wellesley to Minto, for the next year, from Canning to the Delhi Durbar, and for the last year it was from Jehangir to Aurangzeb. A glance at this will show that periods are wrenched from their chronological frame with very little understanding of, and much less respect to, the historic sequence of facts. If syllabuses, as suggested by the Committee, are drawn up by teachers themselves, I am sure they will never be guilty of mutilating the subject. Under the proposed scheme, Indian History is accorded its proper place in the courses of studies. It is to be treated as a compulsory subject with public examination. But, even here, I venture to suggest an alteration, which I hope will commend itself to the school public. In the place of Advanced Indian History as recommended by the Committee under the general subjects, I would be satisfied to have even outlines of Indian History, Advanced Indian History or a period of it being included under the non-technical subjects.

Regarding the new constitution of the proposed S.S.L.C. Board, the Committee's recommendations are desirable though they do not

go a long way. The Board is now to include 15 members, a third of whom are to be the representatives of the University, another third are to be elected by the Headmasters of schools, and the rest are to be Government nominees. There is no gainsaying the fact that this suggested constitution is superior to the present. The existing S.S.L.C. Board is an exotic body consisting, as it does, of Government nominees only, very little amenable to healthy public opinion. It has grievously failed to command the confidence of the vast body of teachers. It has given rise to the belief that, in its working, it is actuated more by considerations of patronage and nepotism than by those of justice and of equity. Facts are ever unpleasant. To give one illustration, for this year's Public Examination, the Secretary to the Board, Mr. D. A. Hobday, is appointed as one of the Assistant-Examiners, not only in English, but also in Malayalam. No doubt Mr. Hobday is a B.A. That a Secretary to the Board, whose functions involve mostly correspondence work, out of all contact with the realities of school life and teaching, should be provided with this lucrative berth, evidently over the heads of a large number of Licentiates in Teaching with long experience, is obviously not a matter to be reflected with equanimity. I hope, and I am to a large extent sure that, under the proposed constitution, such irregularities—I confess my ignorance to find a more appropriate word—would rarely, if not never, happen. The suggested constitution of the Board, desirable so far as it goes, needs to be made more liberal and representative. Of course, the inclusion of Headmasters in the Board is fair and just; it would to a large extent remove the odium that the present Board, constituted as it has been, is an exotic body

of Government nominees only. Still I suggest, that some representatives of and from the overwhelming majority of teachers should in fairness find a place on the Committee on the ground that the latter form a vast number in direct touch with school realities, and that the interests of the Headmasters and Assistants are not always, as is commonly believed, identical. This belief may be, I admit, not always well-founded. However, it is always safe to avoid even the suspicion of it. So, what I suggest—and I hope that the large body of Assistant Teachers will concur with me in this—is that a third of the Board should consist of Assistant Teachers, another third of the Headmasters, and the rest of University representatives, two or three of the latter consisting of Government nominees. If my suggestion is adopted, I am sure that the interests of all the parties will be properly safeguarded and leaves nothing more to be desired.

I cannot too adequately congratulate the Committee on making out a strong case for the legitimate encouragement of what are known as the "Depressed Classes." The very mention of this phrase fills me with sorrow and shame. It is nothing but sanctimonious hypocrisy that we should "agitate" for equal rights with Englishmen so long as we keep the depressed classes in the gutter-waters of foul and fossilized religious conventions. As the strength of a chain is the strength of its weakest link, the regeneration of India, whether educational or otherwise, must spell the regeneration of the downcast. As Sir P. C. Ray rightly remarked the other day at Ahmedabad, all talk of Swaraj is nothing but cant if we do not stand by our depressed brother and pull him up into the pale of civilised society. "Their education," the

Committee rightly avers, "is a matter of national duty," and no pains should be spared to raise them from the slough of social slavery. They should be fully exempted from the payment of school fees; books should be freely supplied to them; and if possible, boarding facilities also should be granted to them free of charge. It shall indeed be a red-letter day in the annals of the History of India, when the ominous words, the 'depressed classes', are erased from it altogether.

By no means the least important consideration that engaged the Committee's attention was the position and prospects of teachers, especially of the large body of them engaged in Aided schools. The Committee itself rightly confesses, "there is no other profession where discontent seems to be so rife," and I would also add "perfectly legitimate." I cannot refrain from further quoting their remarks, "that it is not uncommon for teachers who have done creditable service in an institution to be thrown out of employment for some reason or other and to find themselves compelled to begin life afresh." The President aptly says, "it (the position of teachers) is a subject of the greatest moment; and I plead with the Committee to give it the most earnest and sympathetic consideration and to enunciate a policy calculated to place the teaching profession on a sound and financial basis." It ought to be the first charge on national revenues. It may be plausibly argued from the doctrinaire-economic point of view that investment on education is not 'productive'. Certainly it is not productive in the sense that "money breeds money" faster than anything else. But it is foolish to question, much more to deny, that the proper and perfect unfolding of the

"human" element of a State—to bring out of the pupils' tender brains the richest, the purest, and the noblest heritage of humanity, is a matter of the greatest consequence. The glory and greatness of a State does not depend, though oil-politicians think otherwise, on the amount of its armaments, coffers or factories, not even on its fertile and far-flung plains, but on the extent to which the human body and mind is the true index of the Maker's. Doubtless, God made man in His own image. But it is only the right kind of education imparted in the right way, by the right man working under healthy and exhilarating circumstances, that can keep up the same index. The most carefully laid out 'schemes' of education, however perfect *per se*, would be very much like the most perfect and up-to-date locomotive engine, but with no provision made for the storage of steam, if the authors of the scheme are oblivious of, or at best show a scant regard to, the most important factor in education—the need of incentive and enthusiasm on the part of the educator. To this effect, the Committee suggests the appointment of a Committee to draw up a set of rules relating to tenure of office, scales of salaries, leave, etc., and to liberalise the Grant-in-Aid Code. The Committee says further that the "establishment of a unified system of Provident Fund would go a long way towards the unification and stability of the prospects of the teaching profession." But I fear—I think I am one in this respect with the large majority of teachers in Aided schools, doing their duty under the most trying conditions with patience like monument,—that this solicitude for lending them the helping hand may at best prove a pious wish and resolve into thin air. The Hon. Mr. Patro, the Minister for Education, once remarked, refer-

ring to the position and prospects of teachers in aided schools, that it was not his concern, it being purely a matter of private arrangement between the managers and the teachers. This attitude of a 'responsible' Minister can only be characterised as a splendid policy of "masterly inactivity" or "looking from the fence." The aided schools, which form a very large majority, bearing the brunt of responsibility in respect of imparting education, had come into existence on the distinct understanding that the Government would materially support them. The aided schools no less subserve the purposes of the State and the Department, as regards both administrative and tutorial functions, than Government schools themselves. In this connection Rev. Meston rightly observed in the Legislative Council that the invidious differences between Government and Non-Government institutions should be removed. Many aided schools are not able to balance their income and expenditure, and are run at a loss. If their managers are at last forced, through the inadequate Government doles, to wind up their schools,—regretful illustrations of which are not wanting—will it be a prospect for the Government to contemplate with equanimity? Will then the very few and far between Government schools be able to impart education to all? So it is grievously wrong to regard the aided schools with a step-motherly attitude, giving them grudging and inadequate grants. I hope that even now at least Mr. Patro will give up his unbecoming attitude to the financial considerations of the aided schools, with which are necessarily bound up the position and prospects of teachers. Even a "unified system of Provident Fund" will but be a poor relief to the hard-pressed teacher. Even such a fund, when not co-ordinated with an immedi-

ate rise in the scale of teachers' salaries, now beastly low especially in view of the marked depreciation in the purchasing power of the rupee, will be very much like putting the cart before the horse. For, a provision for saving inevitably implies the possibility of doing so. It being so, it is verily adding insult to injury to compel a teacher drawing a very low salary, hardly sufficient to meet the bare necessities of life, to contribute to the provident fund. So, in order to raise the salaries of teachers, the Committee observes, "that the Grant-in-Aid system should be recast, so as to admit of more liberal aid being given to aided schools." In furtherance of this they recommend the appointment of a Committee. Mr. Patro recently remarked in the Legislative Council that he felt convinced of the necessity for liberalising the Grant-in-Aid Code, but that it was a complex problem and would take some time. I only hope that this very serious and important consideration will not be deferred to Doomsday.

Regarding another equally important consideration, *viz.*, the desirability of the use of the vernacular as the medium of instruction, there seems to have been a large amount of discussion in the Committee. Finally, the Committee resolved that in the High School stage, Vernacular or English might be used as the media, as the managers deem, and that there should be two sets of question papers in the public examination, English and vernacular, the pupils electing to answer in either. The Committee perhaps thought it to be a "dangerous expedient" to suggest the compulsory use of vernacular in all schools as medium of instruction. The arguments for the compulsory use of vernacular as such, irrefutable in themselves, are as old as Adam and are now worn threadbare. And I am strongly

convinced like some of the Committee members themselves that this option will rarely, if ever, be availed of. This "diarchy" in instruction, like every other diarchy—whatever Mr. Curtis might have said on this—carries in its womb the seeds of destruction. One argument adduced against the use of vernacular as the medium, apart from the plausible and hackneyed pleas of want of suitable text-books in vernacular, the importance of English as an international language, etc., was that the S. S. L. C. candidates are not taking advantage of it though they are now permitted to answer in the vernacular. It is indeed a surprise how the members of the Committee could so unwarily pocket this official lie. No instructions to this effect are issued to schools and there is nothing in the S. S. L. C. Regulations permitting this option to pupils. Perhaps an approach to this is to be found in the statement of the Director of Public Instruction, made sometime ago in the Legislative Council in answer to an interpellation by some Council member, that, if petitions to be enabled to answer in vernacular were received by him, he would then consider. This is a casual remark of the Director, and is very far from a definite instruction communicated

to schools and embodied in the S. S. L. C. Regulations, *empowering* pupils even to answer their papers in the vernacular. However, we should be thankful for small mercies and I hope that some schools at least will make a beginning and seriously try to use vernaculars as media of instruction. I believe that at least by the time of the next Royal Commission this diarchy in instruction will have its well-merited funeral, and that then the use of vernaculars as media will be made certainly compulsory in all schools.

On the whole, I am of the opinion that the recommendations of the Committee are eminently satisfactory, and that their early materialisation will further the cause of Secondary Education on the proper lines. Till now this education is in a state of flux. It is little more than a tangled skein, the result of experiments of our amateur educationists living and working in Utopia divorced from the realities of school and social life. I am confident that the early carrying out of these recommendations will tend to give to our present Secondary Education "a local habitation and a name."

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"A POINT IN SCHOOL-MANAGEMENT"

By

Mr. A. S. HARNHALLI, B.A. (Hon.), S.T.C.D.,
Teacher, High School, Bijapur.

DOES it need any expatiation that a teacher's duty is to teach boys? Yet how often does a beginner in educational service doubt his real duty! It is unnecessary to say that duties other than teaching are only collateral and the attention to be paid to them must be proportionate to their importance. Of such extraneous duties are catalogue work, compiling Progress books, correction of examination papers and exercise books and the importance given to each of them must certainly vary. A scrupulous attention to these means, as far as a teacher can see, a whole-time duty. Besides these, there come in, things terminally which too are shelved for the teacher to manage. This part of the teacher's duties has so far grown in bulk that he fears, but truly, that his real avocation, in course of time, will vanish into mere buffoonery.

There are two forces at work in defiling the sacred duty of a teacher, viz., the decentralization method of headmasters in exercising their authority and their extreme desire to see things done in their own special way. Headmasters nearly forget that the duties to which they are designed are not of a congenial type to their assistants. The teaching duty in case of the former is tantamount to a zero and other duties are either of a clerical type or an administrative one. They look with great complacency at the neat and accurate work they turn out carefully and insist on the like work from their assistants. How can they be brought round to see that teachers are required to spend

more, perhaps most, of their energy in their principal duty? Herein lies the crucial difference that whereas the teachers desire to be neat and accurate, nay precise and exacting, in their cardinal duty, headmasters look askance at that in their over-much care for the execution of the duties they want them to do. The bugbear of authority is too frightful to meet in these days, so that teachers are compelled to overlook their favourite duty giving precedence to the headmaster's mandates.

With all the care that teachers may bestow to humour headmasters, they are bound to displease them. No two men can finish the same work to their mutual satisfaction, and much less a superior and a subordinate. The duties that truly do honour to headmasters are entrusted to their assistants and are required to be completed in the way in which they would like to see them. This delegation of power is so mischievous that teachers lose their equanimity in fulfilling the deputed duties and incur the quasi-dissatisfaction of their superiors. Would that headmasters relegated their clerical functions to yield the first place to the supervision duties in their own person!

In the administrative function headmasters give free play to their freaks. They harshly distinguish their duties from those of their assistants, or those of the latter from the peons' or the clerks'. The net result of such floundering is that the whole obloquy of remissness falls on the poor assistants. Sometimes teachers are enjoined to such religious adherence to the whims of their heads that even when they ridicule the efficacy of their plans they dare not denounce them, lest they should be singled out to the Cyclopean fury of their originators.

The duty of teachers is essentially different from that of any other in any line. With teachers, time and work are equally important and their energy is to be screwed up to a sticking point, that nothing may remain in arrears, in the development of boys consigned to their care. Since they are in no way, beings of higher energy, they require intermittence in, and complete cessation from, their work. The principle is accepted by the Government but seems to be undermined by the headmasters that are immediately concerned in its enforcement. Would any teacher acknowledge that after a good day's work in school, he has enough energy left in him to look carefully to other unessential pieces of work which are mostly voluminous, uninteresting and daily recurrent? Do headmasters contend that such supernumerary work ought to be done at home as clerks are sometimes supposed to do? How unnatural, if that be the view! Clerks may fritter away their time and may burn the midnight oil to get their deferred work done in time. Are teachers allowed this privilege in the discharge of their essential duty? Can they dismiss their own class or a class where they are due in the absentee arrangement on the score of mental exhaustion or bodily ailment? Even granting that they are no better than machines, should they not be allowed to take in pabulum to

maintain their high capacity for efficient work? Poor enough are those servants who try to invade the happiness of their homes with their official cudgel. How worn out they grow daily and how indifferent to their own and their families' welfare can hardly be realised by their heads, with little to do and many to serve them. Thrice unhappy are the teachers; they must take care to provide food to their famished family; must bring up the arrears in work to answer the command of their superiors and lastly, must supplement, and sometimes store afresh, their knowledge that they may not be considered poor repositories of antiquated commodities.

It is my firm conviction that teachers should not be troubled at all with clerical work of whatever nature, that weekly examinations, exercises and others should never occupy an all-important place in the school-work, that headmasters should be practical and helpful in their schemes of school management and discipline and that they should allow sufficient liberty to their subordinates in the execution of their work to enable them to utilise what energy is left after school-work in literary pursuits or in civic duties in which they are sure to be inoculated with truth and a spirit highly beneficial in the training of boys.

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THE TEACHERS' PROVIDENT FUND SCHEME AND PRIVATE PROVIDENT FUNDS.

IN G. O. No. 140, dated 22nd January 1923, the Government of Madras have published the rules of the Provident Fund for Teachers in non-pensionable services; and the scheme is to be introduced from the 1st April 1923. The scheme should be welcomed for the benefits it is intended to confer on the teachers, and for the efficiency in nation-building it is intended to secure through provision for the nation-builders' old age.

A Provident Fund Scheme for teachers has been in adumbration for over a decade. Some institutions have established Provident Funds of their own, working under rules approved by the Director of Public Instruction; and the Government have given Grants-in-aid to the managements on account of these Provident Funds. The private Provident Funds do not permit a subscriber to carry with him his Provident Fund with benefits on his transfer from one institution to another. For some years teachers have prayed for a scheme of Provident Fund under which a subscriber may carry his account with benefits, in spite of transfers, to the day of his retirement or withdrawal from the Fund.

The private Provident Funds which have been maintained by some progressive and enlightened managements for over a decade, are placed under a serious disadvantage in paragraph 3 of G. O. No. 140 which threatens the management with the stopping of grant-in-aid for the private Provident Fund. This retrograde proposal is highly objectionable. It would stifle private enterprise in education;

it would be an unmerited injury to progressive and enlightened managements; it would be a shabby treatment of those who are entitled for appreciation, if not gratitude. There is nothing in the rules of the scheme suggesting penalisation of Private Provident Funds. This retrograde proposal should be dropped in fairness to the managements which have, in response to the Government's suggestion, maintained Provident Funds under rules approved by the Director.

For the past ten years and more private Provident Funds have worked very well in many institutions, notwithstanding the disability consequent on transfer. Working under the rules approved by the Director they are managed by Boards in which subscribers have adequate representation. The Fund made up of equal contributions of the subscriber and the management is laid out in sound investments, or is deposited in banks of undoubted security like Co-operative District Banking Unions, and the subscriber gets an interest of 6 to 7 per cent., both for his contribution and the management's. Above all, the procedure for the realisation of the Fund on the subscriber's retirement or withdrawal, is free from complexity and red-tapism.

Instead of being 'reformed' out of existence, the private Provident Funds should be improved under the new Scheme to be of greater benefit to teachers by removing the old disability incidental to transfer. Under rule 6 Management of the Fund, provision is made in para. 7 of the rule for the continuation of the benefits of a subscriber in case of transfer from a Government Provident Fund Institution to a separate Provident Fund Institution, and *vice versa*. This provision

should be extended to transfer from one separate Provident Fund Institution to another separate Provident Fund Institution, so that a subscriber's account with his benefits, shall, instead of being closed on transfer, be transferred through the agency of the District Educational Officer to the Provident Fund of the Institution which he newly joins. Separate Provident Funds should be thus improved instead of being discouraged.

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AN AMERICAN CRITICISM OF INDIAN UNIVERSITIES.*

BY CLARK A. WARBURTON, B.A. (Cornell),
Ewing Christian College, Allahabad.

PRESENT STATUS OF HIGHER EDUCATION IN INDIA.

THIRTEEN Universities, with 150 affiliated Arts Colleges and 52,432 students (of which 1,024 are women), in a literate population of about twenty-five millions, does not appear on the face of it, a lack of higher education. It is in the character and quality of the instruction, in the organization of work, the subjects and, of great importance, the combinations of subjects offered, the standards required for degrees—it is these which make Indian higher education rank low from a pedagogic standpoint.

UNIVERSITY ORGANISATION.

It is not in reference to the controlling body, nor to such problems as engaging staff, or methods of finance, that is referred to here under the term University organization. The writer means, rather, questions like the courses offered, subjects and groups of subjects allowed, and requirements for degrees.

First, then, the older Universities—now only six (since the reorganization of the Allahabad and Rangoon Universities)—are purely examining bodies in regard to the B.A. work (and sometimes in regard to M.A. work), very similar in structure and function to the Board of Regents in Secondary education in New York State. For the B.A. degree a student takes English and two other subjects selected from a list of which the following is typical:—Classical Language (Latin, Greek, Hebrew, Arabic, Persian or Sanskrit), Mathematics, Philosophy, Economics, History and Geography. For the preceding Intermediate examination the typical arrangement is English and three other subjects—

* This article was originally written for publication in America, but is given here practically unchanged. The writer publishes it in India with the hope that the criticism, written from the point of view of an outside observer, might be of value in this time of University reconstruction.

these subjects being arranged in groups in such a way as to separate the Arts subjects from the Science subjects. Thus the typical Arts student will have studied for his B. A. degree perhaps English, Sanskrit, History and Geography in his first two years and English, History and Economics in his last two. To take more subjects during his four years is impossible (except, of course, by taking some other subject instead of History for both the Intermediate and the B. A.), and it may also be impossible for him to take any Science subject. The Science student, likewise, has no chance of studying any Arts subject.

Nor is this restriction of choice the only unsatisfactory feature of the system. If a student does creditable work in two or three of his subjects, but fails in the remaining one, he is forced (if he chooses to remain in a college under instruction instead of appearing a second time as a private candidate) to repeat for an entire year not only the one but all the subjects. In either case, the student is required to take the examination in all the subjects. Cases are not infrequent of a student failing in one subject one year, in another subject the second year and in the third subject the third year. This being true in regard to the second and fourth years, it makes it imperative that the colleges follow the same procedure in respect to the first and third years. Another custom which is detrimental to good work throughout the session is the practice of closing classes a month before the examination. Students expect to read their text-books then and do not do so during the session.

In the newly-formed teaching and residential Universities, such as those at Dacca, Rangoon, Lucknow and Allahabad and the Benares Hindu University, there is little improvement upon the conditions just described. At Rangoon the number of subjects for the B. A. examination has been increased from three to four, one of which may be Science. At the Benares Hindu University English, Sanskrit and a modern Indian language are compulsory, leaving only one optional subject. Some of these Universities are offering an additional year as an Honours course. In the Honours

course of the University of Dacca there is one principal and two subsidiary subjects. When one looks to the Science side, there is the same condition, the B. Sc. student being limited to English and Mathematics and the Science subjects.

SUBJECTS.

There is a fairly wide range of subjects offered in the Indian Universities. The combined list in the B. A. and the B. Sc. in the University of Rangoon is as follows: English language and literature, Burmese language and literature, Pali and Elementary Sanskrit, Persian, Latin, French, History of the Indian Empire, History of Europe with special reference to England, History of Greece and Rome, Economics, Philosophy, Mathematics, Chemistry, Physics, Zoology, Botany, Geology, Physiology, and Human Anatomy. Universities further west offer Arabic and also other vernaculars instead of Burmese.

Perhaps the most severe criticism to be made of the subjects taught is that nowhere in a student's education from the primary to the B. A. or B. Sc. degree (except in one or two of the Universities like Rangoon which offer Physiology as one of the subjects for the Science students only) is there any provision for instruction in hygiene and sanitation and the prevention of disease. These, which of all subjects, should be compulsory in India today, are the ones which it is impossible for the youth of the nation to study.

STANDARDS.

In discussing standards, this problem of a liberal, broad education will give way to the problem of the standard and proficiency reached in the subjects taken.

MATRICULATION STANDARD.

The entrance requirements in the University of Allahabad may be taken as fairly typical. The Matriculation examination includes five subjects: English, Mathematics, History and Geography, and two electives. The standard in Mathematics is Elementary Algebra and Plane Geometry. History

and Geography are little, if any, higher than the 8th grade in New York State. The languages, if one or two are taken as electives, are perhaps equivalent to two or three years' High school work in the United States. Physics and Chemistry, which may be taken together as one elective, is hardly the equivalent of American High School courses in these subjects. Botany and Drawing are roughly equivalent to corresponding High School work in the U. S. Compared with the 15 units* of credit generally required for admission to American Universities, these five subjects are as follows: English, while not in reality as high standard, may, because of the fact that it is not the student's native language, be considered equivalent to the 3 units called for. Mathematics is 2 units (elementary algebra and plane geometry). History and Geography might be considered 1. The elective subjects vary somewhat—drawing being no more than 1, while some of the languages may be 3. Allowing 4 units for the two electives it would not be an unfair comparison. This makes the equivalent of 10 units, hardly a two-thirds equivalent of the American High School course. Then when it is remembered that the students in India have studied no Physiology, no Civics or Government and no Nature-Study, it makes the Matriculation standard in India very closely the equivalent of two years of High School work in the United States.

SCOPE OF THE B. A., B. Sc., M. A., AND M. Sc.

The Intermediate, then, is perhaps roughly the equivalent of the American Matriculation standard—with the exception that the Indian student has concentrated more than has the American. The scope of the Physics or Chemistry or Mathematics in the Indian Intermediate is higher than High School Physics or Chemistry or Mathematics in the United States. But if a student elects Science and takes these three subjects for his Intermediate, he studies no History, no language except English, and no other elective subject.

* A unit of credit represents the continuous study of a subject one period (45 or 50 minutes) a day, five days a week, for the school year of 36 or 40 weeks.

This tendency is even more marked in the B. A. standard. This, which according to the Matriculation standard, is only the equivalent of sophomore (second year in the United States) work, ranks higher than the usual American sophomore courses, but certainly no higher than the standard reached in America by two years' continuous study of one subject. The B. Sc. standard in Physics and Chemistry, for instance, is roughly the equivalent of the second year requirements in the Bachelor of Chemistry course at Cornell University. In Economics, which is one of the most popular subjects in India, the B. A. standard is about equivalent to a year's 5 or 6 hour-a-week course in American Universities. It is a little broader than the usual shorter introductory courses in the United States. The B. A. standard in India is, then, about the equivalent of the sophomore (Intermediate) standard in America, with the exception that the Indian student has concentrated more upon a few subjects than has the American.

This low B. A. standard probably helps to account for the great popularity in India of post-graduate work. During the two years of this course (in contrast to the one year required for the M. A. in most American Universities) the student confines himself entirely to one department of studies. This concentration of entire energies upon one subject, instead of about half one's time (as is required for the major in B. A. in American Universities) naturally results in a standard in that subject somewhat higher than the B. A. standard in America. A comparison of the scope of the requirements for the M. Sc. in Chemistry in India with those for the Bachelor of Chemistry at Cornell University places them upon a rough equivalence. In Economics the M. A. previous is about the equivalent in a scope of a B. A. major † in Economics in one of the leading American Universities. The M. A. Final, including as it does, advanced economic theory and something of the history of the development of economic thought, besides other subjects not

† In the United States a student's major is the subject in which he is specializing.

studied in the M. A. Previous, is probably the equivalent in scope, though not in standard, of the M. A. in Economics at American Universities. It is believed that these comparative standards in Chemistry and Economics are typical of the standards in other subjects.

STANDARDS OF PROFICIENCY.

In regard to the standard of proficiency maintained in the Primary and High schools, attention may be called to the fact that Mr. E. L. King, of Jubbulpore, finds a great similarity between the matriculation standard at Narshinghpur and the 8th grade at the Gray Schools, which are somewhat lower than the average throughout the United States. The Manager (an American) of a Mission High School in Allahabad tells the writer that the pass mark in the examinations in that school is 40 per cent, but that the papers are marked much more strictly than in the United States. (In the United States the pass mark is never below 60 per cent. and in many High schools it is 75 per cent.) These statements would indicate that perhaps the proficiency standards of the elementary subjects in India is a little below and that of the High school student not above, the standard of the first two years of High school in the United States. The experience of the writer, however, with B. A. students and the opinions of those with whom he has conversed seem to indicate that the proficiency standard of the Indian Matriculation is below that of the second year of High school in the United States.

The B. A. and M. A. degrees are commonly awarded in India in three divisions—first division to those passing the examination with a grade of 60 per cent. or 65 per cent. or above; second division to those ranking between 45 per cent. and 60 per cent. or 50 per cent. and 65 per cent., and the third division for grades between 30 per cent. and 45 or between 37½ per cent. and 50 per cent. In this respect, though there are a larger number of failures than in American colleges and though approximately half of those who pass reach only the third division, it seems very evident that the second division standard is no higher than the 60 per cent. or 75 per cent. pass standard in American

colleges. The first division standard of 60 per cent. or 65 per cent. is, however, considerably higher than the American pass standard.

Closely related with the standards, both of scope and of proficiency, is the fact, that, due to the numerous holidays, the term is much shorter in India than in the United States. In the colleges in Allahabad affiliated in the past with the Allahabad University, the year averages about 150 working days, while that in the United States is from 180 to 200. Class periods in India are also shorter, being 50 minute-periods cut by the change of classes to 45 or 40 minutes, as compared with 60 minute-periods in the United States cut by change of classes to 50 minutes. Five or ten minutes a day does not seem like much loss of time, but it is equivalent to from three to five weeks' difference in the length of the school year.

QUALITY AND METHODS OF INSTRUCTION AND SCHOLARSHIP TRADITION.

If methods of instruction were devised with the express purpose of nullifying the standards which the preceding sections have described or of preventing the student from becoming a reasoning being and from obtaining an intelligent understanding of the things of daily life, they could hardly be more effective than methods commonly in vogue in Indian education. Perhaps this is most strikingly illustrated in the teaching of mathematics. Working of problems outside of classes, instead of being insisted upon is forbidden. The instructor works the problems on the blackboard and then expects the pupils to memorize the solution. And paragon among paradoxes, this method of teaching exists side by side with an emphasis on "Logic—Deductive and Inductive" as one of the subjects of study. In History, teachers read the text-book in class or ask the student to quote from the lesson; and those familiar with the text-book studied will, when questioning a student of History, be amazed at the tremendous grasp of the content of the book (through memorizing) and the lack of understanding of any causal or other relation not

specifically mentioned therein. That there is some attempt in higher education to get away from this mechanical memory method is of course true, but it is not sufficiently widespread to alter the habits of study of Indian students.

Aside from this method of instruction there are two features of Indian colleges which markedly lower the quality of instruction. One is the presence in the class of many third division men—men who somehow have managed to pass the examination but who are extremely deficient in the preceding pre-requisites and in the preceding year's work in the same subject. As regards promotion from the first to the second year or from the third to the fourth, which is done by the separate colleges or in the teaching Universities by the departments, the obvious injustice incurred by the inability to promote a man in subjects in which he has done well and to require him to repeat that poorly done results in his promotion anyway. This again tends to keep the standard of promotion low—even lower than the standard of examinations in the second and fourth years. With so many men of only third division proficiency, the ingenuity of the teacher is taxed, to say the least, to maintain effective teaching. The other feature of the two just mentioned is the lack of general knowledge arising from too early specialization. Allow the writer to speak from personal experience with B. A. and M. A. students in Economics. The theory of evolution is mentioned. Few have studied Biology or any of its branches and most have no conception whatever of the meaning of the term. Mention the similarity between the telegraphic system and the nervous system, or of railroads and blood-vessels. It is lost upon their minds. Discuss hydro-electric schemes. "But how," and the question is asked earnestly—the quest for knowledge is real, "is water-power turned into electric power?" Would that the student might be directed to take a course in Chemistry or Physics—but for him to do that would mean to quit studying Economics. He, an M. A. student, is probably sitting under an electric fan, and uses an electric light and understands it no more than the savage. In casual

analysis (mightily important, too, in Economics) mention the difference between the causes determining a "volume" or a "level" and the causes which (given one or more constant, perhaps unknown factors) determine variations in that "volume" or "level." Or further, speak of "function" of a quantity, or the equation of a graph. One might as well talk to a five-year old child. Be it noted, of course, that some of the class, those who had studied Mathematics, or in the former case, Physics or Chemistry, would understand the reference. In the Universities of Madras and of Bombay this situation is not as bad as it is in the United Provinces, for in those two Universities a general Science course is required for either the Matriculation or the Intermediate. Even in those Universities, however, a further study of one of these subjects would be an impossibility while working for a degree in another subject.

Of similar effect upon the quality of instruction imparted to the student is the tradition of little, if any, home work. The Indian student protests vigorously if a teacher assigns half as much work, particularly if it is in the form of something to be done, such as a report of written answers to questions or a problem to be solved, as is done regularly by an American student. The number of hours a week in classes, too, is no more than in the United States—and the teacher finds himself up against the problem (for the idea is non-existent of imposing a standard of work that must be maintained in order to remain a student, or even a penalty for work undone) of utilizing class-time for such work if it is done at all. It is sometimes objected, of course, that in the hot climate of India students are not capable of such exhaustive work as in Northern countries. There may be some truth in this contention, but much less than is usually supposed. Half of the school year in Northern India is extremely delightful weather, even for Europeans. By proper building and the use of electric fans the hostels and class-rooms may be made comfortable the other half.

SUMMARY.

Prominent among the defects of higher education in India are :—

First. The pernicious effect of making the degree depend wholly upon examinations—

(a) In fostering the purely mechanical memory type of learning;

(b) in fostering negligence of daily work and cramming just before the examinations.

Second. The practical impossibility of a student's obtaining a sufficiently broad and liberal education to serve as a basis either for leadership in modern life or for intelligent specialization.

Third. The impossibility of a student's obtaining introductory and general survey

courses in subjects other than the three or four (or in M. A. work one) upon which he concentrates.

Fourth. The wasted time and effort and the discouraging effect of no provision for a continuance of work well done while repeating that in which the student has failed.

Fifth. Standards of proficiency are so low that there is in each class a large proportion of students woefully unprepared for the work in hand.

Sixth. Undue emphasis is placed upon memory in teaching. This is accompanied by traditions of little, if any, home work or original work and a neglect of study until just before the examinations.—From the "Modern Review."

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HOUSEHOLD ARTS IN THE COCHIN STATE.

The following is the full text of the Report submitted to the Cochin Durbar by the Household Arts Committee appointed in February 1922:—

We, the members of the Committee, appointed by the Government, to advise it on certain matters connected with Household Arts and Cottage Industries, have the honour to submit the following:—

1. The order of reference, G. O. dated 2-1-1922, R. O. C. No. 2221 of 1097, runs thus—

"In view of the number of adult girls that discontinue their studies or stop after the High School course, Government deem it advisable to afford them and others placed similarly to them, facilities for a training in Household Arts and in at least a few branches of what are called Cottage Industries. Continuation-classes for those girls who do not continue their studies and for married women and widows seem desirable and would, it is believed, be welcomed by them.

2. Courses of training in Hygiene and Sanitation, Cooking and Domestic Economy, Washing and Sewing, First-aid and Nursing, Music and Painting and also perhaps in Malayalam Literature might be started.

3. Government propose therefore to appoint a Committee consisting of the following members to advise as to (i) the courses of study, having regard to local conditions, that may conveniently be started; (ii) the selected areas where they may be opened, and (iii) the probable cost:—

- (1) Srimathi V. K. Lakshmikutti Ammah, Consort of the First Prince.
- (2) Miss A. E. Robbins.
- (3) Mrs. Velayudha Menon.
- (4) The Rev. Mother Superioress of St. Teresa's Convent.
- (5) Mrs. Kholoff, Mattancherry Hospital.
- (6) Mr. T. A. Doraswamy Iyer.
- (7) Mr. G. Subbuswamy Iyer.
- (8) Mr. O. Mathai, President.
- (9) Mr. T. K. Krishna Menon, Secretary.

4. The Committee is empowered to invite the opinions of those willing and competent to help. It is requested to send its report as early as practicable."

The Secretary to this Committee got a copy of this Order on 28-2-1922.

5. The first meeting of the Committee was held on 29-2-1922. At that meeting, there was a free and full discussion on the several points raised in the Proceedings of the Government, with a view to familiarise ourselves with the nature of the work entrusted to us, and the scope of the scheme we may have to formulate for submission to the Government. Then, it was resolved to invite the opinions of those whom the Committee thought it would be well to consult on this subject.

6. Accordingly, the following letter was addressed by the Secretary to several ladies and gentlemen in this State and outside, and to the Municipalities and Village Panchayets in the State and a few of the prominent Associations in Ernakulam and in Trichur:—

"I have the honour to send you with this a copy of a Notification published in the Cochin Government Gazette, and to request you to kindly help the Committee with your valuable suggestions with reference to the work entrusted to it by the Durbar. We have to keep before us the practical utility and the cheapness in the scheme we have to propose to the Government. I am directed by the Committee to inform you that it would be obliged if you would kindly send in your opinions within a fortnight from the date of the receipt of this letter. Thanking you in anticipation, &c., &c."

We are indebted to many correspondents for their readiness and kindness in furnishing us with valuable information and suggestions. In view of the magnitude and the far-reaching beneficial effects of the work the Committee have been asked to do by our Government, their help and guidance have been all the more welcome to us.

7. Our State, at present, is, fortunately, not seriously faced with the problem of the unemployed. But unless we stir ourselves betimes, we shall have to meet it at no distant date, and meet it in all its gruesomeness and intensity. Out of a total population of 979,080, the number returned

as unemployed is 542,390. This, no doubt, includes boys and girls, and those who cannot work, and also those who perhaps need not work for their living. Making a deduction for these, there will still remain a figure sufficiently large to put us on our guard. The State can provide places and pay to only an infinitesimally small portion of its people. The rest will have to shift for themselves. But it is the solemn duty of every civilized form of administration to afford facilities, and, if need be, to compel every one to study some trade or industry with which to maintain oneself and those dependent on oneself.

8. In Japan, an industrial and commercial course generally forms part of a school-curriculum, while, in Europe and America, Continuation classes are held in several places for the teaching of these subjects primarily. Attendance at these classes is compulsory; for "the fair-minded friends of the voluntary principle found themselves forced to the conclusion that in the public interest they must call to their aid the authority of the State."

9. These extracts from Professor Sadler's work on "Continuation Schools" will, we trust, be interesting, and pertinent for the purpose of our present enquiry.

"In the course of every year more than half a million children in England and Wales leave the public elementary schools at thirteen or fourteen years of age. Not more than one out of every three of these children receives, in point of general or technical education, any further systematic care. Yet those who fail to receive such care, are, broadly speaking, those who need it most. And the years which immediately follow the day-school courses are the critical years of adolescence when stimulating instruction, technical training and well-directed guidance in matters of conduct and personal hygiene are often most needed and, if wisely, given, most helpful towards healthy living and self-control."

"Thus in considering what it would be wise or possible for public authority and for voluntary

workers to attempt in order to meet the educational needs of your people who have recently left the elementary school, we find ourselves face to face not only with a technical question of educational administration but with one (and that not the simplest) aspect of a grave problem in national life, a problem which is felt to be urgent in many other countries besides our own. We shall not expect, therefore, to find any simple or easy remedy for what is amiss. Whatever is done must necessarily be done in stages, so that the weight of public opinion may go along with new legislation and with the administrative action to which such legislation would lead. In considering what should be done, we shall not be content to fix our thoughts upon the purely industrial or commercial interests which are at stake. These indeed are of far-reaching importance and must constantly be borne in mind in any practical handling of the subject, not only because the economic well-being of the nation is seriously concerned in the problem, but because the industrial and the commercial occupations of the people have a close connection with their moral welfare and outlook, and also because the part of the educational problem with which we are here especially concerned lies at the point where school-teaching has to be skilfully dove-tailed into the duties of the workshop or the office. It is however the human side of the question that rightly appeals to us with the greatest force."

"***. In all these countries, therefore, public attention is being turned to the problem of continuation schools, and everywhere the lines along which thought is moving point to three conclusions: First, there is need for further limitation of the hours of juvenile labour. Secondly, the law should place all the employers, including Government Departments, manufacturers, commercial firms, retail tradesmen, and employers of young domestic servants, under statutory obligation to enable young persons of less than 17 years of age who are in their employment to attend courses of technical and general instruction for

¹ & ². These extracts are from pages 12, 15 and 18 respectively of Professor M. E. Sadler's work on 'Continuation Schools in England and elsewhere.' Manchester University Series—Second Edition, 1908.

7. Sewing; dress-making; knitting; crochet work; embroidery; and lace-work;
8. Laundry work; and
9. Bala-Chikilsa; (Treating infants according to the Ayurvedic system).

Domestic Economy is a compendious expression and comprehends a variety of useful and important subjects. Consequently, we are emphatically of opinion that the lectures on this subject, to suit local audiences should in the first instance be written out and approved by a small competent Committee. (It is to cover account-keeping as well.)

(NOTE: Items 1 and 2 will have to be taught by a paid Brahmin lady-teacher; 4 by the local doctor; the subject of maternity must be taught by a lady doctor only; lecture on 5 and 6 will have to be given by a competent person, e.g., Superintendent of Agriculture; while a paid, experienced and trained gardener will have to be retained to help the class in its practical course; 7 will have to be taught by a paid lady-teacher).

18. The other subjects referred to in the Government Proceedings we would group under the head of accomplishments, and to them we would take leave to add two or three more.

Accordingly the whole course will consist of:—

1. Popular lecture on Science;
2. Lectures on Malayalam Literature;
3. Indian Music;
4. Drawing and Painting;
5. House furnishing and decoration;
6. Sanskrit; and
7. English.

(NOTE: Items 3, 4, 6 and 7 will have to be taught by paid teachers, one alone being employed for each subject).

For advanced students on a few of these subjects, we would suggest the formation of home-reading unions to stimulate and to create 'an honourable and helpful fellowship' with each other among those who constitute such unions.

19. Before we conclude this part of our report, we would humbly but emphatically invite the attention of the Government to the imperative necessity of including Physical Culture and Social Service also in this programme. Girls are more apt than their brothers to take their lessons too seriously, and by over-application to their studies, to ruin not only health, but the capacity 'or really good.' Therefore, they stand in need of a more robust and liberal system of education physically than boys. Dr. Poduval remarks with anxious enthusiasm that 'the physical qualities of our young generation should be a prime consideration; for the efficiency of any race or people depends to a large extent on its physique. Moreover, women are not merely the representative of the race, but biologically the race itself; the welfare of the coming generation to a large extent depends on the sustained physical fitness of the girl and the young mother of to-day. I give the greatest prominence to physical culture.' Formerly, work in the fields, household duties, the daily visits to places of worship, and the national sports peculiar to Malabar ladies gave them sufficient exercise, and matrons of old lived a life of robust health and happiness even on the wrong side of three score and ten. But we have left our moorings of those Arcadian times: the modern maiden, her critics say, would turn her head in disdain if asked to dust, to sweep or to reap; she is a bit of an agnostic to feel the need of a shrine and she would consider it derogatory to her dignity even to countenance such pastimes as *Kummi* and *Kolattam*: and she has not taken seriously to tennis, riding or golfing. Thus it is high time to take steps to prevent the deterioration of our race. And we would earnestly press on the attention of the Government the necessity to have classes for physical culture also.

20. Next to "home-making," the work of a social or philanthropic character occupies the largest number of women in civilised countries. Here we think we have done our duty to the poor, the sick and the illiterate by indulging in discriminate distribution of charity. We shall quote Lord Sinha on this subject:

"I need hardly say that the field of social service, wide as it is in other countries, is literally not limited in our own, when we remember that millions of our countrymen live and die on the borderland of destitution, that hundreds of thousands of children in Bengal alone not to speak of India, well nigh starve and perish of dirt and disease and of ignorant handling; when we think of these things, who is there amongst us but can help feeling that life is not worth living if we do not, each one of us, strive our utmost to prevent these things which ought not to be? Believe me, there is not the least amongst us, who is not capable of doing a very great deal towards this magnificent and benevolent work. If we cannot do anything else, each one of us can go and sweep the dirty floors, each one of us can go to the hutees, the slums of Calcutta, and wash the dirty clothes which are sources of disease and infection to millions of people, both in Calcutta and outside Calcutta. Therefore, I beg of you to remember that, however great the task may be, each of us is able to help, and help considerably, not merely by money, because that to my mind is the least thing in the matter, but by your own personal work. The most menial services become high and noble when it is performed as a matter of love; and if you are able to take that upon yourself, by organising yourself for the purpose of helping those who are always with us and around us, the poor, the lowly, and the destitute and the suffering, your lives will be more noble. You yourself will fulfil the purpose for which you have come to this country, and I am sure at the end of the day each one of you will feel that whatever else you might have done, you have not yet lived in vain."

To this eloquent appeal for social service, one cannot help responding. And we think that practical lessons in Social Service and the starting of Girl Guide Movement will be the crowning glory to this beneficent scheme of our Government.

21. We have drawn up syllabuses for some subjects, but not for all. For one thing, it will mean considerable delay in the submission of this

report. Further, we think that it can profitably be prepared, after orders have been passed on this report, by small expert committees who will be better qualified to deal with each approved subject than we can claim to be. Some of the papers that we submit with this report will, we hope, be useful for that purpose. If so desired, we shall be ready and willing to help the Government in the preparation, with the co-operation of experts, of the syllabuses for the approved courses, and in approximately estimating the duration of each course, and the cost of the scheme, as accepted by the Government.

22. After a thorough discussion on the subject of the localities where these continuation classes are to be started in the first instance, we have agreed to advise the Government that Eruakulam and Trichur should be the centres where the classes to begin with, may be opened. In those places, we believe there will be better facilities for a decent attendance of students, for effective and proper supervision, for accommodation, and for the willing co-operation of honorary workers, than can be expected elsewhere. We have selected two places in order that a healthy competition may be an incentive for stimulating work.

23. We are of opinion that these continuation classes should if possible, be housed in places owned and managed by Ladies' Associations; and that their work be supervised by a Committee appointed and controlled by Government, some members of which should be those elected by such Associations. The hours for holding the classes should be fixed by this supervising Committee without interfering with the convenience of students and of the members of those Associations.

24. The medium of instruction should except when English is taught, be Malayalam. As the Calcutta University Commission Report says: 'The study of a variety of subjects through an imperfectly understood foreign tongue is bound to be slow, laborious and bewildering, often leading to unsatisfactory results.' There is another aspect of the question, however, which is, of greater

importance; namely, the cultivation of the Vernacular literature representative of the genius of the people. We are confident that the courses of study, without any desolating domination of examinations, in Malayalam and Sanskrit will be such as will engender in the students a genuine and lasting taste in those literatures which they will hand down to future generations. In this connection we would also submit to the Government that it will be the means of creating a good number of useful books if provision is made for the publication, as dainty primers of the lectures on various subjects delivered before these classes. The Malayalam Improvement Committee may be asked to bring these out with the funds at its disposal.

25. The only other point that remains to be considered is the question of cost. But it is our humble opinion that this should not stand in the way of the fruition of this system of potential good. There is only praise for it from those who have thought over the subject in all its varied aspects. The only discordant note is the one struck by the Chittur Municipal Council. It thinks that the existence of a High School is a condition precedent for a continuation class. So, it says, 'Drop your scheme, and give us a High School, a request from which we entirely disassociate ourselves. We would rather pray for the abolition of one or two of the existing High Schools for girls if by that alone funds could be found to run continuation schools. But we are sanguine that the Government will be generous to finance this scheme even without taking that step. For, it will be false economy not to spend money to avert an evil, and to realise a good, and where the benefits to be secured are likely to far outweigh the expenditure to be incurred. Nonetheless, we think it is but proper, from the nature of the scheme and from other reasons that the people also should help the Government to provide funds for the promotion of this project.

It is with this end in view that the Committee has passed these resolutions:—

(a) That a minimum monthly fee of one rupee be charged for tuition in each subject,

(b) That poor, deserving students be exempted from the payment of fees on the recommendation of the Committee that is to supervise the work of the Continuation-classes;

(c) That students should furnish themselves with materials for their work or should pay for them;

(d) That the Ladies' Associations under whose auspices the Continuation-classes are to be opened in the first instance should, as far as it lies in their power, raise funds for financing these classes.

We are sure that the Ladies' Associations will be able to help the movement on. From its own subscriptions, from donations from sales of finished articles, by holding exhibitions, from sales of finished articles, by holding exhibitions, and variety entertainments, music parties, and in several other ways they can easily provide a decent amount every year to finance this useful scheme. The Nari Siksha Samithi of Calcutta under Lady Bose and the Mahila Seva Samaja under Mrs. Chandrasekhara Iyer are showing us how to do this work with success. Anyway, the initial outlay for the purchase of the necessary appliances and instruments will have to be borne by the Government; and it will also consider the question of grant in no stinted spirit.

26. Everywhere 'confused anxieties are throbbing, and urgent needs depress their minds.' It is our earnest prayer that these continuation-schools may serve as sanctuaries that will scare away economic care and produce a race of men and women unselfish in their devotion to the sacred cause of their country.

27. It only remains for us to thank the Government which we do in all sincerity for initiating this movement, for permitting us to associate ourselves with it with our humble services and for the help it has given us in our work.—*The Malabar Herald.*

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Different sounds are denoted by different single consonants and double consonants, e.g., Ksh = ~~sp~~ = O = K.

The same word has many different meanings.

Many words are pronounced alike, but differently spelt. On the whole, the system of treatment lies in teaching a foreign language by pleasure through the eye and the ear. "Correlation system" after the "Direct method" is also recommended wherever it is possible. Dramatization and conversation using the words in the text-proper, in class and during excursion may be freely resorted to.

One grand secret of this reader is *ad variorum* collection of the average lexicon of the day, covering an encyclopædia of different departments of Art, Science, Trade, Philosophy and various departments of human knowledge. *Teach through the eye, let ear stand the judge and let memory drink impression deep.* This is the key-stone of success.

It may appear that some words are much above the comprehension of pupils; but the Author's view is to get at a rapid flow of reading a foreign language with much ease after the "Direct Method."

Another principal view is that when grown-up men use this Reader the system of treatment will give great facility for reading long expressions of polysyllabic words that are generally found in newspapers journals, etc.

PICTORIAL ALPHABETS.

Print.		Script.	
A	Ape	A	Ape
Ant	ant	Ant	ant
B	Boy	B	Boy
Buoy	buoy	Buoy	buoy
C	Cat	C	Cat
Cap	cap	Cap	cap
D	Dog	D	Dog
Doll	doll	Doll	doll

PICTORIAL ALPHABETS.—(contd.)

Print.	Script.	Print.	Script.
E Egg e egg Elf elf	E Egg e egg Elf elf	X Xeriff x xeriff Xebec xebec	X Xeriff x xeriff Xebec xebec
F Fan f fan Fawn fawn	F Fan f fan Fawn fawn	Y Yew y yew Yarn yarn	Y Yew y yew Yarn yarn
G God g god Guard guard	G God g god Guard guard	Z Zebra z zebra Zone zone	Z Zebra z zebra Zone zone
H Hat h hat Hen hen	H Hat h hat Hen hen		
I Ink i ink Inn inn	I Ink i ink Inn inn		
J Jar j jar Jail jail	J Jar j jar Jail jail		
K King k king Kite kite	K King k king Kite kite		
L Lord l lord Lady lady	L Lord l lord Lady lady		
M Man m man Mat mat	M Man m man Mat mat		
N Neck n neck Name name	N Neck n neck Name name		
O Onion o onion Orange orange	O Onion o onion Orange orange		
P Pup p pup Peon peon	P Pup p pup Peon peon		
Q Queen q queen Quill quill	Q Queen q queen Quill quill		
R Ram r ram Rat rat	R Ram r ram Rat rat		
S Seat s seat Saw saw	S Seat s seat Saw saw		
T Tin t tin Ton ton	T Tin t tin Ton ton		
U Udder u udder Umbrella umbrella	U Udder u udder Umbrella umbrella		
V Vine v vine Vale vale	V Vine v vine Vale vale		
W Wine w wine Whale whale	W Wine w wine Whale whale		

Suggestions for teaching Alphabets.

There are various methods for teaching Alphabets.

- (1) According to the "Kindergarten System" cut coloured papers into shapes A, B, etc., with a pair of scissors. Ask pupils to do the same in the class. The eye and the hand must be trained well to learn the Alphabets.

- (2) Take one-inch and half-inch sticks respectively. Also section curves

e.g., | " e curve.

For A = A Two one-inch stick and half-inch cutting.

B = B Two curves back. 1 inch-stick and so on

- (3) The employment of manual alphabet, or finger alphabet—Dactylology.

Represent a, e, i, o, u with

Right forefinger on left thumb as a
do. fourth finger as e
do. third do. i
do. second do. o
do. ring do. u

B, C, D etc. refer to Webster's Dictionary "Pictorial Illustrations" pages 380 and 1752.

- (4) In connection with this, it may be noted, that a pack of cards consisting of 52 cards, twice the number of English Alphabets, may be used. It is a pleasant literary game. Four persons sit and play.

Player	A	puts	...	...	J
...	B	do.	...	...	U
...	C	do.	...	...	N
...	D	do.	...	...	E

The word thus formed is "June." D wins the game as he completes the word and the game is won by him. This method teaches spelling and pronunciation through the channel of play.

Lesson "A"

A = a : "An"

"Nouns" "A" "Verbs" "B"

MAN	BARK
FAN	CALL
VAN	DART
BAT	SAT
MAT	BAR
ASS	TAR
LARK	CAN
PAIN	TAP
WALL	PAT
	JAR (Noun)

[A = a . Impress this sound. This is produced by lowering the lower jaw two inches below and giving breath and life to the sound "A."]

When a word ends in "E" the sound of A becomes a .

MATE = a

MANE

CANE

LANE

DATE

GATE (T)

LAME

SHAME = a

MALE

WHALE = (a)

E has the sound of e and a .

MEN

PEN

HEN

DEN

HE = e

TEN

SHE = e

SET

ME = e

PET

WE = e

WET

WELL

SHELL

"I": has two sounds i and y ; if followed by E in the end has y sound: else has i sound.

BIT = i	BITE = y
PIN	PINE
BILL	BILE
SIT	SITE
FIN	FINE
HIT	HIDE
KISS	KINE
PILL	PILE
TILL	TILE
WIN	WINE

Impress two sounds of I as i and y .

O = o = a

Generally as a rule "O" has a sound in the beginning, and o in the end.

OX	NO
OF	SO
OR	LO!
BO	PO

"O" has o sound.

DO TO

"U" has two sounds u : y . As before, when the final letter is vowel "E," the sound is y ; else the sound is u .

u .	y .
Tub	Tube
Cub (k)	Cube
Mull	Male

st.	g.
Hut (uh)	Rule
Fun	
Nut	June
Buzz	Pure
Shut	Sure
Caution Put (ə)	Bull

Lesson "B"

Representation of sounds by double vowels.

oo = ~~oo~~ ou = ow = ~~ou~~.

TOOL	BOW
FOOL	COW
MOON	NOW
NOON	ROW
MOOR	THOU
COOL	HOW (uh)
ROOM	MOW (verb)
NOOK	VOW (verb)
COOK	ROUT (verb)
SHOOK	SHOUT (verb)

Let pupils by "action" learn the use of verbs and meanings.

is represented by "E", "EE", "EA", "I.E.", "EI",...

HE	BE	SHE	WE
See			
See			
Leaf			
Read			
Seed			
Thief			
Meal			
Neat			
Lean			
Receive			

Lesson "C"

Certain letters are silent. These present difficulties. The most common of them are presented here.

"K"	Knife	"B"	Debt
	Know		Doubt

"K"	Knight	"B"	Thumb
	Knit	"S"	Island
	Kneel	"O" and "L"	Should
	Knack		Could
	Knave		Would
	Knock	"L"	Talk
	Knob		Walk
	Knot		Calf

"T"	Rustle	"Gh"	Plough
	Wrestle		Though
U (dead)	Buoy	Gh = (f)	Laugh
	Build		Cough
			Rough

Many other dead letters may be taught by Pictorial Diagrams, Chart, Action, etc.

Consonants having different sounds.

"C" has "K" sound.

Care	Goat	Guard
Calf	Go	Goose.
Cat	God	
Come	Give	
Cane	Girl	
"G" (ŋ)	Game	
	Gap	
	Gas	

"H": Teach the sound of "H" as ~~h~~.

Hat: Hide: Hay: Hare.

"Sh" = ~~sh~~.

Shame, Shake, Shall, Shape, Sharp.

l = r: Colonel

ieu = f: Lieutenant

ph = f: Elephant, Physics, Philips

ean = o: Bean

[Caution: "P. B. T. D. F." The sounds of these consonants must be well taught, with signs of differentiation.]

Lesson "G"

In "P" sound, the two lips must press hard against each.

Po = Pure = Pool.

In "B" sound, the two lips must gently touch.

Boy: Bo: Bite

In the phonetics of "T" please see pupils roll their tongue and touch the centre of the upper roof of the palate.

In representations of "D" sound, let the tip of the tongue come in contact with the end of the upper roof of palate.

Bat: Bad: Sat: Sad.

"F" has "v" sound OF = ov: off = f sound.

Lesson "D"

Let pupils frame simple sentences out of these words.

Pan:	Mat:	Rat:	Men:	Hen.
Date:	Cane:	Plate:	Cake.	
Cap:	Pup:	Nut:	Shut.	
Door:	Poor:	Turn.		
Bell:	Clock:	Chair:	Bench.	
Pin:	Sin:	Win:	Walk.	
Nose:	Head:	Eye:	Ear.	
Hat:	Date:	School.		
Slate:	Pillar:	Table		

Lesson "E"

2 syllables:

Turban:	Garden:	Flower.
Shoulder:	Stomach:	Bottle.
Almirah:	Bureau:	Bicycle.
Basket:	Playground.	

Lesson "F"

3 syllables:

Carpenter:	Schoolmaster:	Gymnastics
House-keeper:	Gentleman:	Saturday.

Lesson "H"

Let pupils supply a noun:

Adjectives.

Bad; Good; Hot; Cold; Fast; Slow; Far; Near; Clever; Dull; Neat; Ugly.

Lesson "I"

The following "Verbs" to be impressed by regular "action."

Come; Stand; Read; Walk; Sleep; Drink; Eat; Write; Take; Beat; Run; Set; Hear; Smell; Touch; Pray; Sing; Weep; Jump; Sell; Buy.

Let pupils form complete sentences with a Noun, a Verb and an Adverb:

Adverbs.

Fast; Slow; Up; Down; Well; Quick; Early; Late; In; Out.

Lesson "J"

Pairs:

A cat and a rat: A boy and a girl.

A chair and a table: The Sun and the Moon.

Hands and legs: Birds and Beasts.

Men and Women: Paper and Pencil.

Ship and sea: A stand and mirror.

A bullock and a cart: Bread and butter.

Lesson "K"

Verbs:

Come and go: Eat and drink.

Read and write: Sing and pray.

Stand and read : Go and bring.
Give and take : Lie and sleep.
Open and see : Think and answer.

Lesson "L"

"Noun and Adjective" :

A fine fig : A black crow.
A long street : A small doll.
A deep well : A broad river.
A green valley : A lazy peon.
A ripe mangoe : An open window.
An old man : An ugly beast.
Square tables : Easy chairs and writing desks.

Lesson "M"

Noun and Verb :

Asses bray : The sun shines : Clocks strike.
Lions roar : Dogs bark : The train runs.
Gopal bikes : The farmer ploughs : Parrots talk.
Birds fly : Fire burns : Bells ring.
Doors open : Curtains fall : Peons work.

Lesson "N"

[At this stage the right position in the train of words for the Subject, Predicate and their Adjuncts should be taught to pupils.]

Good boys read well : Cats kill rats.
Birds fly high : The peon rings the bell.
The river flows in the valley : Mangoes and Oranges are sweet.
Trains run fast on rails : Boys play in the street.
Children sing well in the class.

Lesson "O"

Ram : Good morning Gopal.
Gopal : Thank you, friend.
Ram : How do you do ?
Gopal : Quite well, Thank you.

Ram : What is your father ?
Gopal : A School-master.
Ram : What is his age ?
Gopal : Forty.
Ram : What is the time ?
Gopal : It is five P.M.
Ram : What day is to-day ?
Gopal : It is Wednesday.

Lesson "P"

Ball.

Father : What is this ?
Son : It is a ball.
Father : What is it made of ?
Son : It is made of rubber.
Father : What is its shape ?
Son : It is round.
Father : Name some round objects ?
Son : The Moon, the Sun, The Ball.
Father : What is the use of the ball ?
Son : I play with the ball.

Lesson "Q"

Watch.

Narain : What is the time now ?
Subbu : It is nine o'clock.
Narain : Do you know to read time ?
Subbu : Oh yes.
Narain : Who taught you ?
Subbu : My father taught me.
Narain : How many hands has a watch ?
Subbu : Three hands.
Narain : What are they ?
Subbu : The minute hand, the hour hand, the second hand.
Narain : How many seconds make one minute ?
Subbu : Sixty seconds.

Narain : How many minutes make 1 hour ?
Subbu : Sixty minutes make 1 hour.
Narain : How many hours make 1 day ?
Subbu : Twenty-four hours make 1 day.
Narain : How many days are there in a week ?

Subbu : There are seven days.
Narain : What are they ?
Subbu : Sunday, Monday, Tuesday, Wednesday, Thursday, Friday and Saturday.

[Teach Pupils the method of reading time in a clock.]

Lesson "R"

The parrot sings a song
The clock doth strike ding dong
The peacock dances on the hill
The cock doth crow at will
Sweet Rose : Sweet Rose : Don't cry.
The drum doth beat, my child
The deer doth jump so mild.
Sweetmeats at table fresh
The Doll, calls thee after mess
Sweet rose : Sweet rose : Don't cry
The rose is red in garden
The Lily is plucked by the warden
The nosegay is here for thee.
The colour is bright—Dear ye.
Sweet Rose : Sweet Rose : Don't cry.

Lesson "S"

Krishnan : Kamalam.

Krishnan : Sister, where do you go ?
Kamalam : To market.
Krishnan : What for ? Who sends you ?
Kamalam : Mother sends me to buy rice.

Krishnan : How many measures a Rupee ?
Kamalam : "It is very dear. It sells 4 measures a Rupee."

Krishnan : Well, come quick, before dark.
Kamalam : Will you come with me ?
Krishnan : Sister ! Lock the door, we shall return soon.

Lesson "T"

Easy Exercises :

Nouns.

Bird : Beast : Servant : Spider : Dhobie :
House : Groom : Stars : West : East : Corn :
Yarn : City : River : Lake : Flower : Flour :
Ship : Pillar : Tile.

Fill up the blanks with suitable words from the above.

The crow is a black _____.
The _____ obeys the master.
The tiger is a _____ of prey.
The cobweb is woven by the _____.
The _____ washes cloths.
This is the _____ built by John.
The _____ walks the horse.
_____ shine in the sky.
The sun rises in the _____ and sets in the _____.
The mill grinds the _____.
Khaddar cloths are made of Indian _____.
Madras is a big _____.
The Ganges is a _____.
Chilka is a big _____.
The Rose is the queen of _____.
The cake is made of _____ sugar and ghee.

The _____ sails in the sea.
The _____ supports the beam.
The roof is covered by _____.

Adjectives.

Bright: Ugly: Red: Black: White:
 Yellow: Hot: Cold: Sweet: Thick: Thin:
 Far: Near: High: Low: Good: Bad: Lazy:
 Clever: Sharp.

The Sun is — in May.
 The Pig is an — animal.
 Blood is — in colour.
 The Crow is — in colour.
 Milk is — in colour.
 Orange is — in colour.
 Steam is —; ice is —.
 Sugar is — to taste.
 The Elephant has a — skin.
 Man has a — skin.
 The Table is — the teacher.
 The Bench is — from the teacher.
 The Sea is —; the sky is —.
 — boys win; — boys fail.
 The Buffalo is a — animal.

[Similarly suitable Verbs and Adverbs may be taught to the class by way of filling up blank spaces in sentences.]

THE SCHOOL ARITHMETIC

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Reviews and Notices.

THE "CONFERENCE GAZETTE" IN URDU—EDITED BY NAWAB SADAR YAR JUNG MAULANA MD. HABIB UR-RAHMAN KHAN SAHIB SHERWANI, HON. SECRETARY TO THE ALL-INDIA MUHAMMADAN EDUCATIONAL CONFERENCE, ALIGARH. (FAIZ-I-AM-PRESS, ALIGARH).

This is the organ of the All-India Muhammadan Educational Conference, Aligarh. From the number under review (Vol. I. No. 11), we observe that it has three objects of propaganda in view, viz., promulgation of the principles of pedagogy on modern lines; politics of Muslim Education and the general condition of Musalmans. All the three objects are very desirable; the principles of Education are very necessary to be explained and brought home to the teachers of Arabic Colleges of old type like those existing at Delhi, Deobund, Vellore, Ponnani, which are more or less of collegiate grade (*Darul-Ulum*) and of advanced Arabic Schools (*Madrassa-i-Fouqaniah*) taught through the medium of Urdu existing in large numbers throughout the length and breadth of India. Individual system of teaching obtains in these institutions, and the teaching is not on the modern lines.

The Editor discusses the necessity of correctly translating foreign words into Urdu. He thinks that *Ilm-i-Hywanath* (knowledge of living beings) is the correct translation of the word Biology and not of Zoology. There may be difference of opinion in this; Zoology is the knowledge of organized life whereas Biology is a knowledge of life as it manifests itself. The writer would have Zoology translated as a knowledge of wild animals. Maulavi Nazir Ahmed Khan who first translated the Indian Penal Code into Urdu did a great service in finding suitable Arabic and Persian words for the technical English words in Law. There no doubt exists a great need for finding suitable classic or vernacular equivalents for classic English words used in all departments of knowledge, specially in pedagogy which has become a science by itself.

The writer on the Curricula for Primary Schools has omitted to suggest a curriculum for Girls' Schools. It is obviously of prime importance to teach the girls the subjects that will be useful to them in after-life—and not to take them through the same course as the boys. As the Muhammadans attach great importance to religious instruction, the curriculum for Girls' Schools should be more largely flavoured with religious and moral subjects than the one for boys.

The writer of the article "Insurance and Musalmans" tries to make out that Insurance was the off-spring of the Musalman brain; this might have been, but it was not the off-spring of Musalman religion. As religion is so much a part of Musalman life, it cannot be said that it has the sanction of Islam. It comes under the same category as giving out or taking in money on interest (*Riba*) which is distinctly forbidden. Even *Ihtikar* (the practice of garnering grain with a view to sell it at the time of scarcity) is condemned. Then how could Insurance find favour with such a people? Accordingly in the Oriental Insurance Company we find that only 44 Musalmans had insured against 599 Hindus, 106 Europeans and 104 Parsis.

Under "Education in Turkey," the writer says that like the other nations, the Turks are trying to put their house in order after the war, and that Ismail Zifer Bey, the Minister of Education at Angora, is trying to remedy the defects in the Primary Schools. The salary of teachers in these schools is £ 85 per year or Rs. 75 per month—and this compares very favourably with the salaries obtaining in India. The salaries in the higher stages are on the same level as those obtaining in India.

The most important article for the Musalmans in South India is the review of the last Quinquennial report of the Madras Presidency. There has been increase of 2,234 children in public Primary Schools with the same amount of depletion in Private Primary Schools. This is owing to the

efforts of the Muhammadan Inspectorate, and to no addition to the existing number of schools. In this province, there were 134 Arabic and Persian Schools and 715 Oman Schools, with an expenditure of one lakh of Rupees from private sources. In Malabar alone, there are 93 Advanced and 329 Elementary Schools. The Advanced Schools could be worked up to the University degrees—of "Maulavi Alim," "Maulavi Fazil," &c. It is said that the Madras University spends 52,000 Rs. on the Examination for Siromani and Vidwan titles. The advanced Arabic Schools at Ponnani and Vellore could be worked up for a pass in the Title Examinations. More than a decade ago there was talk about encouraging Arabic Schools and Maulana Shibli was member of a Conference that met at Simla for the purpose. But no scheme was matured about encouraging these schools.

The Journal is, on the whole, well got-up and should be able to supply an incentive to Advanced Schools to work on improved methods and also an incentive to the community to attend to its own Educational wants.

INDIAN HISTORY FOR MIDDLE SCHOOLS: BOOK I FOR FORM I—TAMIL EDITION. (OXFORD UNIVERSITY PRESS). Price 7 annas.

This is an excellent little book for the First Form. The matter presented has been very carefully chosen, being just of that quality which the children reading in that Form could read without help, delight in, and carry away easily in their memory. The language is simple and will serve as a good model for writing compositions. The manner of presentation is particularly good; for where a person has done good to India, be he an Englishman, a Hindu, or Muhammadan, he is referred to in the language of love and reverence; whereas, persons who have done harm are mentioned with little love, whatever their nationality may be. The pictures and illustrations are truly worthy of the Publishers.

BOOK-KEEPING FOR SECONDARY SCHOOLS AND COMMERCIAL CLASSES, BY H. LOGAN RAMSAY, B.A. (MESSRS. W. HEFFER & SONS, LTD., CAMBRIDGE).

This little volume will be welcomed by teachers and pupils of Book-keeping as a handy book for reference where facts are plainly put forward without any unnecessary verbose explanation. The author does not claim this as a complete manual on Book-keeping. The method of dealing with the various kinds of accounts is described in the first 34 pages of the book and then a number of short graduated exercises are given. What may be considered as wanting in detailed explanation has been made good by 10 fully worked-out exercises at various stages. The book will not disappoint any teacher who may look to it for guidance when he has any doubt as to the correct method of dealing with any ordinary account.

The Publishers are to be congratulated on the nice get-up of the volume.

FIRST BOOK OF BOTANY (TAMIL), BY M. S. SABHESAN, M. A. (PUBLISHED BY MESSRS. C. COOMARASAWMY NAIDU & SONS). Price 12 annas.

This book is a consolidated form of a series of lectures in Tamil which the author gave for the benefit of the teachers in Elementary Schools. The book is written in simple Tamil and with a minimum of technical terms. The author has also attempted to substitute simpler technical terms in the place of some of the harder terms now in use. The plants chosen are mostly very common ones

in South India and the author has given in a simple and clear style their structure and habits. The book is well illustrated with diagrams. It will be found very valuable to teachers in Elementary Schools and also to the general reader.

LOWSON'S TEXT-BOOK OF BOTANY (INDIAN EDITION)—REVISED AND ADAPTED BY P. SAHNI AND M. WILLIS. THIRD EDITION: 1922. (UNIVERSITY TUTORIAL PRESS: LONDON.)

This book which professes to be an Indian Edition of Lowson's well-known Text-book of Botany is very disappointing. It is still the old Text-book with a few sprinkling of Indian plant names. The following extracts will show how far the book is an Indian Edition and will be useful to the Indian Student. "A honeyless but otherwise insect-attracting flower is sometimes called a 'pollen-flower.' Examples are found in Poppies, Dog Rose, Rock Rose, Wood Anemone, Traveller's Joy, St. John's Wort, Gorse, Broom, Meadow Sweet. These flowers are visited by insects for pollen." "Examples of these medium-tubed flowers are seen in the Blackberry, Currants, Gooseberry, Willow-herb, Geranium, Speedwell, etc. The Figwort, Snowberry and Barberry are examples of flowers largely visited by wasps." The examples quoted are all European plants, and are not likely to be seen by the Indian Student. Of course, there are some Indian plants mentioned, but these plants are treated only in a very cursory manner or given simply as examples. What the Indian Student wants is a good text-book which gives a good account of plants which are very common in India.

A Manual of Arithmetic

By the late MR. S. RADHAKRISHNA AIYAR, B.A.,
Principal, Maharajah's College, Pudukotah.

Approved as a Text-book for all Classes and Forms.

Vide Fort St. George Gazette, 24th Jan. 1907.

Very useful for School-Leaving Certificate Examination

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The Educational Review.

We are deeply grieved to record the death of the veteran educationist, the Rev. The late Dr. W. Miller, M.A., LL.D., D.D. Dr. William Miller, who laboured hard for the

educational advancement of Southern India for nearly half a century and whose name is deservedly a household word in this part of the country. Born in 1838, he came out to India in 1862 and was engaged in educational work in connection with the Madras Christian College for the long period of forty-five years, only failing eye-sight compelling his retirement even at that stage. It was mainly by his efforts that the Madras Christian College was raised to its present position of efficiency and reputation and his influence was felt by the thousands of young men who passed through the portals of the institution during his period of service at the place. Dr. Miller was a great believer in personal contact between the professor and the student and succeeded in winning the affections of his pupils and influencing their character in the highest moral interests. He was the pioneer in Southern India in the movement for the founding of College Hostels and the Christian College was the first institution in the Madras Presidency to be provided, largely by his efforts, with a number of well-built and well-organised hostels. Dr. Miller was a well-known figure even outside his own college and he took keen interest in all that concerned educational

advancement, always pleading for adequate support from the Government and the public. Dr. Miller is dead, but his noble memory will be enshrined in the hearts of the people of Southern India and act as a great inspiration to the coming generations of educationists.

The Presidency of Madras has sustained another serious loss in the sudden and untimely death of the last Vice-Chancellor of the

University, Sir K. Srinivasa Iyengar. An able and distinguished lawyer with keen academic sympathies, Sir K. Srinivasa Iyengar made a good and successful Vice-Chancellor and guided the affairs of the University of Madras during his period of office with great tact and wisdom. Somewhat lacking in initiative and boldness, he was occasionally apt to be over-conservative and disposed to merely keep the routine going, but he more than made up for it by his clearness of mind, sound commonsense and zeal for learning. The reorganisation of the University and the need for a full-timed Vice-Chancellor prevented the continuance of his services to the University, but it was hoped that his experience would be available to the University in various capacities. Death has unfortunately prevented the fulfilment of such a hope and it will be a matter of real sorrow for the entire educational world of Southern India.

It is a matter for regret that, at least according to the press in Western India, the 'transfer' of education into non-official hands

Secondary Education in Bombay.

has not resulted in educational expansion in the Bombay Presidency and the ministry of the Hon. Mr. Paranjpye has come in for considerable adverse criticism from various quarters. It is complained that considerable encroachments have been made on the resources available for education, resulting in the actual closing of some valuable educational institutions, not to speak of the fact there has been no development. What is worse, Grant-in-aid to recognised Secondary Schools has been reduced from one-third to one-fourth of the total expenditure, thus injuring the very existence of institutions. At a representative meeting of the heads of fifty-two Secondary Aided Schools in the Bombay Presidency held the other day, the following resolution was passed:—

This representative meeting of Heads of Aided Secondary Schools in Bombay enters the strongest possible protest against the proposed action of Government in reducing the rate of Grant-in-aid from 1/3 to 1/4 of the approved expenditure. They recognise the need for economy but they respectfully urge that retrenchment in the grants made to Secondary Schools is not true economy, for the result can only be less efficient education in the future and a consequent retardation of progress. They maintain that economy of working is assured by the fact that grants are given on approved expenditure only. This expenditure is scrutinised by the Government Inspectors and no extravagance can be maintained. In any case the

Managers pay twice as much of the expenditure as the Government and in their own interests practise economy. Therefore a reduction in grants is mere retrenchment that will cause a diminution in the amount and quality of the work done and not economy. Further they would point out that the Government's policy in establishing free primary education must have as a corollary an increased demand for Secondary education in the future. If a reduction is made in the grants, this demand will have to be met by the foundation of Government Secondary Schools, which will be a greater burden to Government than the continuance of the grants on the same scale as at present to schools maintained by voluntary effort, for no public bodies will be likely to establish new Secondary Schools if they cannot expect adequate aid from Government. Again the existing Aided Secondary Schools were founded by the various authorities concerned on the understanding that grants from Government would be received on a basis of 1/3 of the approved expenditure. They cannot but protest against the reduction of this promised aid without which the schools would have not been founded.

According to the *Indian Social Reformer* of Bombay, an organ as well-known for its fondness for education as for its calm and dispassionate criticism, "the Education Minister has shown himself to be lamentably lacking in the strength to resist encroachments on the important departments entrusted to him and his term of office has been consequently a period of sad retrogression." We regret it very much, especially in view of the fact that the Minister is educationist and we stand for the principle that educationists are best suited for educational ministrations.

We are afraid that financial necessities have often prevented Indian educational institutions from realising the dangers of over-crowding in Colleges.

over-crowding in classes. Educational efficiency as well as the requisite conditions for the exercise of personal influence over the students can only be ensured by having a reasonable number of students in the institution and not an unwieldy mass whose mere physical accommodation in the buildings is a matter of difficulty. Nowhere is the evil probably more serious than in Calcutta. The number of candidates for the various examinations of last year were as follow:—

Matriculation ...	19000.
Intermediate ...	6300.
B. A. (Pass) ...	2900.
B. Sc. (Pass) ...	700.
Honours ...	700.
M. A. & M. Sc....	550.

As a consequence, there is trouble in securing admission into colleges, even with the last standards of Calcutta, in the matter of regulating numbers and the University is making efforts to handle the situation. There is another aspect to this problem, the glutting of the market with graduates who find it hard to secure employment and are naturally centres of discontent in the country. The writer noticed the other day a Master of Arts of the Calcutta University eking out his livelihood as a

salesman in a grocery shop, unable to find employment after a weary search of nearly two years! This is however a question which deserves separate treatment.

We are glad to find that facilities for medical education are increasing in the Madras Presidency and India.

we have recently had a Medical College opened in Vizagapatam, and a Medical School for Women opened in Madras. The Andhra Districts have long been clamouring for a separate Medical College to serve the Northern Districts and we are glad the Government have been able to accede to their wish at last now. There is undoubtedly room for more than one Medical College in such a vast Presidency as that of Madras and this step will mean some relief of the present congestion at the Medical College at the metropolis. Incidentally, the establishment of this college probably brings us nearer the foundation of an Andhra University which has now been on the anvil for some time. In recent years Madras has progressed considerably in the matter of women's education and we are glad new facilities for professional education have just been provided by the opening of the Medical School for Women on the Marina. There is crying need for women-doctors in the country and we are sure the opening of this new institution will go a long way in meeting the need.

The plea for a wider recognition of the need of classics in education and a protest against the present tendency to neglect them is made once more, this time by Dr. W. H. D. Rouse, the veteran Cambridge Educationist, in the pages of the current number of the *Nineteenth Century*. The War has unfortunately tended to make education more 'utilitarian' in the material sense of the word and we are not surprised that Dr. Rouse has thought it necessary to make this protest. If mechanics and chemistry play a large part in modern life, Dr. Rouse argues that it does not necessarily follow that they are the best subjects for the proper training of a boy's mind. "Man's thought and man's history, his character with all its endearing qualities and its humorous oddities; man, in his nobility so like a God, in his baseness of the nether pit; the springs of action, the rules of conduct—these are the chief matter of a true education..... It is literature that gives us the needed insight into the nature and the needs of man; that is the reason why literature must play the chief part in education." Dr. Rouse is perfectly justified in the claim that classical literature contains within a moderate compass, which a man may hope completely to master, a body of human experience, an essence of wisdom and of beauty which is greater than that to be found anywhere else." Signs are not wanting that similar dangerous tendencies are likely to express themselves in Indian Education,

and we hope that it will be possible to prevent them when they appear.

There was much truth in the observations of Mr. W. W. Hornell, the Director of Public Instruction in Bengal, who spoke the other day in Calcutta on *Education as a Factor in Citizenship* and maintained that the way of making good men and good citizens was by education. We wish the lesson was impressed more deeply on some of our politicians and administrators who seem to proceed in their work, if not in their professions, on the assumption that education was a thing about which a man need not trouble himself seriously. In connection with the political ferment in India, we have sometimes felt that if each centre of activity only concerned itself with the spreading of literacy all round, the problem of political regeneration would be nearer of solution. Mr. Hornell was right in saying that "the true democratic ideal was that every boy or girl should be given a chance of developing what is in him or her."

The provision of scholarships for character is probably not a thing unknown to educational institutions in India, but the recent institution of a scholarship of £40 a year in one of the Cambridge colleges, for a boy who can be thoroughly recommended by his school-authorities as having played a prominent part in school life, is a step of some

special significance. A correspondent draws attention to it in the columns of the *Daily Chronicle* in the following paragraphs:—

This is the first time that a scholarship has been offered by an English college as a reward for character, and it is a step in the right direction. For the formation of character is, or should be an important part of the work of our schools, both public and elementary.

Until now it was only to the smart boy, the "briny kid," that the gate of our ancient Universities were opened. The steady plodder and the all-round boy have never had a chance to win an exhibition, for the race has been to the swift and the battle to the strong.

But a new order of things may be the result of the wise decision of the authorities of St. Catherine's College. It is a recognition of the importance of character training in our schools, and we may confidently expect to see other colleges offer similar exhibitions.

For after all a youth goes to Oxford or Cambridge for many reasons other than taking a degree. The mere fact of being an under-graduate is an education in itself, and what good use a lad of character would make of such an opportunity.

Every year there are scores of clever youths who go up to the Universities as the result of their scholastic attainments alone. There will always be room for many of these, but room should also be found for those less skilled in scholarship but well trained in character.

Their presence would be invaluable. They would not only receive from but give to their *Alma Mater* by helping to maintain a high standard of life and duty.

The call to-day is not for cleverness but for character. If cleverness and character go hand-in-hand so much the better, but character must come first.

And our schools and colleges must put character first if we are to maintain our prestige as a nation. There is abundant evidence that the late war was brought about because cleverness and smartness usurped the place of character in the councils of Germany.

It would be a wholesome and heartening sight to see boys of proved character assisted to the great Universities of our land, not only by exhibitions offered by certain colleges, but by the gifts of well-to-do people.

After a delay of nearly two years, the Committee appointed by the Government of the Central Provinces to consider and report on the introduction of Com-

pulsory Elementary Education in the Provinces, has submitted its recommendations to Government. The Committee proposes that Compulsory Primary Education should be introduced immediately into all Municipal areas, though it is not clear from the summary of the report which has appeared in the press what steps are proposed to be taken to effect compulsion. The Committee recommends the double shift system, but we are surprised that it should think that no substantial additional expenditure would be needed for compulsory education. The double-shift system may solve the problem of accommodation to a large extent, but the problem of the staff would still remain, unless it is proposed to make elementary education less effective by reducing the actual hours of instruction. Even with the adoption of this suggestion, we understand that a sum of nearly nine lakhs will be required for the

purpose. We are afraid the responsibilities of recurring expenditure have not met with adequate recognition. With regard to rural areas, the Committee proposes that compulsion should begin in a few places under each District Board and extend gradually, when the idea gets more and more familiar in the areas concerned. The Committee proposes that the practice of Bombay, of giving the District Boards half the total cost should be followed in the Central Provinces also. Here again, the weak point is the question of finance which is the crux of the problem. That there should be compulsion and that it should be gradual is a commonplace of educational statesmanship, which did not need for its discovery, the two-year deliberations of a Committee appointed by Government. Where is the money to be found for the education of the three hundred millions of India compulsorily?—he would be a great statesman indeed who could solve this question satisfactorily.

We are glad to note that the mutual recriminations between the Government of Bengal and the University of Calcutta with regard to the proposed reconstitution of the latter have stopped and a solution of the trouble is not out of sight. The Government has arranged to confer with representatives of the University of Calcutta to find a basis of agreement with regard to the proposed legislation. We hope the affair will be settled satisfactorily at

an early date, for nothing can be more unfortunate than a conflict between a University and the Government of the Province and it is also unthinkable that the autonomy of a University could be lightly interfered with by the enforcement of legislation which is not wanted by the body concerned.

The opening of a Research Institute at Vizianagaram, details of which appeared in the *Hindu* a few days back, constitutes an important step taken in the educational progress of South India. The munificence of His Highness the Maharajah Saheb Bahadur of Vizianagaram who started the institution with an initial donation of chemicals and apparatus worth more than 2½ lakhs of rupees, is an example worthy of being copied by other potentates and landed magnates of South India.

The idea and the Institute itself are the outcome of the labours of a distinguished Professor of Chemistry, Mr. Y. Narasimham Pantulu, M.A., who, for more than a quarter of a century, had been silently working to create the necessary atmosphere at Vizianagaram.

Founded on the Pongal Day of 1918 by Mr. Y. Narasimham Pantulu, the then Professor of Chemistry, the Science Association of the Maharajah's College to which the new Research Laboratories are attached, had for its objects the promotion of higher studies in science and the

educating of the lay public so as to keep them in touch with the recent progress in the field of scientific research. But thanks to the ever-growing liberality of the Vizianagaram House in the matter of promoting scientific culture, it had been possible for the Association to dream of achieving within a short period of its existence greater things than those originally contemplated. A fully-equipped laboratory, a small band of willing and capable workers and a Professor who by precept and example, would inspire his pupils, were all ready at hand. It is no wonder therefore, that the Science Association and its work received considerable notice and enthusiastic comment at the hands of leading Western publicists and savants. One of the members of the Science Association, Mr. Yechuri Venkataramayya, now Professor in charge of the Research Laboratories, invented an apparatus for the manufacture of ozone on a large scale. This ozoniser has not only been declared a commercial success but that Messrs. Fritz Köhler of Liepzig, a well-known German Scientific firm, have manufactured the instrument and put it in the market. The enterprising Professor is also the author of a number of original monographs on Active Hydrogen and Chlorine published here and abroad. A number of prominent *Reviews* and *Notices* have appeared in the well-known periodicals in England and America, as the *Chemical News*,

March 24, 1922; *Nature*, May 27, 1922, p. 690; April 28, 1923; *Science Progress*, July, No. 65, 1922, pp. 23-24; *Journal of the American Chemical Society*, March 1922, p. 510 and the *Journal of the Franklin Institute*, July 1922, pp. 73-74; *The Chemical Age*, Feb. 26, 1921, p. 240. It will be interesting to note that Professor Y. Venkataramayya's Researches on Active Hydrogen had been confirmed by the independent work and testimony of Drs. G. L. Wendt and R. S. Landauer of the Chicago University, the former of whom having acknowledged the priority of Professor Venkataramayya's discovery in *J. A. C. S.*, March, 1922, p. 510. At present the Professor and other co-workers are carrying on interesting work on Phototrophy in organic and inorganic chemistry.

Born in any other country the Professor and his work would have attracted considerable public attention and speedy recognition. But in our own country genius and originality are rarely recognised and if accidentally found are, generally speaking, treated with cynical contempt. That it is not wholly so in the case of Professor Y. Venkataramayya, is a happy thing to record. Distinguished scientists who had visited the Chemical Laboratories of the Maharajah's College and had presided over the meetings of the Science Association had always predicted a great future

for Vizianagaram as a centre of Scientific Research. A true representative of what is best in Indian culture and the son and heir of that famous patron of learning, Sri Maharaj Viziam Raj of revered memory, and one more keenly alive to the scientific needs of our young men than any other aristocrat in similar circumstance, His Highness the Maharajah Saheb Bahadur of Vizianagaram was pleased to sanction last May the opening of the Research Institute. Here young men with a decided taste for scientific research will find ample faci-

lities for carrying on their work under able guidance. That the doors of the Institute are open to all irrespective of caste and creed, and that a University degree is not a *sine qua non* for being admitted into it are some of the commendable features of the Institute. Attached to the Institute is a *Journal of Science*, mainly devoted to the publication of the results of workers. We heartily wish the Institution, and the young Professor in charge of it, a long and glorious career.

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(Fort St. George Gazette, 24th July 1923, page 668.)

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ELEMENTARY SCHOOLS.

A WELL thought-out system of education is absolutely necessary for the improvement of a nation and this improvement is based on the condition of the Elementary schools it provides for the villagers. Therefore all those interested in our country's welfare should leave no stone unturned in scrutinising the needs of the villagers, the purposes served by our village schools, the methods of teaching employed in them, the personnel of the teaching staff and the syllabuses of work that the village-teachers attempt to adopt. The District Educational Councils have onerous duties to perform in this direction. A bitter complaint of the villagers is that their sons are not trained for their future careers in life. A crying need therefore is *Vocational Education*. A survey should be made of the different vocations adopted by the people in different taluqs and schools training pupils for the different vocations will have to be started at convenient centres. Theoretical and practical work should

be provided in these craft schools and no attempts need be made to explain to pupils principles that they cannot put into practice or the uses of labour-saving machines that they cannot hope to work. In village schools, however, no attempts should be made to give such specialised training. In them, Manual Training should be given a prominent place. Manual Training amplifies general education, and trains the brain, hand and eye concurrently and clears the road from school life to industrial life. The manual skill that pupils learn will be useful to them in the occupations that they may afterwards be engaged in. It exercises a beneficial reaction on other school studies and boys discouraged through failure in school studies have not only found themselves in the practical work of the manual training classes but have taken fresh heart and made better progress in their ordinary school work. The moral results are no less valuable; for practical work develops, among other things, precision, honesty and self-reliance. It is necessary therefore that

provision should be made for the teaching of drawing and manual training in all the Elementary schools and Government should come forward to pay the entire cost of this scheme through the District Educational Councils.

Next to vocational training, moral and religious training should form an integral part of village education. The teacher in olden days was responsible for the development of character and for the development of the child inside and outside the school. He was looked upon with respect by the village elders and it is this regard for the village school teacher that, as was wisely announced by the Minister for Education in his speech at Namakal, we should bring back into our educational system. Teachers should be chosen for their sterling moral worth and not for the mere knowledge they possess. The salaries paid to them have to be considerably raised with a view to attract the best of men. Indiscriminate appointments of teachers have been a curse in village education. It is true no doubt that the mother is the first educator of the child and that the family in which the child lives exercises a most potent influence for good or for evil on the character of the boy but still the magnetic personality of the teacher, the company the boy keeps at school and the books that are placed within his reach have an immense influence over the tender boy in his teens. The illiteracy prevalent in Hindu homes adds to the responsibilities of village schoolmasters. Next to the character of the teacher right systems should be adopted in moral training. Strong and vigilant discipline must be maintained in school and pupils should be inspired with a real moral enthusiasm. Biography is extremely useful in moral teaching and good moral text-books have some value of their own. The main thing is not to teach pupils abstract morality but to make morality effective.

Moral instruction may be given in schools apart from religion but that kind of instruction will be ineffective to a large extent. When the home exercises very little religious influence on the boy, it behoves the District Educational Council to make all possible arrangements to teach the main principles of religion in Elementary schools.

The physical side of education should not also be neglected. Pupils should know what it is to have a sound body and that no sound mind can exist in a weak bodily frame. Every village should have an open ground for organised games, sports, and races and no school wanting in a playground should be admitted to aid. The neglect of personal health and the disregard to physical exercises have led to frequent illnesses and the need for reform in this direction is no less urgent than reform in methods of teaching. Elements of hygiene should, in my opinion, be taught in all Elementary schools.

Experience has observed that sufficient attention is not paid to the teaching of vernacular in Elementary schools. The pupils turned out from these schools have no taste for vernacular books. A taste for vernacular should be created in these schools and as soon as the difficulties of spelling are mastered pupils should be encouraged to read story-books and biographies. It is a pity that no sooner do pupils leave Elementary schools than they fall into illiteracy again. Elementary schools have no suitable books in the vernacular for the home-study of pupils. This defect should be remedied by teachers and managers interested in education. Prominence should be given to vernacular teaching in all Elementary schools and arrangements made to give the pupils a thorough grounding in it. Pupils should become acquainted with vernacular idioms and the books chosen should be in simple Telugu and

such as will develop a love for the Telugu country and its heroes. Readers that contain stray lessons on the reindeer, the negroes, the river Nile, the alimentary canal, the uses of taxes, etc., are not of much use in Elementary schools, however ably they might have been written. Pupils in Elementary schools are poor in general knowledge and are wanting in conversational powers. This defect may be remedied by oral teaching and composition lessons.

In my opinion, vernacular, arithmetic, elements of hygiene, religious and moral training, manual training and physical exercises should be the subjects taught in Elementary schools. Considering the length of the school-life of the child, the size of classes, and the staff available for work, the present time-tables contain too many subjects, subjects to which so little time is given that such time is little better than wasted. As a consequence, the work is not so thorough as formerly, the knowledge of certain subjects is superficial; the principles underlying facts have to be hurried over, if touched at all; the children have a smattering of many subjects and a thorough knowledge of few, and character-training is thrown away to the winds. These defects have to be remedied by Taluk Boards and District Educational Councils and I appeal to them in the interests of education to do something in the way of raising the prestige of the teacher, the efficiency of their schools and the quality of the work turned out in them.

M. SUBRAHMANYAM.

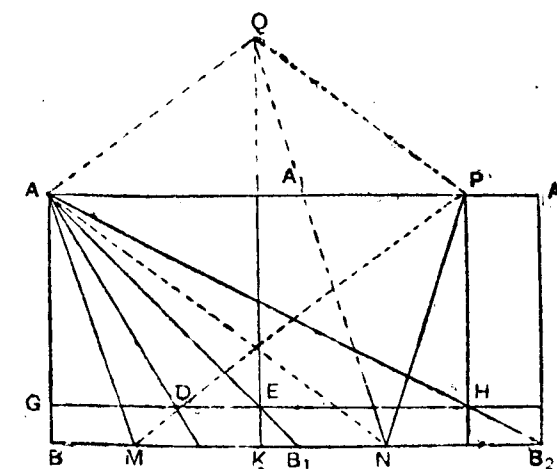
EXERCISES WITH A RIBBON OF PAPER.

1. In the regular pentagon, three adjacent sides and a diagonal form a trapezoid, and a strip of paper made up of two such trapezoids which would be in the shape of a parallelogram folds into a regular pentagon. Also an indefinitely long ribbon of the same breadth can be folded upon that pentagon.

2. A similar ribbon can also be folded upon the regular dodecahedron—a solid enclosed by twelve pentagonal faces. The ribbon should be made up of twenty-seven trapezoids.

3. Given a rectangular strip of paper, it is required to construct a trapezoid of the same height as the strip of paper, such that the longer side is the diagonal and the other three sides are the sides of a regular pentagon.

Take the double square AB_2 . Bisect the angle BAB_2 by the line AD and take $AD = AB$. Through D draw $GDEH$ parallel to BB_2 cutting AB_1 in E and AB_2 in H . In BB_1 , take $BM = DE$. Draw EK and HP perpendiculars to BB_2 and AA_2 . Take $KN = MK$ and join NP . Then $AMNP$ is the trapezoid required.



Proof. $AP = GH = 2AG$. $AH = \sqrt{5} \cdot AG$.
 $GD : DH :: AG : AH :: 1 : \sqrt{5}$
 $\therefore GD : GH :: 1 : \sqrt{5} + 1 :: \sqrt{5} - 1 : 4$
 $\therefore GD = \frac{\sqrt{5} - 1}{4} AP$.

$$\begin{aligned} \text{But } MK &= GD. \\ \therefore MN &= \frac{\sqrt{5}-1}{2} AP. \quad (1) \end{aligned}$$

$$\text{Again, } BM = DE = GE - GD = \frac{3-\sqrt{5}}{4} AP. \quad (2)$$

$$\text{Also, } AB^2 = AD^2 = AG^2 + GD^2 \quad (3)$$

$$\therefore AB = \frac{\sqrt{10}-2\sqrt{5}}{4} AP.$$

$$AM^2 = AB^2 + BM^2$$

$$\therefore AM = \frac{\sqrt{5}-1}{2} AP = MN = NP. \quad (4)$$

For these properties, see the "Geometrical Exercises in Paper Folding."

4. When AM has been obtained, N is found by placing MA on the lower edge MB₂, and P by placing the lower edge NB₂ on NA and folding the line NP. Again by folding the ribbon over the point A so that the lower edge falls on AM we get the pentagon.

Whatever the length of the ribbon may be, it can all be folded upon the pentagon with every part lying within the boundaries of the figure, by folding successively upon the alternate sides.

T. SUNDARA ROW.

THE SCHOOL ARITHMETIC

BEING SOLUTIONS OF THE
QUESTION PAPERS SET FOR THE
LOWER SECONDARY
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FROM A RURAL SCHOOL-WINDOW

By Mr. K. R. R. SASTRY, M.A.,
Fellow of the Royal Economic Society (Lond.).

II. LOCAL NEEDS.

THE monotonous uniformity of syllabus and the multitudinous formalities attached to any innovation should no longer be the guides of those engaged in inspection. The imperative task of adjusting syllabuses in conformity with differing local needs is not to be explained away.

The difficulties that beset one are mainly based on the lack of an elastic syllabus. The Departmental syllabus issued by the Teachers' College is perhaps the best of its kind. It is lack of comprehension that raises this point of objection. When you go to a post of duty, it is you who should frame a syllabus for your edification in the first instance.

Apart from the theoretical points which have already been imbibed from the Training Colleges, practical details based upon a living acquaintance with the locality and its true representatives should pour in to fill up the gap. Above all other intellectual attainments, a broad-based sympathy should characterize the votary after true forms of rural education.

The departmental time is not at all insisted on, at present. Earlier hours of morning suit summer and earlier closing in the evenings fits in with winter. Apart from these seasonal changes, it has been found workable after sufficient trial to have part-time schools alone in villages of shepherds and cowherds. A three-hours' school from 8 A.M. to 11 A.M. will suffice for boys engaged in tending cattle. On identical grounds, a three-hours'

school from 2 P.M. to 5 P.M. will suffice for boys engaged in matting and weaving industries.

A survey of the working of the existing type of education at close quarters brings into light certain considerations. The Hindu genius has been so accustomed to a particular system of learning the alphabets, that any departure from it has not been found acceptable. It has to be stated that the first letter "अ" is not a fortuitous coincidence but it is a religious truth that is conveyed by this letter. Any easy or reformed method of beginning with "L" and "U" is likely to do more harm than good. In fact, in one of the taluqs of the Tanjore District in 9 out of 10 schools, this new system is abhorred by the villagers. The present writer is able to record that there have been depletions in Board Schools and consequent starting of indigenous schools on this account. Already, the modern methods based on an anxiety to avoid placing any strain on the child's brain has resulted in defective letter-formation, shabby handwriting and weak memory. Every system has its value but if it is followed as a fetish, it undermines itself.

Secondly, in adjusting the type of instruction to local needs, due regard should be paid to the empirical methods which are followed by our villagers. The Indian peasant is a shrewd rustic who learns in the hard school of experience the guiding principles of agricultural economics better than the students at costly laboratories and model farms. He loathes a circuitous method of training. In fact, any method of teaching in class-rooms about agricultural pursuits should be carefully avoided. "What the eye sees, the hand shall do"—this is his favourite proverb.

Let the young student go to open fields and observe the plough at work, let him talk with the ripe old ploughman in his native tongue, let him visit periodically neighbouring fields during all the agricultural seasons. This is the most effective education our villager has received.

At the same time, no sane person can belittle the scientific discoveries at the laboratories. Demonstrations of improved ploughs and scientific manuring should also be encouraged. The use of the local languages as well as the increasing recruitment of the demonstrators from the villagers themselves will have lasting results on the improvement of agriculture. Eventually, the recruitment of itinerant experts in agriculture, weaving and other kindred occupations in the regular inspection cadre, should be regarded as essential.

What was written in these columns by the present writer in February 1921, seems to have gained strength through support from high circles. It is a moot question if a course of agricultural education on indigenous lines is not the only interesting occupation for a village of cultivators. It is time to consider if a well-thought-out open-air agricultural course is not to be started in the fifth standard itself. On similar grounds, in a village of weavers, the weaving course may be begun in the upper primary class.

In this connection, a word of caution is necessary for the various branches of Non-Gazetted Educational Officers' Associations. Corporate action within the affected class of workers has been found successful in the advanced West; it has begun to reap good fruit among the ranks of Indian labour. Thanks to the unceasing efforts of Messrs.

B. P. Wadia and N. M. Joshi, it has done likewise some good among brain-workers as well. But the more positive work lies in the discussion of educational matters at least once in a quarter in each District. A mere bread-winning object should least of all characterize the educational branch; and it is refreshing to note that a good beginning has been made in Tanjore where a lively discussion on educational reforms in contemplation and a paper on "Compulsory Primary Education" by the present writer were put in the agenda. With the District Educational Officer as President, the gathering of all the Deputy Inspectors of the District and other representatives of the teaching profession was able to thresh out some of the contemplated schemes with great effect. Such quarterly gatherings in different centres of the District with an interesting agenda of papers and discussions from personal experience, are bound to do considerable good with regard to the scope and type of rural education in different localities.

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NOTES OF A LESSON ON THE 'INTERPRETATION OF THE INDICES.'

Start the lesson with the question:

What is the value of $73 + 73 + 73 + 73 + 73 + 73 + 73 + 73$?

Elicit from the pupils the two different ways of doing the question. Let them experience for themselves the extreme simplicity of one method as compared with the other. From a number of similar questions, lead the pupils to generalize thus:

$$a + a + a \dots \text{to } m \text{ terms} = ma$$

and to infer that the repeated addition of the same quantity can be replaced by multiplication.

Thus when the process of addition becomes tedious, we commit to memory products of pairs of small quantities or numbers (i.e., the multiplication-table) and apply these products in any multiplication.

This suggests to us two questions:

Just as 'multiplication' has replaced 'addition', is there any process which 'addition' has replaced and is there any process by which multiplication can be replaced?

Some thoughtful pupils may answer the questions correctly and affirmatively: Yes, counting has been replaced by addition and multiplication by 'raising to a power' or 'involution.'

Tell the pupils that number has its origin in counting and addition is repeated counting.

Let us now take up the question of repeated multiplication, for example $3 \times 3 \times 3 \times 3 \times 3$?

How is it to be shortly represented?

The natural answer 3^5 will rush out from the pupils. Are there any tables for us to get up by heart, like the addition or multiplication tables? Yes, but they need not be learnt by heart but only referred to. In the notation 3^5 explain '7' is called the index because it indicates the number of

factors in 3^7 , 3 is called the base on account of its position, and 3^7 is called a power, the 7th power of three or 3 to the seventh.

Let the pupils note that the base is a passive number and the index is an active number and the result of the action of the index on the base is power. The duty of the index '7' is to take 7 three's and find their continued product.

Let the pupils realise the difference between 3^7 , 7^3 , and 3×7 , so that they may not confound them with one another. Give the pupils a number of examples such as 2^5 , 5^2 , $(-4)^3$, $(1\frac{1}{2})^4$ to evaluate in order that they may get familiar with the index notation.

Generalize from the examples above:

$a \times a \times a \times \dots m \text{ factors} = a^m$, and define 'Index' as the number which indicates the number of factors in the continued product of a set of equal quantities.

Let us now indulge in a little parable.

Now that we have made a sort of general announcement to numbers that any number a can be raised to a power and that an index (also a number), say m , placed in a certain situation produces the power, we notice a murmur of dissatisfaction in the motley crowd of numbers, that this announcement is favourable only to a particular class of them, viz., positive integers. Other numbers clamour to get the privileges and status of an index. They are not aware what a self-imposed punishment, such a position as the position of an index will lead to. Once they are placed in that position, they realise their incapacity to do what the positive integer does in that situation, i.e., take as many factors as themselves and get a continued product. So, they are in a fix. We shall now go to their relief and explain to them their duties as to how they ought to conduct themselves with due propriety in their critical situation. In assigning to them these duties of conduct, we should be careful and impartial and should not give them liberty to mix with their fellows and others as

they like, but constrain their liberty by the same regulations or laws as are obeyed by the integral indices.

The principle involved here is the same as when a king after conquering a new country and annexing it to his own dominions, introduces therein also the laws of his original country and whenever these cannot apply there, *per se*, interprets them consistently with the manners and customs and the peculiar laws of the new country. Having given the necessary interpretations to the old laws, he should not rest satisfied but examine whether the new interpretations work successfully and smoothly, without any hitch, throughout his extended domain. In fact, this is exactly what we did when we annexed to our own domain of positive integers, the negative and fractional numbers and extended to them the fundamental laws of addition, subtraction, multiplication, and division with suitable interpretations. We shall now follow the same method in interpreting 'involution' for negative and fractional indices in such a way that they obey the same laws as the positive integral ones.

Now, what are the laws of positive integral indices? Elicit from the pupils $a^m \times a^n = a^{m+n}$ from a consideration of numerous examples such as $a^3 \times a^2 = a^5$, $a^4 \times a^5 = a^9$, etc.

Similarly, elicit from them the two other laws, viz., $(a^m)^n = a^{mn}$; and $(ab)^m = a^m b^m$.

At this stage, introduce to the pupils the following notation:—

$\times a^m$ = multiplied by a , ' m ' times in succession; and therefore consistently with this,

a^m = unity multiplied by a , ' m ' times in succession.

With this meaning for a^m , the index laws will appear in a clearer light and the interpretation of zero and negative integral indices follows most obviously:

$$a^0 = \text{unity multiplied by } a, \text{ no time,} \\ \text{i.e., unity left to itself} \\ = 1.$$

Gandharvas, near Manas Lake (Lake Mansarowar) and around the Hutaka countries and defeated them and compelled them to recognise the *Dharmraja* (King of Righteousness) *Yudhisthira* as their overlord. The *Gandharvas* were thus a mountainous tribe living on and beyond the Himalayas. The reason why this name is confused so much with the *celestial Gandharvas* of India, the Lord of Heaven, seems to be that both the Himalayas and the Lake Mansarowar are held to be sacred and celestial.

SOME WESTERN COUNTRIES.

In the same *Parva* and in the same chapter of the *Mahabharat* translated by Mr. M. N. Dutt, it is described how Nakula started to conquer the Western countries and in the course of his conquests how he defeated the following tribes and compelled them to recognise *Yudhisthira* as their sovereign lord:—

(a) The great and powerful *Gramaneyas* living on the Sea Coast, (b) The *Rumathas*, (c) the *Harhunas*.

It seems to be very curious how the above three names have preserved nearly the same phonetic resemblance up to this day. The first is undoubtedly Germany. The powerful *Gramaneyas* living on the Sea Coast signifies the mighty Germans living on the Coast of the North Sea. It appears now that Germany was then also a very powerful kingdom. This redounds all the more to the credit of the Germans who had been never under the yoke of any other nation and that the Hindus under Nakula had for the first time curbed them. The conquest of Germany by the Hindus finds also support from the fact that for a long time after this, the commercial intercourse between the Hindus and the Germans continued, as has been observed by *McCrindle* (*Ancient India*, p. 110) that *Cornelius Nepos* who died in the reign of Emperor *Augustus* (14 B. C. to 14 A. D.)

had mentioned Indian commercial activity even in Germany.

The *Rumathas* may also be at once identified with Rome and it is very probable that after conquering the Germans, Nakula must have turned his attention towards the Romans. Since the Roman civilisation is an ancient one, the Roman Empire must have early attracted his notice. The identification of ancient Rome on the map has been much confused by the Mahomedans since they call Turkey, also as *Rum*, and the Sultan of Turkey as Sultan *Rum*. The following remark of *Blochmann* (*First Geography*, p. 34) makes the two clear, "Mahomedans call Turkey *Rum* which is a corruption of the 'Eastern Roman Empire.' The old Roman Empire was divided into two parts: the Western Roman Empire with Rome as capital and the Eastern Roman Empire with Constantinople as capital. The Western Roman Empire was broken up by German tribes from which time the Eastern Roman Empire was merely called the Roman Empire or *Rum* (by the Mahomedans)."

The *Harhunas* seem to be the inhabitants of Hungary for it is quite possible that after the conquest of the Romans and the Germans, the *Harhunas* must not have been left scot-free. It follows from this that Hungary was then more important than Austria which I believe must have been then either under the *Harhunas*, or the *Gramaneyas*, or the *Rumathas* or divided among them.

DRYAN CHANDRA.

VIEWS OF MR. S. SATYAMURTI ON SOME OF THE POINTS RAISED IN THE QUESTION- NAIRE OF THE COMMITTEE ON TRAVANCORE UNIVERSITY.

I DO not propose to answer the questions of the Committee *seriatim*. I think I can express my views better in the form of a continuous statement dealing with the points raised in the questions and in the same order. I trust the Committee will have no difficulty in finding out my views by perusing the statement.

I agree that University training at its best involves that the student should be placed under the personal guidance of teachers of recognised ability and standing in their subjects. But I do not accept the view that only such Universities ought to be established in India. Such Universities are eminently suited to small and rich countries like England. But in India where the population is growing and must grow and the distances are so great, I am against these highly centralised Universities. I am for one or two such Universities being established as All-India Institutions in some central part of India. In my humble opinion, Travancore can best subserve the real needs of the country by adopting another ideal which I shall presently state.

The existing system of instruction in our Colleges cannot be criticised as a whole, as it depends so much on the personality of the teacher. I would suggest one improvement, *viz.*, the appointment of tutors, preferably brilliant and enthusiastic young men, who will be in personal touch with, say, twenty students every year. I advocate this mainly because I know that the aptitudes and tem-

peraments of students so widely differ, that personal treatment alone can enable them to make the best of their abilities.

Of the alternative schemes outlined in para. 15 of the Proceedings of the Government of H. H. the Maharaja of Travancore, I distinctly prefer the second. I am against the first, because I foresee a future for this University as a Pan-Kerala University. And confining the limits of that University to the political limits of the Travancore State will be arbitrary and unreal. I am against the third, because, if this University is to make headway, I feel strongly that in its initial stages its control and finance should be in the hands of a unitary and not a federal body. I prefer the second because while it ensures the necessary condition of healthy development, it also keeps the ideal before it. The Government have shown sympathetic imagination when they have expressed their readiness to shift the University Offices later to some more central place, if necessary. As I have already explained, my preference for the second alternative is strengthened by the existence of a common language and a cultural unity and the need for efficient administration.

If the new University is merely going to re-duplicate the functions of the old Madras University, namely those of examining and certifying candidates for its examinations, I agree there may be little inducement for colleges outside Travancore to affiliate themselves to the Travancore University, rather than to the Madras University, except perhaps considerations of distance and cost. But if, as I hope, the new University is going to set before itself the higher ideal of providing for the cultural unity of Kerala and of helping Malayalees as a class to play their rightful

part in the higher educational life of the civilised world, I have no doubt that to the extent to which the new University translates this ideal into practice, colleges in Cochin, Malabar and parts of Tinnevely will be anxious to associate themselves with the new University.

I am not in favour of a University of a Unitary type. I think it possible and desirable to combine the advantages of a unitary and an affiliating University. I would suggest that Trivandrum Colleges may be so organised as to constitute in a loose sense a unitary University or to be accurate, a constituent University and that the Travancore University should affiliate colleges outside Trivandrum and give them all possible facilities of University life. I consider Trivandrum a suitable place for the location of the head-quarters of the University.

Being in favour of a combination of a unitary or constituent and affiliating University, I distinctly feel that colleges in the Kerala country will benefit by affiliation to the new University. For one thing the colleges will have easier and freer access to the new University. This will be no mean advantage if, as I trust, the Travancore University is going to have well-equipped libraries and laboratories. Secondly, the existence of a common language will make these colleges feel a bond of brotherhood with the new University, provided the authorities of this new University have the vision and the courage to make *Malayalam* the sole medium of instruction right up to the Master of Arts standard. I recommend this course very strongly. I do not propose to argue the question here. I only desire to say that I make this recommendation with a full realisa-

tion of the difficulties in the way. I suggest as a practical measure that this ideal may be worked up to, say, in a period of ten years, the interval being used for the preparation of suitable text-books and the training of competent teachers in all branches of learning. If that is done, the Travancore University will have done a great deal to promote cultural unity among the Malayalam-speaking people, and colleges in Kerala will vie with one another in their desire to be affiliated to the Travancore University rather than to the Madras University.

I am not in favour of a federal type of University. I am not in favour of a purely teaching and residential University.

I am not satisfied that the education now given in our English Secondary Schools ensures an adequate foundation for University courses of study. I would suggest the following, among other, improvements. I strongly urge that the mother-tongue should be made the medium of instruction in all High School classes, with English as a compulsory second language. This will lay a strong foundation for University courses of study as and when they also are to be pursued, through the medium of the mother-tongue.

Again, I suggest that the High School classes should be bifurcated into two divisions, one training students for University courses of study, and the other training students for entering life or in vocational courses. The present system which seeks to subserve these two purposes, succeeds in doing neither.

Lastly, I would suggest that the better organised and more highly developed High

Schools should be made self-contained and independent of external control. The dead-hand of the Inspectorate or of the University should be removed from them and they should be encouraged to develop the traditions of the great Public Schools of England.

The University should have no relation to institutions preparing students for University admission. The University itself should conduct its own entrance examination not as an obstacle race, but as a simple test of whether the applicants are fit to benefit by a course of University training. The present S. S. L. C. system is an anomaly, and has done more harm than good, and the sooner it is done away with as a test for University entrance, the better for everybody concerned.

The establishment of a University in Travancore ought to develop the following particular studies:—

Dravidian Civilisation and Culture.

The History of the Cheras.

The Sociology of the people of the West Coast.

The history of the Malayalam language and its relation to Tamil and Sanskrit.

Malayalam Literature and Art including Painting, Music and the Stage.

The Land Tenures of Malabar.

I consider that the encouragement of research in Indian problems by its staff and alumni should be a chief aim of the new University. I would suggest for example, the suitability of Democracy of the Representative kind to India; Socialism and the Village communities of India; the racial characteristics, if any, of Indians as a class.

The University ought to adopt some special measures to improve the study and teaching of the mother-tongue, viz., Malayalam and Sanskrit. The old methods of teaching these languages may be correlated to the new, so that the insistence on memory which is the characteristic of the old system may be supplemented by modern scientific methods of study. Again, the University ought to make the pay and status of really efficient Pandits and Munshis equal to those of other Professors. I attach great importance to this reform.

I would earnestly suggest the provision of special arrangements in the new University for Oriental Studies. The Travancore Durbar and Mahamahopadhyaya Ganapati Sastriar have already laid the Sanskrit-knowing world under a deep debt of obligation by their discovery and publication of works such as the earlier dramas in Sanskrit literature, i.e., of Bhasa. Provision ought to be made for research being carried on, on those lines.

I am most anxious that the proposed University should bring within its purview the existing Sanskrit Colleges and Ayurvedic Institutions, within the State, with suitable modifications. I regret I am not in a position to suggest the specific modifications, as I am not sufficiently familiar with the working of these colleges and institutions.

There are branches of study not at present provided for by the University of Madras which should in my opinion be introduced into the new University. They are, for example, Indian Languages and Literature, without insisting on a knowledge of English, Indian Art, including Painting, Sculpture, Architecture and Music, South Indian History

from original sources, Civics and Politics, including Indian Politics, the systems of Indian Philosophy, Indian Economics and the advanced study of Sanskrit by itself.

I consider that the courses of studies open to women in the new University should be different from those prescribed for men. I am conservative enough to believe that for as long as we need provide for, the bulk of the women who will go through University training will be independent of the necessity of having to earn their bread. At least, I hope so. In their case, I would try to make the University courses better suited to them as wives and mothers. In their case, I would insist on the mother-tongue being made the medium of instruction almost at once, a compulsory study of Sanskrit, an advanced course in Indian Music, the cultivation of any other art as an optional, *e.g.*, painting, a study of domestic economy, domestic hygiene and the art of rearing up children, and a fair acquaintance with Indian History and Literature. I recommend separate hostels for women students but common lecture-halls with the men students. I would not make residence in hostels or games compulsory for all women students. The great difficulty in the way of the higher education of our women is the correlation of their higher studies with their domestic responsibilities. The remedies I would suggest are the adjustment of the hours of instruction to their domestic duties, a large amount of instruction at home for them and the practical abolition of examinations in their case.

I am not in agreement with the constitution outlined in Section VII of the Interim Report of the last Committee.

I would prefer a much simpler constitution. I would define it thus: an Honorary Vice-Chancellor, to begin with at least, whose

academic attainments and educational standing will add prestige to the University, a competent and well-paid Registrar, a Syndicate of about 15 members wholly elected by the Senate and being the chief executive body of the University, a Senate of say about 150 members, with a large elected majority, the electorates being the graduates, the teaching staff, the colleges, and the tax-payers, grouped in convenient organisations, which will have full power to deal with all University matters, and Boards of Studies in the different branches of learning with powers of initiative. I am most anxious to guard against the tyranny of the expert and to see that the University plays a useful part in the national life of Kerala.

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INDIAN EDUCATION IN KENYA.

By MR. J. H. MAXWELL,

Adviser on Indian Education, Kenya Colony.

INDIAN education in Kenya Colony is a subject that has not received the attention it deserves. Till recently it was left pretty much to look after itself, and the teachers made what arrangements they thought fit. But the number of pupils in Indian schools in Kenya and the paramount importance of the political issues exercising the Indian mind here, warrant special attention being paid to the problem of Indian education in Kenya.

There are two main Indian schools in the Colony, one at Mombasa and the other at Nairobi. At Nairobi last year the average number of pupils on the roll was 321, while at Mombasa the average number was 205. At the present moment it is about 250. The total average number on the roll at all the Indian schools in the Colony last year was 1,278. The average for European schools was 477. Yet despite the disparity in the numbers, 421,254 shillings were expended last year on European education, and only 193,261 shillings on Indian education.

At Nairobi the accommodation and buildings are far from satisfactory; but at Mombasa there is in the Allidina Visram High School, opened this year, incomparably the finest building in the Protectorate, constructed at a cost of about £50,000, defrayed by the late Allidina Visram. The edifice stands on the bluff looking out to sea and commanding an uninterrupted view of Mombasa. The class-rooms are large, cool, and constructed to satisfy the latest educational requirements. There is also on the upper floor a spacious hall capable of holding the total number of pupils many times over,

a room much envied by all who have seen it. Indeed, the school is regularly visited by strangers passing through Mombasa, and the visitors are invariably ecstatic in their appreciation of the beauty of the building and the polite bearing of the pupils.

At present the school is rather understaffed, and suffers from a lack of trained graduate teachers. Once this weakness has been remedied, there is no reason why the school should not prepare pupils for the examinations of the English Universities. The Indian University Examinations, it is feared, may be closed to the pupils, except possibly to a very few who may be able to afford the expense of crossing to India to appear for Matriculation. Meanwhile the curriculum at Mombasa is based on the lines of Bombay, pending the formation and organisation of the highest classes and a decision as to the precise examination for which the pupils will be prepared. Games are also encouraged, particularly football. There is a little cricket, but no hockey, as suitable ground cannot be obtained. Later it is hoped to lay out playing fields on a plot of Crown land comprising five acres, adjoining the school.

The pupils are expected to pay fees, ranging from two shillings per month up to ten shillings per month in the highest classes, but a good number of the pupils are free scholars. All books and stationery required are supplied free by the Government, which often means that from time to time there is a scarcity of text-books. But all things considered, when we bear in mind the increasing number of pupils, the demand for admission to the newly-formed higher classes, the imminent co-ordination of the different Indian schools, and the compilation of a definite curriculum with definite text-books, the impending increase and improvement of the staff, we can safely say that the future of Indian education in Kenya is distinctly re-assuring.

UNIVERSITY REFORM.

THE HERITAGE OF MODERN
UNIVERSITIES.

THE Modern University is the child to which the vast treasure of the ancient past has been bequeathed. It has its ancestral blood still running in its veins though it is not impossible to detect some alien elements here and there owing to its contact with other bodies. Its glorious ancestry carries us back to times out of memory as well impressing us with the novelty of its acquisitions as the ingrained qualities so characteristic of its pedigree.

CONTRIBUTIONS OF THE ANCIENT WORLD.

The severe austerity practised by the Spartans, their well-regulated life, their military training, and the physical training given to their women have become by-words in literature. The Greeks gave to the world an art, literature, and philosophy, such as have not been surpassed by any other nation. The most advanced intellectual and æsthetic ideas that they have given to the world, as in sculpture and painting, remain models to be copied. Rome was the legal genius of the ancient world and Roman Law is still the basis of all law for the other nations of the world. To the Hebrews we are indebted for the definite notions of law and government, of religious faith and moral responsibility. These notions shine out as three great stars from out the dim obscurity of the educational horizon.

THE GIFT OF MEDIAEVAL EDUCATION

This was an era of the rise of monasteries. The glaring contradictions and the mysterious revelations which had captured the imagination of the gullible ancients could not easily satisfy the searching inquirer of the middle ages. He was more rationalistic, and would not accept anything which did not satisfy his

reason and commonsense. This new spirit of learning, this spirit of enquiry and tolerance, the rising Universities inherited. With the new spirit of enquiry came a new demand for a type of education which was more realistic, more concerned with the realities of life than with the rapture and indulgence in the beauties of early Roman days. It was a reaction against form and style in favour of ideas and content, a reaction against a type of education which tended to perpetuate the stilted pedantry of an earlier age, a reaction again which aimed at reorganising the work of earlier ages. Mediaeval education then taught the modern Universities the necessity of rational examination and scrutiny and greater consideration for matter and content.

MODERN TIMES.

After the Mediaeval period education was conceived as being more vitally connected with life, and schools were thought of as agencies for the promotion of the welfare of the State and nation. In France and elsewhere at this period education was thought of as merely an instrument for developing the inner powers of the individual, to unfold the powers latent in his bosom, and to teach him to adjust himself to society.

In England, Mr. Fisher began the work of educational reconstruction and gave freedom to schools in the matter of management and appointment of teachers, and started a scheme for fusing all types of schools into a democratic and national one, strong in its unity but free from bureaucratic control. The Fisher Education Act of 1918 laid the foundation for a scheme of education which organised the educational resources into a truly national system.

NEW CONCEPTIONS OF EDUCATIONAL
PROCESS.

New conceptions had already begun to emerge, and Pestolozzi, Herbart and Dewey

came out as fathers of different schools of thought. Pestolozzi taught to the world that the mental development of the human being was essentially organic, a drawing out and not a pouring in. Herbart thought that education was merely to develop personal character and prepare for social usefulness. Dewey's conception was different. He thought that education also includes practical work, active exertion and not mere passive receptivity.

THE DIFFERENT TYPES OF UNIVERSITIES.

Education then has different meanings for different persons. It is quite logical that Universities as seats of learning must mean different types to different persons. We are not surprised to see the existence of so many different types of Universities. But for our convenience we may reduce them to three main types—the English, the French, and the German. The English and the American Universities are most of them autonomous, self-governing and self-supporting, and the State does not interfere in the internal management of the different institutions. Scientific research and professional training are outside the scope of these Universities. In fact we find that eminent scientists in these countries have not been connected with Universities. The French Universities are most of them State-controlled, and entirely under the management of the State. And many of the professors are always interested in merely teaching and making money without troubling themselves about research work. German Universities stand midway between these two types of Universities. They are supported and controlled by Government, but they are given a certain degree of autonomy. They are the laboratories, in fact, the nurseries,

of scientific research. There is no professor who is not an eminent scholar and no eminent scholar who is not a professor. This accounts for the many noble and valuable productions of German writers.

PROBLEMS TO BE CONSIDERED.

To what type do the Indian Universities conform? How far do they approach the type of a model University? Have they in any degree availed themselves, or were they given any opportunity to avail themselves, of the work done by continental scholars and educationists? Do the so-called Universities in India deserve to be styled as Universities? Have they in any degree contributed to the intellectual and social uplift of the Indian nation? Will the Madras University Act prove itself useful and satisfy the demands of the present day? If not, what other adjustments seem urgent and necessary to supply the defects of the proposed scheme, and make it accord with the real needs of the awakened educational consciousness of the Indian nation? These are some of the problems which we propose to consider in our subsequent articles.

S. SANKARANARAYANA.

KARUNATARANGINI

(English translations from the author's original lyrics in Sanskrit)

By K. KRISHNAMACHARYA, B.A., L.T.

WITH A FOREWORD

By Prof. P. SESHADRI, M.A.

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SRINIVASA VARADACHARI & Co., MADRAS.

THE DALTON PLAN.

THE Dalton Plan is a new plan of study that was first invented and put into practice by one Miss Hellen Parkhurst in the town of Dalton in the United States of America. The plan takes its name after the town and is called "The Dalton Plan."

This plan is now being adopted in a large number of countries in the West and therefore requires to be studied by the teachers of India also. At the very outset it is to be noted that it is a *plan* of studies and is not a *method* of teaching. The present plan adopted in our schools to-day may be styled as "the class-room plan" to distinguish it from the new plan. Though educationists from the very beginning have been laying great stress upon the individuality of the child, which must be so trained as to flower forth, yet, in our schools, the unit of education is the class and not the individual. Generally we teach a class of about forty children, paying the same kind and amount of attention—if that be paying attention at all—to all the children. The ideal is actually one of reducing all the forty children to a particular type. The idea of fostering the individuality of the pupil is almost a myth in our schools.

The new plan is devised to remedy this defect. There are no class-rooms or classes according to this plan. The whole school is divided into a number of "laboratories" or "subject-rooms," one for each subject. Thus the school would consist of laboratories, one for English, one for Mathematics, one for Physics, and so forth. We know what a Physics or Chemistry laboratory is. It is a place where pupils do practical experiments individually or in small groups, under the guidance of the teacher and learn new truths for themselves.

A laboratory under the Dalton Plan means the same thing—a place where pupils learn for themselves new facts. Each laboratory is fully equipped with all the necessary things for the particular subject, such as books for reference, maps, charts, etc. Each laboratory is in charge of one or more "Experts" in the subject.

So much for the laboratories. Next coming to the plan proper, we find that the school-day is no longer divided into a number of regular periods of a fixed duration as is done at present. There are no regular periods set apart for each subject studied. There are no regular classes. The teacher, or instructor draws up for each group of pupils a plan of work in each subject extending for a period of twelve months. This plan for the year is divided into what are known as monthly "assignments" or "tasks" or portions for a month and this again is sub-divided into a number of simpler units. When the teacher gives to a pupil an "assignment" he enters into a "contract" with him to finish the task within the month. Not that a penalty is imposed upon the pupil when he does not finish it in the prescribed time, but no new assignment is given to him till he has finished the old one to the satisfaction of the instructor.

After undertaking the contract, the pupil goes to work allotting his time to each subject in the way he finds best. He may devote more time for a subject in which he is deficient and less time for one in which he is well up. Thus if a boy is good at Mathematics, he may finish off all the units of work for the month in that subject, in the course of the first week itself and then he will be at liberty to utilise the remaining portion of the month, say for English in which he may be poor. A graph

Aug. 1923.]

THE DALTON PLAN.

sheet is provided for each boy in each of the laboratories he is working in, and as soon as he has done some work, he goes and marks the number of units of work turned out. A look at the graph would enable the instructor to find out the amount of work a particular pupil has turned out. The instructor by means of oral, written and other tests, finds out whether the "task" has been gone through satisfactorily. After so satisfying himself, he enters into a fresh contract with him for the next monthly assignment.

One great advantage of the plan has already been pointed out. The pupil makes his own allotment of time for the different subjects taking into consideration his varying aptitude for particular subjects. He can devote more time to those subjects in which he is weak and less to those in which he is strong.

Another advantage of this plan is this. No fixed time-table is forced upon the pupil and he is free to enter any laboratory at any time. This gives him free scope to study at any particular time that subject towards which he is inclined and avoid the one which he is not in a mood to work at. Now, as it is, a pupil has to go through Mathematics or English at a particular hour whether he likes it or not, because that hour has been ear-marked for that subject.

A third advantage of the plan is that it develops in the pupil a sense of responsibility, self-reliance, and self-control.

Another advantage of the plan may also be cited. It does away with the evils of examinations. To-day, if a pupil fails to get a minimum number of marks in the examination, he is made to remain in the same class for a period of one more year and do the same work which he did in the previous year over

again. The deficiency of a pupil who fails may not be so much as to require a period of one more year being spent in the same class and even then the deficiency has not been located. Under the new plan as no fresh contract would be given unless the instructor is satisfied about the progress in the previous one, there is no fear of the pupil slighting any particular portion at all. The attention of the pupil is distributed equally on all the portions. Further an examination is no sure test of a boy's work. A boy may know only a few portions and luckily for him if the questions bear on these portions alone, he is promoted though he is quite ignorant of the other portions of the subject. Another pupil—an unlucky one—may be thorough with all the other portions. But the questions being in those portions which he has not studied, he miserably fails. These discrepancies are got over under the Dalton Plan.

These are some of the advantages claimed for the plan. Next a word about the place of the teacher or instructor in the Dalton Plan. It was already observed that each laboratory or subject-room is presided over by an expert in the subject. He is always in the laboratory ready to give every sort of help to the young investigators of knowledge, such as giving of references, explaining knotty points, etc. He has to deal with every individual case as it occurs and therefore must be an "expert" in the literal sense of the term, ready to clear up all the difficulties that may crop up to the children. There would, under this plan, be but little of regular "class-teaching." But oral instruction to groups of pupils may at times be necessary and some time must be set apart for this purpose. However this need not come at regular intervals, only whenever it is found necessary.

M. S. SUBRAMANIA SASTRI,

[Copy-right].

PUPILS' READER.

(Continued from p. 470).

[Herein the Second and Third of the Series to cover the Fourth and Fifth class of the Elementary School Course. With these, the Series for the Primary set, is complete.]

Suggestions from those interested in the cause of Primary Education are welcome and they may be addressed to Messrs. Srinivasa Varadachari & Co., Educational Publishers, Mount Road, Madras.

In the subsequent issues of this Journal it is proposed to take up the other Series of Readers relating to the Senior Set, covering up the Form classes.]

(SECOND BOOK FOR FOURTH CLASS COURSE).**AUTHOR'S HINTS AND SUGGESTIONS.**

IN this course of study, proper care and attention should be bestowed upon right accent, correct spelling and the use of the comma, and the semi-colons.

Conversation on each lesson of the Reader by the pupils to the teacher, by the teacher to the pupils, and pupils among themselves should be sharply practised.

Cramming should be avoided completely. Most of the subjects in the Reader lesson may be taught by dramatization. Object lessons may be shown and brought home to the minds of the pupils through excursions.

Drill and physical exercises, wherever possible, may go hand in hand with teaching proper.

History, Geography, Science and Mathematics may be taught in the Reader lesson on a "correlative basis."

This Reader is a second preparatory course to the next Reader, which will treat more elaborately on subjects, akin in form and matter, involving a little complex phraseology and embracing a wider vocabulary.

Pupils are expected, when they finish this Reader, to be conversant with simple analyses, numbers and the uses of the parts of speech.

In composition on any known subject, they are expected to acquire facilities to write at least a dozen sentences and write letters to their friends and relations.

Pupils are expected to have a modern Pocket Dictionary, preferably Collins or Chambers, to learn the correct accent of every word that occurs in the Reader. Besides it has another side effect of making pupils learn the different meanings of the same word as different parts of speech or as a single part of speech. It is just with this view of giving an opportunity, created by necessity, for consulting a Lexicon the author has not marked for some words the proper accent mark.

Lesson I.**SCHOOL BUILDING.**

The school is in Mylapore. Mr. Ram is the Headmaster. It is an Elementary School. It has five classes. The lowest is the Infant Class. The highest is the Fifth Standard. There are five masters; one for each class. Besides it has one Drawing-master and one Drill-instructor.

There is a Library and a Drill-ground.

Words for Spelling.

Head-master. Ele-menta-ry. Libra-ry.
In-structor. Be-sides. PCon.

Lesson II.**RIVER.**

A river rises in a mountain. It flows on the slopes, through crevices. At first it is very narrow. It becomes wider and wider gradually. There are two banks for a river.

Rivers are full of water in July and August. July and August are monsoon months in India.

River water is pure for drinking purposes.
Rivers irrigate fields through channels.

Rivers make the climate of a town very cool.

Rivers fall into the sea.

Words for Spelling.

Mountain. Crevices. August (*adj.*) August (*n.*).

Mon-soon. Gradu-al-ly. Irri-gate. Climate.

Conversation.**Questions.**

- (1) Where does a river rise?
- (2) When are rivers full of water and why?
- (3) Name some important uses of rivers.
- (4) Where do rivers fall?

Lesson III.**PAPER.**

Paper is white in colour. It is a thin material. In China, Europe and other countries paper is made.

Old rags are beaten by spiked wheels in a machine. They are crushed and made into very fine pulp. This pulp is washed in clean water several times. Then it is put on plates and stretched into suitable sizes and shapes. It is dyed in various colours.

For gloss, the paper is dipped in solution, and packed in bales.

Twenty-four sheets make one "Quire."
Twenty Quires make one "Ream." Ten Reams make a "Bale."

Books, Note-books, Covers, Cards, Envelopes are all made of paper.

Words for Spelling.

Ma-chine. Stretched. Vari-ous.
So-lution. Envel-opes. Suita-ble.

Write six sentences about paper manufacture.

Lesson IV.**SLATE.**

Slates are grey in colour. They are of various shapes,—square and oblong. Thin

slabs are cut out from slate rocks. The rough surface is smoothened first and then polished by rubbing it with cuttle-fish and others. Then the piece is fitted to wooden frames, and, you have your slate on which you write.

In some countries pieces of slate are used for covering roofs.

Slate pencils are made of thin long sticks cut from slate rocks and also by cementing powders of slate rocks.

Slates are ductile and opaque. In schools young boys write on slates with pencils. Paper and pencil are costlier than slate and slate-pencils.

Words for Spelling.

Colour Vari-ous Square Smoothened
Cuttle-fish Wooden Ductile O-paque

Questions.

- (1) What is the colour of slate?
- (2) Whence are slates got?
- (3) What are the shapes of slates?
- (4) What are the uses of slates?

Singular.**Plural.**

Slate

Slates

Roof

Roofs

Stick

Sticks

Pencil

Pencils.

Lesson V.**SILK.**

Silk is fine and soft in texture. It is obtained by killing silk-worms. Silk-worms are killed, after they make the cocoon, by steam. Then the outer layer of silk is taken off. It is then wound up on a spindle in the form of silk thread. The thread is afterwards bleached and dyed in vibgyor (violet, indigo, blue green, yellow, orange and red.)

Silk is obtained from China, Japan, France and some places in India. It is very costly. Sarees, Bodices, Turbans are all made of silk. Shirts and coats are made of Tussore silk. Umbrellas and caps too are made of silk.

Silk is a good conductor of heat. It makes a grand dress.

Words for Spelling.

Texture Ob-tained Co-coon Steam
Lāyer Wound Bleached Vibgyor
Tussore Um-brella Con-ductor.

Questions.

- (1) How and where is silk obtained ?
- (2) What are the uses of silk ?
- (3) How is a silkworm killed ?
- (4) What is a cocoon ?
- (5) What is vibgyor ?

Lesson VI. MARKET.

A Market is a place where vegetables and other things are sold. In every town or city there is a market.

It is generally in the centre of a town. Banian leaves, Turnips, Drumsticks, Lablaba, Jack, Brinjals, Coriander, all English and Indian vegetables can be had.

Good rice, ghee, gingelly or castor oil too are sold there.

Sometimes brass vessels, cooking utensils, shirts and coats are sold in auction.

Every Indian house, early in the morning, sends a boy or a girl to the market for buying the daily necessities of life.

Words for Spelling.

Vege-ta-bles Gener-al-ly Brinjals
Cōri-ander U-tensils Necessa-ries
Mu-nici-pal Building.

Questions.

- (1) Where is the market ?
- (2) What are the vegetables in a market for sale ?
- (3) Name some food-stuffs in a market for sale.

Lesson VII. DIALOGUE.

Ram. Good morning. How do you do ?

Subbu. Quite well : Thank you, friend.

Ram. Have you a holiday to-day ?

Subbu. Oh yes ! To-day is Sunday.

Ram. How do you propose to spend the day, my dear ?

Subbu. Oh ! I intend to make a round of visits.

Ram. Where to ? How long and why ?

Subbu. First I go to the Museum.

Ram. What do you find there ?

Subbu. I find a rare collection of skeletons, stuffed animals, fine arts, ancient weapons, images of Hindu gods, geological stones and the like.

Ram. Will you please take me along with you ?

Subbu. Yes, with pleasure.

Ram. Where do you intend going in the evening ?

Subbu. To the seashore.

Ram. Shall we start now ?

Subbu. Yes.

Ram. Shall we walk or bike ?

Subbu. The latter please !

Ram. Sorry. I can't.

Subbu. Why ?

Ram. I have no bike.

Lesson VIII.

RAILWAY STATION.

A Railway Station is a grand building. It belongs to the Railway Company.

The chief figure therein is the Station-master. The Porter, Goods-Clerk and Ticket-Examiners are other officers. There is the Booking-Office where tickets are issued. There is an Indian Buffet or Restaurant for passengers to mess. There are Waiting Rooms for ladies and gentlemen. There is a Platform.

The Goods-Shed is a place, where goods are stored.

In some stations, there are Book-stalls, Newspapers, Fruit-stalls.

Words for Spelling.

Station. Building. Com-pound
Restaurant. Plat-form. Ex-amin-er.
Goods-Shed. Off-icer.

Questions.

- (1) What is a booking-office for ?
- (2) What is a restaurant ?
- (3) What is a Goods-Shed ?

Lesson IX.

SHIP AND SEA.

A ship is a big vessel that sails on the sea. The sea is an expansive sheet of water. The ship is made of wood and steel plates. The hull is the biggest part of the ship. The mast is the topmost part of the ship. The upper flat portion of the ship is called the deck. The cabin is the place for first and second class passengers. The rudder is the important part of the ship, which turns the ship north, east, south and west.

The Mariner's Compass shows the direction for the ship to sail. An anchor is a big piece of huge, hooked iron thrown into the sea, to keep the ship steady. Life-belts are used

in times of danger, to save the lives of drowning men.

A ship sails by the force of wind on the sails. A steamer sails by the force of steam. Ships sail from one port to another and carry cargo and crew.

Sea water is saltish.

There are billows and waves in the sea. Fishes, whales, sharks and other water animals live in the sea. Pearls and corals are found in the deepest recesses of the sea.

A voyage by sea is very pleasant.

Words for Spelling.

Ex-pansive. Deck. Passen-gers. Mari-ner.
Di-rections. Anchor. Whale. Steamer.
Billows. Sharks. Re-cesses.

Questions.

- (1) What is a ship ?
- (2) Name the various parts of a ship.
- (3) What is the use of the rudder ?
- (4) What are the uses of a ship ?
- (5) Where are pearls and corals found ?

Lesson X. TEMPLE.

An Indian Temple is a place of worship. The most famous temples of South India are Srirangam, Chidambaram, Madura, Kumbakonam and Conjeevaram.

Temples were built by ancient Hindu kings. They are built of stones. Architects and sculptors turned out wonderful work in our temples.

In every temple there is a sacred, high pillar in the front yard. It is called "Dvaja-Sthamba."

Both on the right and left wings cockatoos, peacocks and parrots are reared.

There are sweet-meat shops and doll-stalls in front of the temple.

There are palanquins and other vehicles called "*Vahanams*" to carry the idols along the streets. They are made of wood covered over by plates of gold and silver.

Elephants are tethered in front of the temple.

The chief objects of worship in a temple are the God and the Goddess.

There is a tank in the temple where pilgrims bathe.

Words for Spelling.

Temple.	Ancient.	Archi-tect.
Sculptors.	Cock-a-toos.	Sweetmeats.
Palan-quins.	Vehi-cles.	Ele-phants.
Pilgrims.		

Questions.

- (1) What is an Indian Temple?
- (2) What are the famous temples of South India?
- (3) Name some birds that are seen in the temple?
- (4) What are *Vahanams* for?

Lesson XI.

GARDEN.

A garden is a piece of ground where flowers and vegetables grow and are grown.

The most famous gardens of the Madras Presidency are the People's Park and the Agri-Horticultural Garden in Madras, Lal Bagh in Bangalore and the Botanical Gardens in Ootacamund.

The Rose, the Jessamine, the Lily, the Pink, the Violet are all grown in a garden.

The ground is either square, oblong or circular.

Pomegranates, Guavas, Mangoes, Apples, Plantains, Cocoanuts are all grown in gardens.

A fence runs all round the garden to keep it safe from the inroads of stray cattle.

Crotons of various rich colours like the Prince of Wales, the Corkscrew, the Broad-sword and other similar families are arranged in beds and flower-pots.

In summer especially, the gardener waters and prunes the plants and flowers.

On the whole it is a fine sight to see and enjoy. It is a feast for the eye and a pleasure for the soul.

It contains pure air.

Words for Spelling.

Vege-ta-ble.	Famous.	Bo-tanic-al.
Jessa-mine.	Pome-granate.	Cocoanuts.
Plantains.	Inroads.	Gardener.
Cattle.		

Questions.

- (1) What is a garden?
- (2) Name some important gardens you know of.
- (3) Name some flowers and crotons that are grown in a garden.
- (4) What is a garden for?

Lesson XII.

TENNIS COURT.

A Tennis Court is an oblong piece of ground, levelled and hardened with gravel. The ground is divided into two halves and a net is tied to two poles driven to the earth, right opposite to each other.

Each half of the court is divided into two fronts and two backs. The game is played by sets. Each set is covered by six games

and each game counts "love," "fifteen," "thirty," "forty," "dence," "vantage in," "out," and "games." These are the scores. The game is played by singles and doubles, i.e., two and four players.

The Tennis ball is made of rubber and is elastic. It rebounds when playing.

Tennis bats are made of guts, interwoven across a piece of wood bent oval.

Tennis is a manly game. It gives strength to the muscles and loins. Schools and Colleges and some public offices have their own Tennis courts. Matches are played in tournaments, and cups and medals are awarded as prizes for the best players.

Words for Spelling.

Oblong.	Levelled.	Hardened.
Singles.	Doubles.	Tennis.
Rubber.	Muscles.	Tourna-ment.
Players.		

Questions.

1. What is a Tennis court?
2. How is the game played? Name the scores.
3. What is a Tennis ball and a bat?
4. What are the advantages of Tennis playing?
5. Where do you find Tennis courts?

Lesson XIII.

COCOANUT.

The coconut tree is a kind of palm. It is grown almost all over India. In Ceylon it is very largely cultivated.

It grows to a height of from thirty to seventy feet. Its various parts are the stem,

XXIX—65

the branches, etc. It has a circular ring round the stem. Its green leaves are plaited for screens. The slides are used as broom-sticks.

The juice of the coconut is cool and refreshing. The stem is sawed and used as rafters for buildings. Toddy is extracted from the top of coconut trees. Coconut oil is squeezed in large quantities and exported to foreign countries.

In Malabar for plain meals this oil is used instead of ghee or gingelly oil.

Words for Spelling.

Cocoa-nut.	Culti-vated.	Rafters.
Re-freshing.	Quanti-ties.	Instead.
Buildings.	Gingelly.	

Questions.

- (1) What is the height of a coconut tree?
- (2) What are the various parts of a coconut tree?
- (3) What are the uses of a coconut tree?

Lesson XIV.

TRAM.

A Tram-car is a conveyance. It is a car, holding many passengers. The car runs on rails. It moves by the force of electricity. The Railway Engine runs by the force of steam.

The Motor-man works at the car. The car has a Conductor. He issues tickets. The car runs throughout the town. It takes in passengers and alights them at important lane ends and centres of the town. The Inspector is the checking officer, who examines tickets. Long distances are traversed in a short time. Charges are cheap. Time, money and energy are saved by a Tram-car journey.

Tram-cars run in important cities like Madras, Bombay, Calcutta, etc.

Words for Spelling.

Motor-man. Con-ductor. In-spector.
Im-portant. Passen-gers. Elec-tri-city.

Questions.

1. What is the chief difference between a Railway engine and a Tram-car in running?
2. Who are the staff of the Tram-car and what is the duty of each?
3. In what part do they run most?

Lesson XV.

THE ELEPHANT.

The Elephant is the biggest of all land animals. Herds of elephants are found roaming in the forests of Burma, Ceylon and jungles of Malabar, Mysore. The elephant lives on branches and leaves of trees, sugar-cane and cocoanuts.

The elephant does not eat flesh. So it is a herbivorous animal. The front hanging portion is the trunk. It eats and drinks with that. Male elephants have tusks (soft ivory) and female elephants have no tusks. Its four legs are very stout, like pillars. Its ears are broad. They protect the animal from flies. Its eyes are very small. If they are big they will do away with all men. Its tail is small like a broom-stick.

When alive, they are used in marriage and temple processions. The *Mahout* on the howdah or seat on the elephant's back rides on the animal on war occasions. In Burma, they carry heavy loads of timber. Some are trained to bike in the circus.

"The elephant is worth £ 1000 both when living and dead." From its bones and tusks, boxes, combs and beautiful articles are made.

Questions.

- (1) What are the uses of elephants when they live and die?
- (2) What are the parts of an elephant and how do they look like?
- (3) What is the food of an elephant?

Lesson XVI.

THE COW.

The Cow is a gentle and domestic quadruped. A quadruped is an animal having four legs. The cow gives us milk to drink.

The cow has two horns and a hump. It feeds on grass and straw. Cotton seeds and oil-seed cakes are sometimes given to cows.

Cowherds tend cows. Cows are held sacred by Hindus. Once in a year in the month of January, cows are adorned with flowers, new cloth, saffron and worshipped in Hindu homes.

The young ones of cows are called calves.

Cow's milk is sweet. It is given to young children.

It gives nourishment to the body. Butter and ghee are made of milk.

The hoof of a cow is cloven unlike that of a horse. The cow has only one row of teeth, in the lower jaw.

The cow does not eat flesh. *Gorochana* is taken from the belly of cows. From its horns combs and ornamental fancy boxes are made.

Words for Spelling.

Quadru-ped.	Animal.	Cowherds.
Calves.	Nourish-ment.	Cloven.
Go-ro-chana.	Orna-mental.	Fancy.
Worship.		

Questions.

- (1) What does the cow live upon?
- (2) What are the various parts of a cow?
- (3) What do you get from milk?
- (4) What are the uses of its horn?

Lesson XVII.

THE PARROT.

The Parrot is a beautiful bird. It lives in woods and trees. It sings melodiously. Parrots are domiciled and kept in cages in certain houses. They are made to talk and whistle. The parrot lives upon fruit. Its wings are green. They are reared in temples.

There is a small story about the parrot. A gentleman once bought a parrot for Rs. one hundred and taught it "Master, master, wake up; thief come, thief come," principally among other sounds. On a new-moon day, while the master was away, some thieves surprised the house. The parrot cried out "Master.....". Astounded, all the thieves ran away! The ladies at home woke up, opened the door and found a gang running. Thus the parrot saved the property of its master.

Words for Spelling.

Beauti-ful. Me-lodi-ously. Domi-ciled.
Whistle. Gentle-man. Thief.
Princi-pally. Sur-prised. As-tounded. Wings.

Question.

Write a dozen sentences about the parrot in this form :—

Subject.	Predicate.	Object.
1. The parrot	is	a beautiful bird.
2. Its wings	are	green.
3. The parrot	lives	on fruits.
4. The hunter	shot	a tiger.

N.B.—Teachers are requested to frame similar sentences for the pupils for simple analysis.

Lesson XVIII.

IRON.

Iron is a metal. It is the hardest of all metals. It is dug out from the mine. Iron is found in large quantities in Salem. The chief centres of iron trade are:—Birmingham, Walsaw, Bilstone and Dudley.

There are three kinds of Iron:—(1) Cast-iron, (2) Wrought-iron, and (3) Steel.

Steel is the most polished form of iron. The first two are used for rough and strong purposes.

Iron is smelted in ore. Windows, Boxes are made of iron. Trunks, Engines are made of steel. It is a good conductor of heat. Iron is saturated in rivers and mineral water. Phosphate of Iron is a good tonic.

Words for Spelling.

Windows.	Wrought.	Engines.
Tonic.	Phos-phate	Miner-al.

Questions.

1. How many kinds of iron are there?
2. Write six sentences about the uses of iron.

Lesson XIX.

POST OFFICE.

A Post Office is a building where letters are posted and letters are delivered. The Post Office belongs to Government.

Post Cards, covers and stamps are sold at the Post Office.

A Post Office is comprised of various departments, viz., Registration, Insurance, Money Order, Savings Bank and Telegraph.

Letters may be sent to our friends and relations through the Post Office. In the case of Post Cards, the matter is written on one side and the address on the other side. In the case of letters, the matter is written on a sheet of paper and then put into an envelope. The envelope is then addressed and stamped. The card or envelope is then put into a slot in the Post Office.

Sometimes we send valuable articles and money to our friends and relations through the Post Office.

We can send messages through the telegraph to our friends at the other end of the earth.

We deposit money at the Post Office and draw it whenever we want it back.

Lesson XX.

THE SUN.

The Sun is like a big ball of burning fire. It rises in the East and sets in the West. The Sun gives light.

The Moon takes its light from the Sun. The Sun is far away from the Earth.

The Sun reaches the Meridian at twelve in the day and time is calculated as A.M. and P.M. 7 o'clock in the morning is called 7 A.M. and 7 o'clock in the evening is called 7 P.M. Railway time is calculated from midnight to midnight.

The rays of the sun are perpendicular. The sun is very hot in the months of April, May and June. The sun evaporates sea-water and thus we have rain. By sun-light plants grow.

In Africa and India the sun is very hot.

Explain, if convenient, Cancer; Capricorn; Torrid Zone in a general way.

Lesson XXI.

POEMS.

THE STAR.

Twinkle, twinkle, little star,
How I wonder what you are,
Up above the world so high,
Like a diamond in the sky.

When the blazing sun is gone
When he nothing shines upon
Then you show your little light,
Twinkle, twinkle, all the night.

Twinkle, twinkle, all the night.

THE SUN.

Now the burning summer sun
Hath unchallenged empire won,
And the scorching winds blow free
Blighting every herb and tree.
Lo! the Lion, forest king,
Through the wood is wandering;
By a maddening thirst oppressed
Ceaseless heaves his panting chest.
From their mountain cavern, see
Buffaloes rush furiously,
With hanging tongue and foam-flecked hide
Tossing high their nostrils wide.

Lesson XXII.

LETTER-WRITING.

To a near relation, like your father, mother, brother, sister, uncle and aunt, begin "My dear ——" or "Dear ——" (according to the degree of affection) or "Dearest....." and end "Your affectionate (or loving) son" or "Yours affectionately (or lovingly)."

To an acquaintance or friend, begin "Dear friend" or "My dear friend," "Dear Ram" or "My dear Ram" and end "Yours sincerely," "Yours very sincerely" or "I am yours (very) sincerely."

N.B.—The teacher should give copious examples of letters and expect prompt answers orally and in writing from pupils.

Lesson XXIII.

GOOD PROVERBS.

A bad workman always complains of his tools.

Make Hay while the Sun shines.
Strike while the iron is hot.

A good son makes a Father glad; a foolish son is the Heaviness of the Mother.

Harm set, harm catch.
The biter is bit.

A Bird in the Hand is worth Two in the Bush.
Don't blow your own trumpet.

All that glitters is not gold.
Call a spade a spade.

Don't be pennywise and pound foolish.
Procrastination is the thief of time.

She strains at a gnat and swallows a camel.
Do not look a gift horse in the mouth.

Don't build castles in the air.
Rome was not built in a Day.

Honesty is the best Policy.
Necessity is the Mother of Invention.

Industry is the backbone of success.
Where there is a Will there is a Way.

Never put off till to-morrow what you can do to-day.

A rolling stone gathers no Moss:
Prevention is better than cure.

Coming events cast their shadows before.
Do not run with the hare and hunt with the hound.

Idleness is the Rust of the Mind.
Idle men tempt the devil.

No workman can plane his wood against the grain.

Knowledge is Power.

A willing horse needs no spur.

A little wit is worth a deal of strength.

A little spark kindles a mighty fire.

Little strokes fell great oaks.

A pin a day, a groat a year.

Hunger is the best Sauce.

(THIRD BOOK FOR FIFTH CLASS COURSE).

AUTHOR'S HINTS AND SUGGESTIONS.

The Third Series on the 'Correlative System,' embraces *ad variorum* lessons on Nature, Science, Philosophy, etc. The principal point to be kept in view in these series is to develop the powers of imagination and sound their judgment. In the stories given, pupils must be asked to deduce morals for themselves. Morals being given, stories must be asked to be given by pupils.

Conversation between pupils involving small accurate sentences covering known phraseology must be largely practised.

Simple analyses, correct spelling and proper accent must be well taught.

In dramatization, each pupil must play the part with ease and naturalness and with proper gait and feeling and never as a *crammer*.

In Exercises, boys must see, reflect and digest facts. On the whole, a pupil taken systematically through these courses, learns 'Queen's English' without a fault and that in the shortest period of time.

Lesson I.

UNION IS STRENGTH.

An old man had many sons who were always quarrelling with one another. At the time of his death, he called his sons to him

death-bed and told them, "My dear sons, I give you a bundle of sticks. I direct you to break it." Thereupon each and every one of them tried to break it, but could not. Then the old man asked them to untie the bundle and take the sticks one by one and break them. This was very easily done. Then he said to his sons, "See that you were not able to break the bundle, but when the sticks were untied you broke them very easily. So also if you are all united and strong, your enemies cannot conquer you; but if you are disunited, then you will fall an easy prey to your enemies. So be united, enjoy the property and live happily when I am gone."

The sons remained true to their father's command, and lived to be happy and good.

From this, we learn the moral "UNION IS STRENGTH."

SECOND STORY.

Once there was an old lion in a forest. The lion wanted to kill and devour the cattle grazing in a field. It saw four bulls in a meadow, and began to pounce upon them. Thereupon all the four bulls confronted the lion in a body by joining their tails together. The lion could not attack them in front, for fear of their sharp horns.

Sometime afterwards the bulls quarrelled with one another and began to graze in different parts of the field. The lion now found it very easy to attack them one by one. So the lion pounced upon each and made a hearty meal without much effort.

This story also proves the moral "UNION IS STRENGTH."

1. Dramatize the first story in the class.
2. Draw a neat map on the Board to illustrate the second story.

3. If possible, question vigorously the pupils in the class to invent short stories ending with the same moral and try to bring home to the minds of the pupils the value of this moral.

Lesson II.

SLOW AND STEADY WINS THE RACE.

Once upon a time, a hare and a tortoise ran a race. The hare is a swift-footed animal; but the tortoise is a slow crawling creature. Both of them started the race. The hare was a proud animal. It ran half the way and slept in the middle, thinking that the tortoise would take a long time to overtake it because it moved inch by inch.

On the other hand, the tortoise crawled step by step and saw the hare asleep in half the way: but did not dare awake it, lest it should get awake and defeat the tortoise in journey. Thus the tortoise reached the goal. The hare shook off sleep, and ran as fast as he could. But when he reached the goal he found he was late and the tortoise had reached the goal earlier.

The hare, though swiftfooted, did not win, whereas his competitor the tortoise, though slow in motion, won the race.

From this story, flows the moral, "SLOW AND STEADY WINS THE RACE."

Introduce sentences of your own with:—

1. Run a race.
2. Overtake.
3. On the other hand.
4. Step by step.
5. Shake off sleep.
6. Hardly before.

Present.	Past.	Past Participle.
Run	Ran	Run.
Sleep	Slept	Slept.
Win	Won	Won.
Fly	Flew	Flown.
Overtake	Overtook	Overtaken.
Shake	Shook	Shaken.
Flee	Fled	Fled.
Flow	Flowed	Flowed.

Let pupils be taught "tenses" at this stage:—

- (1) The present tense denotes an action done, at the present time.

Example: "I read."

- (2) The past tense denotes an action done in the past.

Example: "I read."

- (3) The future tense denotes an action, that may take place hereafter. The future tense is always represented by "shall," "will"—(mere futurity).

I shall go. We shall go.

Thou wilt go. You wilt go. You will go.

He will go. They will go.

Lesson III.

'WHERE THERE IS A WILL THERE IS A WAY.'

If one wills to do a thing, one can do it. There is nothing like impossibility.

Once upon a time, a crow was thirsty, and it roamed about from place to place; and at last came to a place where there was a jar with a little water at the bottom. The crow tried its level best to drink by immersing its beak. It could not get at it, because water was too deep for the beak to reach.

Then it hit at a plan. Pebbles were lying near and it picked them one by one through the beak, dropped them into the jar. Great was its joy to find that the level of the water was raised conveniently near for it to drink.

Thus we learn, that when one sets one's heart and soul to a work, one cannot but do it well; even in face of difficulties.

As an exercise in Drawing ask the pupils to draw the picture of a jar and a crow, re-

presenting the former and the latter position of water in the jar.

Lesson IV.

A DIALOGUE.

Between Father, Mother, Son,
Rama. Lakshmi. Gopu.

Rama. Well, my son! Did you go to school yesterday?

Gop. Yes father. I did.

Ram. What did you learn in Geography?

Gop. About the "New Moon" and the "Full Moon."

Ram. How is the New Moon caused?

Gop. I could not well grasp it. Will you explain it to me?

Ram. My dear boy. The Earth moves on its own axis. The Moon moves round the earth. At a time the position of the Sun, the Earth and the Moon are like this. When we see the Moon we see only half of it. When that half is within our full view it is full of light. On the other side it is full of darkness. There is the figure of the Full Moon and that of the New Moon.

Gop. "Still it is not clear, father." The class teacher also drew figures like these.

Lakshmi. Teach him, dear, by concrete objects.

Ram. Gopu. This lantern is the Sun. The ball is the Earth. The lime is the Moon. See how the lime moves round the ball and observe various positions. Light from the lantern falls straight.....

(Thus the father taught his son).

Ram. Do you now understand it?

Gop. Very well.

Lakshmi. My boy! the sun is big early in the morning and small at noon. Why?

Gop. Mother, I do not know.

Lakshmi. Look here, my boy. I shall tell you.

Gop. Thank you, mother.

Lakshmi. The sun at the horizon is nearer the earth.

Gop. "What about noon day's sun?"

Lakshmi. "At noon time the midday sun is far away."

The teacher is requested to explain this in a suitable and convincing manner.

Lesson V.

AN INDIAN VILLAGE.

An Indian village is full of lively sceneries. Its population is not so great as that of the town. Green fields full of pasture surround it. Birds with bright wings visit the corn fields. Dry crops and wet crops are full of pleasure for the eye. Small rivulets and lakes surround the village and supply plenty of water. Avenues of trees, the Cocoanut, the Banian, and the Palmyra, afford shade to the weary traveller on the road.

There is the Village Union that looks to the sanitation of the village.

Summer is not excessive in rural parts.

Vegetables are fresh in the market stall. Foodstuffs are comparatively cheaper in a village. Villagers as a rule have morning baths and are not so fashionable in their style of living as a citizen proper. Plain life, high thinking and robust body are the ruling principles of villagers.

Villagers are not tempted by fashionable conveyances to walk long and wearisome distances. There are no cycles, coaches motor-cars, nor trains in a village.

Villagers are generally occupied in farming, weaving and other similar innocent occupations.

There are temples dedicated to the local deities, that are worshipped punctually by the villagers.

(a) An excursion to a village where there are rivers, lakes, fields, river-beds and anicuts is strongly recommended so that the eye can cut a deep impression upon the memory of the pupils.

(b) Ask the pupils to write a short composition not exceeding eight lines on an Indian village and keep a watchful eye on bad spelling and insist upon good hand-writing.

Quill-pens mended by the teacher are strongly recommended in the lower classes for the correct formation of letters and rapidity of writing.

Lesson VI.

MOUNTAINS.

A mountain is a ground rising above the level of the surrounding country. There are trees, shrubs, plants, on the top of a mountain. The climate of a mountain is very cold. Potatoes, tea, coffee, cabbages, nutmegs, pepper, cardamoms, all grow in the mountains. There are also elephants, lions, tigers and other wild beasts that roam in herds.

The top of a mountain is called a peak. It is full of mist. Rivulets take their source in mountains; fall down to the earth through slopes and glide through the valley and reach the plain country in the shape of big rivers.

The mountain is the bed-chamber of medicinal herbs and plants. Many sages are living in caves in the mountain. The Anamalai and the Palni are *Puranic* hills. The Nilgiris and the Kodaikanals are the favourite sanatoria during summer.

A hill is a small mountain. But for mountains we shall have no rivers, no herbs, etc.

Mountaineers eat coarse food; wear woollen clothing and are very hardy and strong.

In former days, great men led an ascetic life only in solitude in mountains. A visit to a mountain is very pleasant and healthy.

Let pupils learn, about the foot and top of a mountain and also know what a slope is. During an excursion let boys ascend a mountain and see practically what it is.

Lesson VII.

RAIN.

The sun evaporates the sea water. It goes up the sky in the form of vapour. There, cold winds blow and come in contact with the vapour and descend as gentle showers of rain.

In India rain is caused by two monsoons. Monsoons are periodical winds that blow in July in the east coast and October in the west coast. Then only we get freshes in the rivers. Malabar has the greatest rainfall. Bellary and other countries (inland) have little rain.

Rain water is very pure. Rain mitigates heat and supplies water for rivers, tanks and channels, that irrigate fields. Rainbow is a beacon light or 'Indra's thunderbolt' to announce a shower of rain.

The quantity of rainfall is measured by the rain-gauge. Rain is both good and bad. Floods, due to excessive rainfall, wash off rails and cause devastation to crops. Rain in summer is very pleasant and agreeable.

Ask pupils to write half a dozen sentences about rain, its causes and its uses.

Lesson VIII.

LETTER TO A SCHOOLMASTER FOR LEAVE OF ABSENCE.

MADRAS,
26-7-23.

From

K. Venugopalan,
V Class,
E. R. E. School,
MADRAS.

To

The Headmaster,
E. R. E. School,
MADRAS.

SIR,

As I suffer from fever, I cannot go to school and attend the class. I therefore request you to grant me leave for two days only—this day and to-morrow.

I beg to remain,

Sir,

Your most humble student,
K. VENUGOPALAN.

Lesson IX.

LETTER TO A FATHER FOR MONEY.

CHIDAMBARAM,
21-7-23.

MY DEAR FATHER,

It is very long since I wrote to you. Kindly pardon me for such a long silence. I am promoted to the I Form.

I want to buy books and pay school fees. It comes to Rs. 10. I therefore request you to send me an M.O. for Rs. 10. The classes are open and lessons are being done. Please send an M.O. as early as possible.

With my best respects for self and mother.

I remain,

Your affectionate son,
J. VAITHY.

Lesson X.

POEMS.

A thirsty fox one day espied
 High up upon a vine
 A bunch of grapes—He looked and said
 "I wish these grapes were mine.
 No bite have I yet had nor sup.
 My thirst is getting stronger.
 If I can eat these berries up,
 I will be thirsty no longer."
 The ground was bare, the grapes hang
 free,
 The fox's leaps were many.
 "Just one small inch I am short" said he.
 Of grapes he got not any.
 For long he tried and tried in vain
 His legs had lost their power.
 Said he with wisdom "I will refrain,
 I am sure the grapes are sour."

In recitations please see that there is a rise and fall, or cadence in recital. A sing-song tone must be avoided.

Make out a clean diagram or draw a picture on black-board and illustrate.

Lesson XI.

A SHORT STORY.

A farmer once had a good horse. But when it had grown old, and could not work any longer, he did not care to give it food. So he said to the old horse, "I do not want you any more, for you are of no use to me; but go out and show your strength by bringing me a lion, and I will keep you while you live. Walk out of my stable and make a home for yourself in the fields."

The horse feeling very sad, went away and reached a jungle. When it rained, it took shelter under a tree. A fox met him on the

way and said, "Why are you sorry?" "Oh, brother! I have grown old. I worked under my master for a long time. But now, seeing that I cannot work further, he has turned me out," replied the horse. The fox said, "Did he not comfort you? Is there no alternative?" The horse replied, "Yes! he has asked me to bring him a lion. How can I get him? The fox said, "Don't be sorry, friend: just lie down here and stretch yourself like a dead horse and don't move."

The fox ran away to a place where a lion lived in the den. It said to the lion, "There is a dead horse near, Oh! King, you can have a good feast." The lion came to where the horse lay and saw the horse. The fox said, "Somebody may disturb you here. I will tie the horse to your tail and then you can drag him to your den and eat him at leisure."

The lion agreed to the proposal. The fox managed to twist it tightly round the lion's legs. This done, the fox struck the horse on the shoulder. The horse started off at full speed. The lion roared, with pain, to no purpose. The horse brought the lion before the master!! The master with great joy said "You have obeyed me and brought this lion. So you shall stay with me and I will give you food and shelter for the rest of your life."

Dramatise this lesson in the class with three students, one representing the horse, another the master and a third the lion. Ask the pupils to get at the morals themselves, by giving free scope for their powers of observation.

Lesson XII.

SATYAVĀN AND SĀVITRĪ.

Long ago there lived a king, Asvapati, by name. He was a good king, loved by all

his people. He had no children to inherit his kingdom. He prayed to the goddess Sāvitri for 18 years. A daughter was born to him as bright as the Moon. She was named Sāvitri after the goddess.

Nobody would marry her because she was the very queen of Beauty and the Moon-god herself. She went to the forest, and saw Satyavān

She fell in love with him and wanted to marry him. Nārada disapproved of the match, for Satyavān was destined to die within a year. Nārada was his guru. So Asvapati asked his daughter to select another husband. But Sāvitri was determined on having the man. So the marriage was celebrated. Sāvitri joined her husband and went out to her father-in-law's house.

Nearer and nearer came the fatal day. On that day Satyavān went with his axe on his shoulder to cut wood. Sāvitri also followed him. In the way Satyavān's body sweated, he grew weary and fell ill. She laid her husband's head upon her lap. She saw a stranger and asked him who he was. He said, he was Yama and had come to take the life of Satyavān. He at once drew Satyavān's life, tied it fast, and threw the corpse on the ground. Yama then went towards the south. Sāvitri also followed. Yama was pleased with her chastity and granted her boons. Her father-in-law to have his sight again and get back his kingdom. She should have 100 brothers. She also should have 100 sons. But he said he would not give Satyavān's life back to her. She asked Yama how it would be possible to have 100 sons for her without her husband. Yama was in a fix and gave back Satyavān's life to her.

She took that life, went to the forest and there found her husband alive!!!

1. What do you learn from the story?
2. What are the duties of a husband?
3. What is the duty of a family wife?
4. What were the boons conferred by Yama?

In teaching this lesson, bit by bit, boys must learn the value of speaking the truth and practising it daily.

Lesson XIII.

DOGS.

Dogs are very grateful creatures. There are many varieties of dogs: the Terrier, the Spaniel, the Blood-Hound, the Mastiff, the Bull, etc.

The Terrier is of a ferocious type. The Spaniel is of black and white colour with long, pendant ears. The Blood-Hound is a hunting dog. The Mastiff is a watch dog.

Dogs live on bread, butter, milk. They also live on meat. Dogs guard houses. "BARKING DOGS SELDOM BITE." It means these dogs are not of superior variety. Some interesting stories are told of dogs. In circus, dogs ride on horses, drive carriages, perform wonderful feats.

In a voyage from China to Ceylon a gentleman had a dog. The gentleman had a child. Accidentally the child slipped into the sea from its mother's arms. The waves were high. Betty, for that was the dog's name, saw the child fall into the sea. Up jumped our Betty, into the angry sea and in an instant with the child, came near the steamer!! The Captain stopped the steamer and helped the dog and the child to get back safe into the cabin.

The dog thus saved the life of a baby.

Ask pupils to invent stories of dogs.

Lesson XIV.

GYMNASTICS AND DRILL.

Gymnastics covers exercises for strengthening the bones and muscles of the body. In every school, there is a ground, called the Gymnasium, where exercises are done.

Drill means a series of uniform bodily exercises. "A SOUND MIND IN A SOUND BODY." This means that the body must be healthy so that the mind may be clear. Exercises in drill develop the muscles of the body and make children strong and healthy.

After exercise never bathe. Never perform any kind of exercise beyond your strength. Early morning and evening are the best portions of the day, for performing exercises. Exercises remove all impurities of the blood through pores in the skin, as drops of perspiration. In the Gymnasium, there are

- (1) The Parallel bar.
- (2) The Horizontal bar.
- (3) The Trapeze.
- (4) The Horse.
- (5) The Ladder.

Besides, there are Dumb-bells. These Dumb-bells are largely used by children, as many kinds of exercises of varying difficulties are performed. The Parallel and the Horizontal are for advanced pupils. Sometimes, music and action song facilitates Drill work.

The Pāndavas were well trained in all these arts. Sri Rāma learnt archery from sage Viśvāmitra.

Indian children must learn these arts. When children pick up flesh and blood, as

sons of India, they must be ever ready to defend their country on the loyal side.

Gymnastics should never be neglected, for, without health, there is no wealth, no brains, nothing at all.

Teachers are requested to impress the value of Physical Exercise upon students. Make them feel that it is a part and parcel of their daily class lesson.

Lesson XV.

ALPHABETICAL PROVERBS.

Always desire to do charity.
Bury all anger.
Care will kill a cat.
Defer not till to-morrow what you can do to-day.
Ever hold fast to what is good.
From publicity, keep your wealth in secret.
Gain all and lose all.
Heaven and Hell are made by mind.
In wine, out wit.
Joy and sorrow are common to men.
Kings can do no harm.
Lie low, to rise high.
Marry not in haste and repent at leisure.
No pains, no gains.
Opportunity makes the thief.
Pure in tongue and hand, ever be.
Queen of night is the moon.
Royalty's badge is Mercy.
Sound mind in a sound body.
Time and tide wait for no man.
Used key is always bright.
Variety is the spice of life.
Wayward youth makes woeful age.
Xenophon-like pass through dangers.
Yeoman's service for thy country do.
Zealous ever, jealous never be.

Lesson XVI.

GLOSSARY.

I = நான்.	Mine = என்னுடைய.
We = நாங்கள்.	Our = எங்களுடைய.
Thou = நீ.	Your = உன்னுடைய.
You = நீங்கள்.	His = அவனுடைய.
He = அவன்.	Her = அவளுடைய.
They = அவர்கள்.	Its = அதனுடைய.
Theirs = அவர்களுடைய.	

VERBS.

Present.	Past.	Past Perfect.
cut = (வெட்டு)	cut	cut
shut = (மூடு)	shut	shut
let = (விடு)	let	let
begin = (ஆரம்பி)	began	begun
teach = (தற்பி)	taught	taught
catch = (பிடி)	caught	caught
give = (கொடு)	gave	given
come = (வர)	came	come
go = (போ)	went	gone
tell = (சொல்)	told	told
see = (பார்)	saw	seen
saw = (அறு)	sawed	sawed
ring = (அடி)	rang	rung
can = (சூடும்)	could	could
shall = (செய்வாய்)	should	should
must = (வேண்டும்)	must	must
dig = (தோண்டு)	dug	dug

MINERALS.

Gold = தங்கம்	Silver = வெள்ளி
Copper = செம்பு	Bronze-metal = வெங்கலம்
Brass = பித்தளை	Iron = இரும்பு
Mercury = ருசம்	Sulphur = சுந்தகம்
Tin = தகரம்	Lead = ஈயம்
Zinc = துத்தநாகம்	Platinum = கனரகம்

VEGETABLES.

Brinjals = கத்திரி.	Onions = வெங்காயம்.
Bitter gourd = பாகக்காய்.	Pumpkin = பரங்கி.
Drumstick = முருங்கை.	Turnip = முள்ளங்கி.
Beans = அவரை.	Green cabbages = கீரை.
Coriander = கொத்தமல்லி	அல்லது தனியா.

FRUITS.

Lemon = எலமிச்சை.	Orange = கிச்சிலி.
Citron = நார்த்தை.	Wood-apple = விளா.
Pomegranate = மாதுளை.	Mango = மாம்பழம்
Guava = கொய்யா.	Plantain = வாழை.
Pine-apple = அனாசி.	Melon = முலா.
Grape = திராசை.	Jack-fruit = பிலாப்பழம்.

PULSES, etc.

Sesamum = எள்ளு	Green gram = பயரு.
Bengal gram = கொள்ளு	Asafoetida = காயம்.
Mustard = கடுகு.	Salt = உப்பு.
Tamarind = புளி.	Chillies = மிளகாய்.
Cotton seed = பருத்திக்கொட்டை	
Oil seed = பின்னாக்கு.	
Gingelly oil = நல்ல எண்ணெய்.	
Castor oil = விளக்கு எண்ணெய்.	
Cocoonut oil = தேங்காய் எண்ணெய்.	
Rolan = ரவா	Dhill = வெந்தயம்.
Cumim = சீரகம்	Pepper = மிளகு.
Nutmeg = ஜாதிக்காய்.	Cloves = கிராம்பு.
Cardamoms = இலவங்கம்.	

MISCELLANEOUS.

Nail = ஆணி, நகம்	Axe = கோடரி
Hammer = சுத்தி	Spade = மண்வெட்டி
Pliers = குறடு	Wedge = ஆப்பு
Chisel = உளி	Saw = ரம்பம்
File = அரம்	Plane = இழைப்புளி
Tongs = இடிக்கி	Crow-bar = கட்டப்பாறை
Gold-smith = தட்டான்	Black-smith = கருமான்
Mason = கொத்தன்	Carpenter = தச்சன்
Tailor = தையற்காரன்	Dhobie = வண்ணான்
Barber = கூடிவரகன் அல்லது அம்பட்டன்	
Oil-monger = வாணியன்	
Tobacconist = புகையிலைக்காரன்	

COLLOQUIAL CONVERSATION.

Whence do you come? = எங்கிருந்து வருகிறாய்?
Whither do you go? = எங்கே போகிறாய்?
What is your father? = உன் தகப்பனருக்கு என்ன
How do you do? = நீ செளக்கியமா? [ஜீவனம்]
Where is your home? = நீ பிறந்த ஊரெது?
What do you want? = உனக்கு என்ன தேவை?
How old are you? = உனக்கு என்ன வயது?
What is your name? = உன் பெயர் என்ன?

In what class do you read ? = நீ எந்த வகுப்பில்
[படிக்கிறாய் ?

Are you married? = உனக்குக் கல்வியாணம் ஆய்விட்
How many brothers have you? = உனக்கு [ப]தா?

LEGAL.

Plaintiff = வாதி.	Plaint = மனு
Witness = சாക്ഷி.	Statement = வாக்குமூலம்.
Deposition = சாட்சியம்.	Mortgage = ஒத்தி.
Hypothecation = அடமானம்.	Magistrate } சியாயாதி
Vakil } ரியாயவாதி.	Judge } பதி.
Barrister }	Court-house = ரியாயல் தலம்.
Attorney }	Judgment = தீர்ப்பு.
Solicitor }	Liability = கொடுக்கும் கடன்.
Asset = சொக்கசொத்து.	
Defendant = பிரதிவாதி	

Savings Bank = பணமிருக்கிற இடம். **Registration** = பதிவு செய்தல்.

Insurance = நஷ்டத்திற்குப் பிணை. **Telegram** } தந்தி

Invoice = பட்டி **Wire** }

Wire M. O. = தந்தி மணி அடி. **Wire reply** = பதில் தந்தி

Credit = கடன். **Cash** = ரொக்கம்.

Ledger = குறிப்பு வருப்பு.

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A VISIT TO AUSTRALIAN UNIVERSITIES.

BY MUNIR-UL-TALIM MR. H. J. BHABHA, M.A.

TOWARDS the end of 1922, I paid a short visit to Australia with Sir Dorab Tata, who went on a long sea voyage for the improvement of his health, and I took the occasion to see something of the work of the Universities of Perth, Adelaide, Melbourne and Sydney. At the same time I also studied the systems of technical education prevailing side by side with the Universities. An eminent Australian Doctor in Bombay was kind enough to inform the Universities of Perth, Adelaide and Melbourne beforehand of our intended visit and, a friend in Sydney introduced us to the Registrar of the Sydney University. We were received everywhere with the utmost cordiality and hospitality, and were given an opportunity to collect first-hand information.

UNIVERSITY OF PERTH.

Soon after the P. and O. S. S. *Naldera* was berthed in the harbour of Fremantle, Professor E. Shann, Professor of History and Economics, who is Vice-Chancellor, and Dr. Batty, Warden or Chairman of the Senate of Perth University, called on board to take our party consisting of Sir Dorab Tata, Dr. Wadia and myself to the University. Sir James Mitchell, Governor of West Australia, placed two motor-cars at our disposal. Perth is about eight miles from Fremantle and is connected with it by an electric railway. On our way we called on the Honourable Dr. Saw, Chancellor. The University which is the smallest of the four Universities commenced its work ten years ago in 1913. It is a Unitary Teaching University accommodated in temporary buildings constructed of timber on a small site of a few acres in the heart of the town. On our way to Perth we were shown the permanent site on the River Swan which is intended for the University. It is two and a half miles from Perth and has an area of 120 acres amidst beautiful surround-

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ings. Opinions are still divided whether the University should leave its present site in the heart of the town for a permanent home away from the town. This difference of opinion and the difficulties of finding money for suitable permanent buildings worthy of the University have been the chief reasons for the delay in removing the University from its present site.

Professor Shann and Dr. Batty showed us over the lecture-rooms and laboratories of the University. There are three Faculties : Arts, Science including Agricultural Science, and Engineering. The lecture-rooms and laboratories are well-equipped, and the Professors are distinguished men brought out from Great Britain. The subjects taught are Modern Languages, Literature and History, Mathematics, Physics, Chemistry, Engineering and Mining. The post of Vice-Chancellor is honorary, and the Professors by turns perform the duties of Registrar without remuneration, which speaks a great deal of their earnestness and zeal. From the second week in December to the middle of February is the long vacation, the rest of the year being divided into three terms with occasional holidays. The University charges no fees for tuition except a small laboratory fee. The lectures are open to the public in addition to the regular matriculated students. The number of regular students which was 180 in 1914 is still small, compared to the large numbers attending the Technical School.

A striking and most important feature of education in Australia everywhere is the great encouragement given to Technical Education by the side of University Education. Very large sums of money are spent on Technical Education for which numerous and extensive class-rooms, laboratories and workshops are required. The Universities and the Technical Schools work side by side, the latter being affiliated to the Universities in certain courses, and the Universities co-operating with the Technical Schools in instruction. As the subject of Technical Education is most

important, it will be treated separately after the work of the Universities has been described.

ADELAIDE UNIVERSITY.

As soon as our ship anchored at the outer harbour of Adelaide, Dr. J. B. Cleland, Professor of Pathology in the University of Adelaide, very kindly came on board to take our party to the University. Sir Dorab Tata was unfortunately too ill to leave the ship and Dr. Wadia kept company with him on board. After breakfast Dr. Cleland and I went by the electric railway to Adelaide. A very short walk from the station brought us to the University, where I was very kindly received by the Honourable Sir George Murray, K.C.M.G., Lieutenant-Governor and Chief Justice of South Australia, who is Chancellor of the University, and by Professor William Mitchell, M.A., D.Sc., Vice-Chancellor.

Adelaide is a beautifully laid out town. It is called the Athens of Australia, and has an air of refinement and beauty difficult to surpass anywhere. The University buildings are situated in North Terrace, the principal street of Adelaide, which is beautified with noble buildings and boulevards. They are in the vicinity of Parliament House, Government House, the Public Library and Reading Room, the Museum, the Art Gallery, the Conservatorium of Music, and the School of Mines and Industries, which last is the principal Technical School of the State. The beautiful Botanical and Zoological Gardens are at one end of the North Terrace at a short distance from the University. There are no residential colleges or halls for students, the University buildings themselves being constructed on a small plot of five to six acres. But the neighbourhood of so many educational and other public buildings and the beautiful surroundings produce the charm of University town. At a short distance from the town is Mount Lofty with its parks, recreation grounds and play-fields for students.

The Chancellor and Vice-Chancellor very kindly showed me over the commodious lecture-room

and beautifully-equipped laboratories and the Library. I was greatly impressed with the laboratories of Physiology and Bio-Chemistry, and their elaborate equipment of which every detail had been carefully studied, though all other laboratories were also admirably equipped. The extensive library is accommodated in a large Gothic Hall with seating accommodation for a great number of students.

The University of Adelaide was established by Act of Parliament in 1874, and in 1881 Royal Letters Patent were issued declaring that the degrees granted by it should be entitled to rank precedence and consideration throughout the British Empire, as if granted by any University in the United Kingdom.

The University owes its origin to the munificence of Sir Walter Hughes, who made money from copper mines, and Sir Thomas Elder, each of whom gave a gift of £20,000 in 1874. Sir Thomas Elder subsequently gave £30,000 for a Medical School, £20,000 for a School of Music, and £25,000 for general purposes besides other minor gifts. Parliament gave in 1874 an annual grant not exceeding £10,000 and 50,000 acres of land worth £40,000. Parliament made an additional grant of £4,000 in 1911, and provided a further grant of £20,000 in 1920. The total grant from Government in 1921 amounted to £34,860. Mr. John Darling gave in 1919 a sum of £15,000 for a new medical building, and in 1921 the Honourable Sir Langdon Bonyton, K.C.M.G., provided £40,000 to be paid to the University in 1930 for a great Hall. The total of all endowments of the University amounted in 1921 to £243,414, exclusive of three valuable estates and 5,880 shares in Elder Smith & Co., Ltd., given by Peter Waite, Esq., to advance the cause of education and especially to promote the teaching and study of Agriculture and Forestry.

The University grants degrees in Arts, Science, Law, Medicine, Dentistry, Engineering and Music, and diplomas in Commerce, Music, Education and

various branches of Applied Science. It was the first University in the Empire to grant degrees to women or degrees in Science.

At first there were only four Professorships, the subjects being (1) Classics and Comparative Philology, (2) English Language and Literature, and Mental and Moral Philosophy, (3) Mathematics, and (4) Natural Science.

There are at present 16 chairs in (1) Classics and Comparative Philology and Literature, (2) Philosophy and Economics, (3) Modern History, (4) Engineering, (5) Physics, (6) Anatomy, (7) Physiology, (8) Chemistry, (9) Botany, (10) Law, (11) Music, (12) Pathology, (13) Mathematics, (14) Geology and Mineralogy, (15) Zoology, (16) English Language and Literature.

There are besides 50 Lecturers and 19 Teachers of the Elder Conservatorium.

The Professors and Lecturers conduct the examinations and take into account the written work and laboratory work of the candidates. For the Medical Examinations external examiners are often appointed.

In 1876 the first year in which the University commenced its work there were only 8 matriculated students and 52 non-graduating or unmatriculated students. In 1921 there were 768 undergraduates, 18 graduates reading for the M.A. Degree, and 552 non-graduating students. There were in addition 583 students in the Elder Conservatorium. The number of under-graduates studying for the B.A. Degree was 327, for the B.Sc. Degree 99, for the B.E. Degree 96, for the LL.B. Degree 84, for the M.B. Degree 134, for the B.D.S. Degree 23, for the Mus. Bac. Degree 5, for the Diploma in Commerce 175.

The University and the School of Mines combine by mutual agreement their teaching powers and their laboratories for instruction in Mining, Engineering, Metallurgy, Mechanical, Electrical and Civil Engineering, and Architectural Engineering. The University and the School of Mines acting in concert hold examinations and grant

diplomas in various branches of Applied Science.

Besides the examinations for degrees and diplomas the University conducts all other Public Examinations in school subjects which are graded as Primary, Junior, Senior and Higher. It also conducts Junior and Senior Examinations in Commerce, and several examinations in the Theory and Practice of Music.

The University is governed by a Council consisting of 20 members elected by the Senate, one-fourth retiring every year, and of five additional members, appointed by the State Parliament from its own members, who hold office during the lifetime of the Parliament.

The Senate consists of all graduates of the degrees of Master or Doctor, and all other graduates of three years' standing. It meets three times a year in March, July and November. There are six Faculties: Arts, Science, Law, Medicine, Music and Dentistry. Engineering is included in Science.

All Statutes and Regulations must be passed by both the Council and the Senate, and approved by the Governor of South Australia, who is *ex-officio* Visitor of the University.

The Council has the entire management of the University. The Chancellor and Vice-Chancellor are elected by the Council. The Chancellor, Vice-Chancellor and Members of Council appointed by the Senate hold office for five years. The Council meets at least once a month. It appoints two Committees from its members, the Committee of Finance and the Committee of Education. These Committees also meet once a month to deal with questions of Finance and Education respectively and report their findings to the Council. The Council has the right to appoint, dismiss, or suspend a Professor. The dismissal of a Professor cannot take effect, unless it is confirmed by the Visitor. The Council has full power to make and alter any statutes and regulations subject to the approval of the Senate.

There is a Board of Discipline consisting of the Chancellor, the Vice-Chancellor, the Deans of the various Faculties, the Chairman of the Board of Musical Studies, and such Professors and Lecturers as may be appointed by the Council. Subject to the approval of the Council the Board makes rules for the conduct of students on the premises of the University. The Board may admonish a student, inflict a fine not exceeding 40 shillings, administer a reprimand either in private or in the presence of any class, suspend him temporarily from attendance at any course of instruction, exclude him from any place of recreation or study, or expel him from the University. Every decision of the Board is reported to the Council who may reverse, vary or confirm it. Any Professor or Lecturer may dismiss any student from his class whom he considers guilty of impropriety, but shall on the same day report his action and the ground of his complaint to the Chairman of the Board of Discipline.

There is an Ordinary and an Honours Degree of Arts and of Science. Candidates may obtain either or both degrees. The University grants a diploma in Primary Education to those who have passed the examinations for the Degree of Bachelor of Arts or Science, and taken English Language and Literature, Psychology and Education as prescribed for the ordinary Degree of Bachelor of Arts, and also taken a course of professional study in the principles and practice of Primary Education and obtained adequate experience in teaching and school management. Similarly the diploma in Secondary Education is granted to Graduates in Arts or Science if they have passed the B.A. Degree Examination in Psychology or Education, taken a course of professional study in the principles and practice of Secondary Education and obtained adequate experience in teaching and school management. The fees for written and practical examinations amount to £10 10s. for each diploma. The University also grants a diploma in Commerce and a diploma in Economics and Political Science.

The University Tutorial Classes were first established in 1918 to provide facilities in University Education for those who are unable to attend the ordinary University courses. A tutorial class covers a three years' period of study with 24 meetings in each year, each meeting consisting of an hour's lecture followed by questions and discussion. The students have to write fortnightly essays on prescribed subjects. Each tutorial class is preceded by a preparatory course of 12 lectures, and if at the end of this preparatory course 24 students are willing to undertake the full tutorial course of three years, the Committee sanctions the conversion of the preparatory into a tutorial class. The students pay a fee of £5 per class per annum. In 1922 tutorial classes were held in Economics, English Literature, Political Philosophy, Modern History and Music. In 1921 there were 338 students enrolled in 8 tutorial classes, six of which were held in Adelaide and two in the country.

The University provides Evening Classes in Arts and Science for those who are unable to attend lectures during the day, when a sufficient number of applicants come forward.

The Council institutes short courses of Extension Lectures in Arts and Science at a nominal fee. Extension Lectures on the following subjects were delivered in 1921 :—

"Disease, its meaning, community spread, and various Australian settings," by Professor J. B. Cleland.

"The League of Nations—its principles and aims," by Professor Coleman Phillipson.

"Physiology of Every-day Life," by Professor Brailsford Robertson.

The subjects for the Extension Lectures in 1922 were the following :—

"Relativity and the Modern Theory of Gravitation," by Professor Wilton.

"The Interpretation of Life, Mechanism, Vitalism and Animism," by Professor Brailsford Robertson.

There are numerous societies associated with the University, such as the Graduates' Association, the University Union, the Science Association, the Medical Students' Society, the Medical

Sciences Club, the Christian Union, the Sports' Association, the Shakespeare Society, the Law Students' Society, the University Society of Commerce, the Classical Association, the Mathematical Teachers' Association, and the Dental Students' Society. These societies greatly add to the social life of the students and make up to a large extent for the want of residential colleges.

It is worth noting that in 1921 of the total income of the University of £63,567, more than half or £34,860 was received from the State, nearly one-third or £20,171 was received from fees, and £7,950 was received from interest of endowments. The various schools of the University cost £39,663 inclusive of fees for Examiners and cost of conducting examinations; the Registrar's Department cost £4,115. Prizes and Scholarships cost £884. After defraying these and other expenses, a balance was left of £13,731 at the end of the year.

The tutorial classes cost £1,456 towards which amount a grant of £1,300 was received from the State. The Extension Lectures cost only £76, and £74 was received as fees.

I give the above details culled from the Calendar of 1922 as they may be of interest to a young University like that of Mysore.

I cannot forget the great kindness and hospitality of Professor Mitchell, the Vice-Chancellor. After visiting the University he very kindly took me and Professor Rennie in his own motor-car for a long drive through the town to Mount Lofty and the Public Park and back through the Botanical Gardens to lunch, where I met again Professors Chapman, Robertson and Cleland and the Director of Education. After lunch I was taken for a visit to the School of Mines and Industries. I shall refer to the visit in my account of Technical Education. Professor William Mitchell was good enough to see me off at the Railway Station in the afternoon after a very pleasant morning profitably spent with him.—From *The Mysore University Magazine*: July 1923.

(To be continued).

ADULT EDUCATION.

IT is a striking fact that in England, while a real beginning in elementary education was made but fifty years ago by the State, the popular movement for adult education had been in existence over half a century already. The State has now to some degree recognised its responsibility with regard to adult education. The early attempts for the education of adults in England are accounted for by the ferment in the country at the beginning of the 19th century. The Evangelical Revival of the 18th century, the French Revolution, the Peninsular War, the Industrial Revolution and the general situation in Europe had opened up an era in which a nation with vitality like the English could not but seek to recast its entire life. "The outstanding fact was that men knew at last that they ought to be free, determined to secure their freedom, and wanted to equip themselves for the use of it." In the main there were three groups of experiments centering round religion, physical science, social and political agitation. Pious people, convinced that Christian teaching would serve as the foundation for citizenship, organised institutes for that teaching for adults. The Industrial Revolution in creating both a new kind of industry and a new type of industrial population had also created a new demand for scientific teaching. This resulted in the production of semi-technical literature and the organisation of mechanics' institutes. The Working-class Movements, Co-operation, Christianity and Trade Unionism roused the desire for political education which therefore formed an integral part of the programmes of these movements. "How can a corrupt Government stand against an enlightened people?" was the ideal that fired the imagination of the man in the street. The desire for that enlightenment was there and grew during the century, though its fulfilment was not a steady process. The demand thus was well established in the nation as a whole, though parts of it were rather more advanced than others. The network of voluntary Associations were in due

course taken note of and aided by the State and the University, both in the rural and the urban areas. More than ever the State is now cognisant of its duty in regard to adult education, an evidence of which we see in the Adult Education Committee's Report of 1919.

In India we hear talk of adult education and if anywhere the need can be asserted of national consideration, it is here. Were literacy a condition and should schools be the only means, then the evolution of India as an educated nation would be an utterly hopeless task. The progress of literacy does not overtake the growth of the population. In forty years the number of pupils in schools increased from 0.25 to 8 millions; whereas the population was known to increase at the rate of 1.5 millions a year and 39 per cent. of the children so educated relapsed into illiteracy. Apart from the necessity of the people being able to read and write, there are now in India all the conditions which obtained in England a century ago and stimulated the people to seek enlightenment. We have them perhaps in a more accentuated form now, owing to the conditions in which another new era finds all the nations of the world. Economically India is bound entirely to world forces. Politically we are called upon, both by the spirit of nationalism in India and by the circumstances of our organic connection with a world-wide empire, to take such steps as will promote the welfare of the country without delay. The resources of India have to be utilised so as to benefit the country itself rather than exploiters. All departments of knowledge then need to be occupied without delay by the nation. The juvenile school-room alone is a hopelessly narrow means of approach.

Obviously a movement of this kind cannot be started unless the demand for it exists among the people, and an initiative in regard to it is demonstrated to some degree. Such we think does exist, in India now. In rural areas, where thirst for new knowledge might be considered to be unknown

workers usually come across a keen demand for education and medical help. In spite of conservative habits and the evils which they bring on, the masses realise that it is safer to be sanitary than insanitary. Anything of a novelty that appears in a village, be it a pedlar's ware or a cinema, attracts a curiosity which perhaps cannot be paralleled anywhere in the world. It is notorious how quacks and people, who know how to take advantage of the credulity of simple folks, thrive in large numbers. An urchin, who can spell out the words of a vernacular journal, is listened to from day to day as he retails news from beyond the bounds of the village. We have come across instances where teachers on Rs. 10 in the employ of local bodies have forsaken their jobs to organise two or three *pial* schools in their neighbourhood to make three times their former salary. The Co-operative Movement has come to stay and has revealed remarkable instances of success. The Agricultural Department is forging ahead, though slowly, in applying modern methods to agriculture. So far as suitable facilities have been afforded to industrial workers, they have proved their aptitude for learning. Instances may be multiplied; and there is no need we think to gainsay the fact, that if education of any kind is brought to the doors of the masses, their response is assured. Of the need and demand for adult education among the educated classes, no one has any doubt. Mr. J. P. Bulkeley, of the Indian Educational Service, who has investigated the problem for the Government, thinks that the demand already exists and may soon become an "insistent demand" too. "It may," he says, "be expected, however, to remain comparatively latent, in India as elsewhere, until stimulated by the activities of voluntary agencies."

Nor can it be denied that voluntary agencies have seen the vision of the work; for a full survey of the agencies which have set the movement afoot, we would refer our readers to the January and April 1923 issues of the *Hindustan Review*. They cover as wide a range of activities as are necessary

for conditions in India at present and reach all the classes that need to be brought under the movement; but the attempts so far indicate tendencies rather than efficient results and are largely of a sporadic nature dependent on many shifting circumstances. Besides voluntary agencies of recent growth, it has been pointed out that there are in India certain established social facilities and organisations which could lend themselves effectively to adult education work. The weekly rural market and the village *panchayat*, the *pial* school and the *chatrams*, the *melas* and festivals are ancient heritages still intact, which have in recent times been reinforced by the theatre and the reading-room, the co-operative movement, and the mission organisations, etc. These should serve as ready community centres.

Information as to what is actually in existence is scarce and attention diffused and vague. The English example of a State Committee to investigate the problem ought to be followed. A Conference on Adult Education in India is said to have been held in London in October 1920, and another one in Simla in May 1922. More were supposed to follow, but the public has heard little about these. If the English Committee's report is to be any indication, then the State has a very large share in co-ordinating existing attempts, in further stimulating and in financing all of these in a liberal measure. There is work cut out for our new legislators in bringing about this initiative from the Government.—*The Guardian*: Calcutta.

Reviews and Notices.

SIR SUBRAMANIA IYER LECTURES ON THE HISTORY OF SRI VAISHNAVAS.—BY THE LATE T. A. GOPINATHA RAO. (GOVERNMENT PRESS, 1923). pp. 61.

This contains the two lectures delivered by the late Mr. T. A. Gopinatha Rao in December 1917, on the subject and is now presented to the public under the editorship of Dewan Bahadur L. D. Swamikannu Pillai. He first traces the account of the Alvars and the Acharyas according to the *Guruparamparas* and other traditional works. He then indicates the correct sources of information for the construction of the history of the Sri Vaishnavas which are threefold viz., (1) the *Guruparamparas* and monographs on individual Acharyas, (2) the *Nalayiraprabhandam* and commentaries on it, and (3) epigraphical records.

According to the author, the earliest of the Alvars (புத்தாழ்வார், பேயாழ்வார், பொய்கையாழ்வார்) may be assigned to the middle of the 7th century A. D. Tirumalisai Alwar may be assigned to a slightly later period, the first quarter of the 8th century which was a time of great Vaishnava activity all over the Presidency. Discussing the date of Nammalwar, he would rely on his discovery of the Anamalai Inscriptions belonging to the reign of Jatavarman Parantaka Pandya and would conclude that Maran Kari, the *uttara mantrin* of Parantaka was the father of the saint and was also named மதுரை on account of his skill in composing sweet verses. Nammalwar may have given his own father's surname of மதுரை to his disciple, the Alwar of the same name, as a *dasya-nama*. King Parantaka himself was a devout Vaishnavite, as the Madras Museum plates of that king say.

The later *Guruparamparas* add to the astronomical details given in the earlier ones, the years of the Kaliyuga era and the cyclic years corresponding to the births of the Alvars and the Acharyas. "The Kali years are mere fictions of the later writers whereas the cyclic years and the *panchanga* seem to work satisfactorily in some cases and seem to yield fairly consistent results." Working on astronomical details supplied by the *Guruparamparas*, Dewan Bahadur L. D. Swamikannu Pillai would give the date 798 A. D. for Nammalwar—which falls in the reign of Parantaka Pandya I. And the great Alwar, according to our author also, lived and wrote in the first half of the 9th century.

Kulasekhara Alwar is later than Nammalwar, and a passage in his works referring to a historical incident has been interpreted to mean that he joined the Pandya in assailing and killing the Pallava king Dantivarman sometime about A. D. 825. (மல்லையாசனம் கிடைத்தான் நன்னேவான் செலுத்தி). We know from Prof. Dubreuil that the southern part of the Pallava country was occupied by the Pandyas under Maranjidaiyan about this time. Periyalwar and his daughter Andal were contemporaries of a Pandya king Sri Vallabha; and the author would identify this ruler with the king of the same name occurring in the Sinnamanur Plates, whose date would be about the middle of the ninth century. But astronomical details worked out by Mr. Swamikannu Pillai would give for this Alwar the date A. D. 725. Tirumangai Alwar seems to be a contemporary of the Pallava ruler Nandivarman Pallavamalla whose struggles at மண்ணை, கெல்லை and other places are referred to by him. At least the upper limit for the date of this Alwar is the reign of Nandivarman (A.D. 717—779). According to the learned Dr. S. K. Aiyangar, the specific reference of Tirumangai Alwar to the occupation of Kanchi by an overlord of the Pallava, by name Vairamegha, the first Rashtrakuta Dantidurga, makes his position as certain as we can possibly get to. (p. 37, *Early History of Sri Vaishnavism in South India*). Mr. Gopinatha Rao would identify the Vairamegha of the Alwar with Dantivarman, the son of Nandivarman who was named after his maternal grandfather, the Rashtrakuta king and who ruled from A. D. 779 to 830.

The ages of Tiruppanalwar and Tondaradippodi have also been fixed for the first half of the 9th century.

This arrangement of the chronology of the Alvars as extending from the middle of the 7th to the middle of the 9th centuries cannot be considered to be final. Dr. S. K. Aiyangar has successfully and on equally strong, if not stronger, grounds shown (*vide* his *Early History of Sri Vaishnavism*) that the fifth century would be the most suitable time for Nammalwar, that Kulasekhara followed late in the 6th or early in the 7th centuries and that Vaishnavism of the Agamic kind and Saivism were both prevalent in the Tamil land as long back as the age of the Sangham (at least as far back as the 3rd century A.D.) He would fix the age of the Alvars as a class between somewhere about the commencement of the 3rd century A.D. and the 9th; most of the Saiva Adiyars being also referable to about the same time. The attempt to fix the date of Nammalwar solely on the similarity

of the names of Nammalwar's father and his disciple and those of the Uttaramauntrin of Parantaka Pandya is to neglect all the other essential details. The orthodox and authoritative list of the Alwars as given by Vedanta Desika should not be easily set aside; and attempts made by scholars like Messrs. Gopinatha Rao and M. Srinivasa Iyengar (*vide* his *Tamil Studies*) to bring Nammalwar to a comparatively late date would be indeed very difficult. Moreover if the tradition of Tirumangai Alwar having instituted the worship of Nammalwar at Srirangam is true, then the date of Nammalwar should have been a considerably long period before Nandivarman Pallavamalla whose reign forms the upper limit of the age of Tirumangai according to our author.

Coming to the Acharyas, we have to know the date fixed for Nathamuni, the first of these. The author would equate the Srinatha of the Anbil Plates of Sundara Chola Parantaka II with Nathamuni and would attribute him to the last quarter of the 9th and the major portion of the 10th centuries. That the Acharya died at Gangaikonda Cholapuram which was not founded till 1024 is a mistake of the later bagiologists who identified the place of his death with the then prominent city-capital of the Cholas. The life of Alavandar, the grandson of Nathamuni, might have extended into the first half of the eleventh century. The dates of Ramanuja's taking the holy orders, of the beginning of Chola persecution, of the finishing of the Sri Bashyam, of the Acharya's conversion of the Jain King of Mysore and of his death, are all fixed in detail in this book. The notes on the subsequent Acharyas, Bhattar, Nanjiyar, Lokacharya, Pillailokacharya and Vedanta Desika are very brief. The writer would accept the *Divyasuricharitam* and the *Guruparampara* of Pinpalagiya Perumal Jiyar as the most authoritative works. These do not quote any Kali or Saka years for the Alwars and the Acharyas, except in the case of Nammalwar. Dating facts in the Kali and Saka eras comes into vogue after the time of Manavala Mahamuni. The account given in these lectures is only a treatment of the probable dates and outline of the lives of the Alwars and the Acharyas. It does not attempt to reconcile the conflicting statements with regard to dates given in the various *Guruparamparas*—nor does it treat of "the relation between the religions of the Alwars and the Acharyas and the two great Vaishnava schools of Pancharatna and Vaikhanasa which are earlier than these Alwars and Acharyas." We would have welcomed descriptive notes on these points and also on the supposed connection between the

North Indian preachers Ramananda and Nimbarka and Ramanuja himself.

Mr. L. D. Swamikannu Pillai has affixed in his note on these lectures a pointed statement which deserves to be pondered over by all students. This is further amplified by a quotation taken from his *magnum opus—An Indian Ephemeris*—"When the biography of Ramanuja began to be composed, public curiosity was equally exercised about the lives of the Alwars and the early Acharyas; and then, and not till then, *i.e.*, not till the 12th or 13th century A.D. were such meagre details as tradition had handed down amplified for the first time into calendrical shape." (p. 487, Vol. I). He is not sure consequently that the dates he has fixed for the various Alwars, etc., on the basis of details supplied by the *Guruparamparas* are correct. "Successive compilers of the *Guruparamparas* have repeated details, which I have shown in my pamphlet to be chronologically impossible, without any attempt to verify them. In other cases they have attempted, though imperfectly to correct the details." Further Mr. Pillai himself admits he had to doctor one or two points in the horoscope of each case before settling its date; and his arrangement of the dates of the Alwars was purely calendrical and not biographical. He feels in view of other points that have to be taken into consideration that a good many of these birth dates of his are improbable and unacceptable.

Thus with regard to the chronology of the Alwars we do not seem to have advanced very far, in spite of the growing volume of polemical literature about it.

BHAKTHA VACHANAM IN TAMIL, BY SRIMATI V. LALITA DEVI. (OXFORD UNIVERSITY PRESS: 1923). Pp. 110.

As the writer of the preface remarks, this series of short descriptive accounts of the Saiva and Vaishnava Bhakthas is intended to be used by our school-boys with a view to their knowing something about the great men who have established Hinduism on a strong basis as we see it at the present day. After all there cannot be any harm if boys should know the lives of the great religious teachers; rancour and prejudice are bound to diminish with increased knowledge of the opponents' point of view. The preface considers that in a book like this it is desirable to include saints of other than the Hindu religion who are revered by particular sections of the Indian population, and announces that it is the intention of the authoress

to include the lives of a few Christian and Mussalman saints in a fresh edition.

The saints whose lives are narrated include Sundara, Appar, Sambanda, Nanda, Kannappa Nayanar, Manikkavachaga among the Saivite Adiyars and Samayacharyas, the chief Vaishnavite Alwars and some others of eminence like Kabir, Namdev, Mirabai, and Thayumanavar. The diction is very simple and the narratives are frequently interspersed with quotations of pregnant import and feeling taken after discrimination from the Thevaram hymns, the Thiruvachakam and the Nalayiraprabbandam of the twelve Vaishnavite Alwars. We wish we had more books of this kind and value.

EUROPE—A DESCRIPTIVE REGIONAL SURVEY—BY T. T. MUIR. (LONDON: W. & R. CHAMBERS, 1923). Pp. 304. Price 2s. 6d.

The author's aim is to make this book at once scientific and readable and purely technical terms are used very rarely and when they are used carefully explained. Europe is in the first place treated as a unit, with its peoples of three racial types, Nordic, Alpine and Mediterranean, and with its surface, climate, vegetation and other features. Then the maritime lands are treated in detail individually; after them the continental regions, and finally the Mediterranean lands. The towns and cities are clearly described; and Paris has got as many as seven pages devoted to it. The newly formed states of Jugo-Slavia, Czecho-Slovakia, Lithuania, Latvia, Esthonia and the regions of Russia and Ukraine, are all well-treated. The Alps are well described especially as they form the play-ground of Europe—as well as the Riviera. Numerous exercises are given at the end which are very suggestive and the pupil is asked to study the maps and answer questions by reference to them.

JUNIOR GEOMETRY, BY G. A. SRINIVASAN AND C. KRISHNAMACHARI. (MESSRS. LONGMANS GREEN & Co.) Price Re. 1-12-0.

This is a book intended primarily for students studying for the Intermediate Examination of the Madras University, though it will be found useful by students of other Universities also studying for an examination of nearly the same standard. It gives in a compact form all the necessary information which such students are expected to be familiar with. The section on 'Loc', at least the

earlier portion of it, might have been introduced before the chapter on Circles, in which 'Inversion' is dealt with. Of the two proofs given for the theorem on page 80, the first might have been, with advantage to students, completely omitted. In the discussion on page 5, the phrase 'tends to infinity' might have been elaborated a little. This last remark, will, it is hoped, not be considered out of place, especially because the authors have taken the pains to include a discussion of irrational numbers on Dedekind's lines in the Appendix,—a discussion, which, it is feared, will benefit few students for whom the book is intended, without the assistance of a teacher. The idea of 'Infinity' is one of the slippery grounds in the region of mathematics, from which the young learner will very often likely to be lifted off his feet and as such no opportunity should be left unutilised that will bring home to his mind the correct conception of the idea. The book is well got up, and the diagrams are neat.

SELECTIONS FROM PROSE AND POETRY FOR INDIAN HIGH SCHOOLS: (OXFORD UNIVERSITY PRESS). Price 1 Re.

"Selections from English Prose and Poetry," published by the Oxford University Press is, we certainly think, a very suitable compilation for our Fifth Form. The selection seems to be the result of much thought and considerable pedagogic experience. Complete extracts in prose have been taken from such standard writers for the young as Lamb, Yonge, Borrow and Scott. The lovely Account of the Cauvery, the Abbe Hue's interesting description of Lhassa, and the exciting hunt of the Man-eater of Shikharpur are sure to be welcomed by teachers and taught alike. Macaulay's account of the trial of Warren Hastings has long been a favourite with the Indian student. We heartily appreciate the insertion in the book of four good English letters. Similarly, the poetical pieces are, without an exception, good and well-chosen. We specially draw attention, among others, to the pleasing poem on *The Lotus* by Toru Dutt and that on the *Warrior's Return* by S. C. Dutt. The inclusion of two copyright poems by Alfred Austin and Walt Whitman add much to the value of the book.

The Editor would have done much service to the student, if he had added some explanatory notes to the poems.

The Educational Review.

The Rev. D. G. M. Leith, well-known in Madras for his social and educational work, draws attention to the disabilities under which Indian students often labour in England. Absence of similarity of tastes and interest in sports and other matters which appeal particularly to the English young men keep the Indian students in a separate world by themselves. In the course of an article on the subject, which Mr. Leith contributes to the *Foreign Field*, he also complains of the bad treatment to which Indian students are consciously subjected at some of the educational centres in England. On the occasion of a dance at one of the colleges, there was a notice to the effect: "Members of subject races are not permitted to dance." Mr. Leith was also told by an Indian at another University that "if British students were seen frequently taking lunch or tea with Indians, they were shunned by their own countrymen as being a peculiar type." At still another centre, he noticed, at lunch, that Indian students were sitting at a separate table by themselves and he was not quite sure it was only an accident. There are now about fifteen hundred Indian students in England, but it is surprising that we should be taking such little interest in their welfare there and continue to attach such exaggerated importance to English degrees and send our young men in large numbers compelling them to live

in circumstances which do not seem to be ideal. We heartily support Mr. Leith's plea for greater sympathy and understanding on the part of the Englishman. He writes:

I do not disguise or minimise the difficulties. You may find a man in tensely anti-British, almost violent in his out-spoken Nationalism. But remember his spirit is groaning under the idea that his motherland is under the domination of the foreigner. What would be our attitude to the German if Britain were controlled from Berlin? You may find a man suspecting you are making an effort to proselytise on behalf of Christianity. It is an ugly word and a sad perversion. But he fears it as a demon because of the family and national results it involves. You may also find it hard at first to discover mutual interests. But every Indian student is interested in India, in politics, and in you. Conversation on any one of these will be fruitful and possibly make you wonder how anyone can think such things. That wonder will be good.

The Royal Society has recently taken a step with regard to the advancement of research which will be welcomed all over the educational world and mark an epoch in methods of intellectual progress. Thanks to Sir Alfred Yarrow's magnificent gift of £100,000 to the Royal Society for Scientific Research, announced early this year, the Council has made arrangements for providing facilities for those who have already proved their capacity, "to continue to regard research as the main occupation of their life." It has been decided to use the larger part of the income from the endowment for research

by men who have already proved that they possess ability of the highest type for independent research. To this end, a number of professorships will be founded of a type similar to the Foulerton Professorships founded by the Society last year for the encouragement of medical research. The professors will be expected to devote their whole time to scientific research, except that they may give a limited course of instruction in the subjects of their research to advanced students." The Council deserves to be congratulated on this worthy measure, "recognising research as a definite profession." How long will it take to have similar facilities in India, though we are aware of the fact that beginnings of a sort have been made at one or two centres?

The need for paying increased attention to the physical culture of the students at our Universities, is brought out by the

answer given recently in the Imperial Legislative Assembly by Sir Malcolm Hailey in reply to a question on the rejection of candidates applying for the Indian Civil Service Examination in India by the Medical Board. In the examinations of the years 1922 and 1923, nearly thirty per cent. of the candidates were rejected as unfit for the service. The actual figures are 49 out of 170 in 1922 and 58 out of 194 in 1923, and this is a very serious state of affairs. We are afraid that in spite of all professions to the contrary on public and ceremonial occasions, very little has been done to ensure that our young men will leave the portals of our colleges, not only strong in mind, but also strong in muscle and limb. This is a matter which deserves the immediate attention of educational authorities, official and non-official.

We are afraid the Imperial Educational Conference has not achieved anything very useful, except for some discussions on subjects like bilingualism in education and so on. As has been complained of by a contemporary, "the discussions in the Conference have been descriptive rather than dialectic and tended more to reveal the variations in the educational needs and conditions in the different parts of the Empire than help in the formulation of any common principle or programme of educational advancement." We are afraid that we cannot grow particularly enthusiastic, especially in view of the treatment meted out to Indians in other parts of the British Empire at the present time, over the suggestions to extend Imperial propaganda through the educational machinery. The Conference resolved: "That in the interests of the future solidarity of the Empire, it is imperative that adequate provision should be made for the efficient teaching of the geography and history of the Empire by all educational authorities; that to this end the provision of suitable text-books and maps is essential and that the Imperial Studies Committee

Imperial
Educational
Conference.

The physique
of our
students.

Research as a
Profession.

be asked to consider this need in association with the geographical and historical societies of the different parts of the Empire and of the University departments for these branches of study." If this is the net result of the Imperial Educational Conference, we are afraid that India has profited little by it.

It will interest our readers to know that Sir Michael Sadler **Three Oxford Educationists.** has just left the Vice-Chancellorship of the University of Leeds and come back to his own University of Oxford, as the Master (Principal) of the University College. One of his first utterances on returning to the University of Oxford has been on *Three Oxford Educationists*, Dr. Thomas Arnold, Cardinal Newman, and Benjamin Jowett. According to Sir Michael, Dr. Arnold's contribution to education was the special attention he paid to the problems of training *character* by means of organised, individual responsibility and the social discipline of corporate life. All this was at a time when in Germany, all attention was concentrated only on the problem of improving intellectual discipline through expert instruction guided by skilfully-planned curricula. Sir Michael maintained that Cardinal Newman did two things in educational thought. He challenged the sole authority of the intellect and denied that our judgment was formed by our conscious reasoning alone. He portrayed an ideal gentleman for his countrymen and indirectly fixed a standard of good manners for our

young men. As for Jowett, the great scholar of Oxford, who inspired intense devotion to learning in all the young men who passed through the portals of his college:

Benjamin Jowett was a combination of opposite qualities, simple-minded but astute, shy but bold, canny but unselfish, gay and serious, a lover of the old ways but quick to admit the need for bold reform. He believed that for the ruck of men the test of sound learning was capacity for wise and effective action. He felt that we must shuffle off old prejudices but not get rid of common sense. Like Arnold and Newman he defined for Englishmen the ideal of corporate life as a distinctive mark of our national education. Arnold, more than any other man, did this for the School, Newman for the University, Jowett for the College.

Is Education a Curse? was the subject of a lively debate the other day at the London School of Economics, under the Presidentship of Lady Astor, M. P. It is probably not very complimentary to the work of educationists of these long centuries that in the year of grace of 1923, people should sit down seriously to discuss whether education was a curse. Still, there were many different opinions advanced on the occasion on the subject: It was said that modern education set up wrong standards of values and vulgarised life: that the system was based on a class basis, it was the medium of class-prejudice and the recruiting house of class-hatred. It was also maintained by another speaker that modern education had no regard for future callings in life. It is however

satisfactory to note that arguments were presented *per contra* also and ultimately the proposition that education was a curse was lost by 52 to 104. That as many as fifty-two persons should have felt impelled to vote for the proposition must however cause some serious heart-searchings to all interested in the study of educational questions.

Among matters of importance, coming before the ensuing meeting of the Senate of the University of Bombay, is a proposal to concentrate all post-graduate teaching under the direct auspices of the University at Bombay and at Poona. The scheme is to work with the co-operation of individual colleges and any remuneration made towards the work of teaching by members of the staff of colleges is to go to the colleges concerned. The scheme will probably be accepted by the Senate, but it does not look as if it can be very successful as no special financial provision on an adequate scale is forthcoming for the purpose. The establishment of a post-graduate centre of any magnitude, worthy of a University, is not possible without the expenditure of large sums of money, and we are not sure if the University will be able to effect any better conditions than those prevailing in the existing colleges. A noteworthy point in the report recommending the scheme is that "the work should consist very largely in the direction of studies with seminars for discussion and consideration of difficulties, and should definitely aim

at encouraging investigation of original sources by the students themselves and guidance in doing so." The teaching in the M.A. classes in many of the Universities in India at present is, we are afraid, on the same lines as teaching for the under-graduate classes and the sooner such conditions are put an end to, the better. If the Bombay University succeeds in doing something to bring a better order of things into existence, in this matter, it will have done work on which it would deserve to be congratulated. We are glad to find that at the next meeting the offer of an endowment to perpetuate the memory of Sir P. M. Mehta will also come up for acceptance. One of the most distinguished sons of the city, Sir P. M. Mehta laboured hard for many a decade for its advancement and it is fitting that his name should be associated with its highest centre of learning. The Executive Committee of the Sir P. M. Mehta Memorial have resolved "to hand over to the University securities of the face value of Rs. 18,000 in the new five per cent. loan of the Government of India for the purpose of endowing a scholarship in History and Economics in the name of the late Sir P. M. Mehta, who had for a long number of years been actively associated with the work of the University and who was, a few months before his untimely death, honoured with the office of Vice-Chancellor by the Government of Bombay." A scholarship is to be awarded triennially to the scholar who may graduate in the Degree of Master of Arts with

the highest number of marks, the condition being that such a graduate agrees to do research-work in the two subjects consecutively for a period of three years. The University will also receive a bust of Sir P. M. Mehta for being placed in the Senate Hall.

A powerful impulse for the study of **Academy of International Law** on a broader and a more intensive basis has been given by the recent inauguration at the Hague of an Academy of International Law, founded with the support of the Carnegie Endowment for International Peace. According to its statutes, the Academy "is constituted as a centre of higher studies in international law (public and private) and cognate sciences, in order to facilitate a thorough and impartial examination of questions bearing on international judicial relations. To this end, the most competent men of the various States will be invited to teach, through regular courses, lectures or seminaries, the most important matters, from the point of view of theory and practice, of international legislation and jurisprudence, such as they result *inter alia* from deliberations of the Conferences and arbitral awards." The institution is intended for those who already possess a knowledge of the elements of international law, are prompted by a wish to improve their knowledge of that science, whether from a professional point of view, or a desire for information. If the work of the League of Nations is to be effective and lasting,

the basis should be in a sound knowledge of international law. We hope the institution will be a success and lead to a better understanding among the nations. We heartily support the concluding appeal issued by the organisers of the Academy as the high aims put forward are worthy of very wide appreciation and active sympathy :

Brought into daily contact, while sharing in the same scientific intercourse, the representatives of the various international schools will succeed in realizing better the reasons for present discrepancies in the doctrine and practice of other countries. Their own particular point of view will, in the long run, yield to a common international conception of the law. At the same time, personal relations will also spring up between them and develop feelings of mutual esteem and friendship. The science of International Law will certainly be benefited thereby. The same results may be confidently expected among the students as between the professors. Both groups of men should take back with them to their respective countries new ideas and fresh tendencies. They will thus contribute to the formation of that international mind, which, in connection with the economic interdependence of the peoples, shall be the true and genuine guarantee of peace. In its endeavour to create, maintain and spread this beneficent influence, which is its aim and *raison d'être*, the Academy of International Law of the Hague trusts it will meet with the kind support of Governments, with the sympathies of Universities, learned bodies, courts and tribunals, lawyers and barristers, as it hopes to deserve the confidence of the intellectual *élite* of all civilized countries.

His Excellency Sir George Lloyd made some interesting observations at the last Convocation of the Bombay University. India having been

committed definitely to democratic forms of government, the need for education becomes imperative.

And to that end it is necessary that the electorate, a large body of people, should be sufficiently educated to understand that they and they alone are responsible for the selection of the *personnel* and policy of the Government on the transferred side. If the voting portion of the population are incapable of understanding, if they are incapable by reasons of lack of education and capacity to distinguish the true metal from the false and so remain at the mercy of sentiment and superstition, then no real progress on democratic lines is possible. So long as this does not take place, so long will the causes of internal dissension remain in India. National unity will be delayed and little progress will be possible towards democratisation of the whole fabric of Government.

In view of the recent increase in the number of Universities in India and the tendency in many of them to bring down the level of academic standards, Sir George Lloyd's warning for the maintenance of high academic standards was also opportune.

Whilst these needs may continue they must not be allowed to control our educational policy nor in the effort to meet them must we lose sight for a moment of the ideal of right education. Indeed, when I try to foresee the future, these dangers do appear to me, at any rate, to be in no sense imaginary but very real and to some degree imminent, for what will be the result if bending all our efforts towards the spread of the minimum standard of education we at the same time neglect to inculcate and to publish abroad the aim which we have in view? The demand will be far greater than the resources of the Presidency can meet or if it is not, there will be a vast increase of the number, already too great, of young men claiming

appointments in clerical professions. The real truth is that the strict ideal of education can be maintained and made clear to all and that the supply of education can be made to keep pace with the demand if only the standard in every grade is kept at a high level and not allowed to deteriorate, that is to say, that the greater the demand for higher education the higher the standard should be. That is the chief and most important thing. A fear ever present to my mind is that the potentialities which are patent in this great country will never exercise the immense influence and pressure of which they are capable unless a rigidly high standard of education is maintained and the right ideal of education is everywhere accepted.

On the occasion of a recent address on the subject of *Past blunders in Education*, Miss Alice Woods, author of *Educational Experiments in England*, drew attention to what she considered to be the most serious evils of the educational system in England during the last few decades. Her indictments are quite serious, as may be seen from the following list. We have not helped the children to realise their infinite possibilities; boys and girls full of outside interests or rich in imagination have had all this vitality crushed out of them by the stultifying methods of preparatory schools; we have not encouraged the altruistic tendencies of children by giving them opportunities of service and encouraging too much attention to self-interest. We have preferred submission to self-control; missed utilising to the fullest advantage the opportunities furnished by co-education,

we have been conservative in methods, made a fetish of examination and so on. All this is a formidable list of blunders and it would be interesting to know to what extent these accusations can be brought against the Indian system of education. Having been modelled largely on British educational methods, we presume that many of these accusations can be brought against the Indian educational system also. Miss Alice Woods does not despair entirely in the matter as the second part of the address is devoted to future hopes in education. She sees evidence of a new order of things in almost every one of these departments and everybody may share

in the hope of progress indicated in the following lines of the poet :—

Do you hear the noise of waters as they hiss along the sand?

Do you smell the salt sea breeze again that rushes to the land?

For the pools are brimming over, and the weary watch is o'er

And the tide is racing home again across the level shore.

Look seaward o'er the billows! From the fountains of the West

They are coming like an army, they are marching crest on crest;

Oh! the music and the freshness and the pulse of life once more

When the tide is racing home again across the level shore.

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EDUCATION AND MENTAL HYGIENE.

MANKIND has always found the mind of the child interesting. It would indeed be strange had this not been so. Nevertheless, this interest has been hitherto an idle one; but latterly this interest has taken on a serious intent. Man's glancing curiosity shews an increasing tendency to become focussed. In other words, our attitude towards the child mind is becoming a scientific one. Soon it will be no longer possible to say truly that we "play with the brains of young and old as though they were indestructible machinery."

Already in Europe, but more especially in America, the study of the mind of the child in relation to environment in its widest sense, has become an important piece of public policy. From this study at least one piece of knowledge stands firmly established, namely, how great have been, and indeed still are, the losses to

the State in money and in citizenship, through want of attention to mental hygiene.

From what has been already learnt it would appear that no aspect of preventive medicine is so likely to justify financial support on the part of the State, as mental hygiene and prophylaxis. Hence that State which spends wisely but freely to support the study of the prevention of mental disorders, must reap a substantial reward in the end by reason of the reduction to which such study will lead in the number of the mentally unfit that the State will be called upon to support.

Among those to whom this question of the importance of the early recognition of mental trouble should make a special appeal must always be teachers.

Now because this subject has only quite recently found a place in the psychological departments of our Universities and Teachers' Colleges, many teachers have yet to learn how to face the enormous responsibility that they incur whenever a young or adolescent mind

psychopathic child. The major symptoms are similar in most of the cases, some show one phase and some show another. The children are usually more or less solitary; they do not get along well with other children of the same mental level. If they are feeble-minded psychopaths they are constantly disagreeing with other feeble-minded children who are not psychopathic. This same is true with a psychopath of normal level among other normal children. They are apt to prefer adults to people of their own age. Their games may have a queer monotony which makes them seem peculiar even in their own family. They are especially apt to have strong likes and dislikes as regards food. Those of low grade are unusually destructive of toys, clothing and even of household things which they should not interfere with. They are apt to have violent tempers and have often been recognized as different from the time they were babies. They may be moody. Most of them tend to be rather more easily depressed than to be pleasurably excited. Now and then one gets a case which cannot be depressed but is what we call "exalted" and spends his life at the other end of the emotional plane. Psychopaths are not usually very fond of other children or of pets, although they may have what we call "night terrors," that is, they will wake suddenly crying and have to be soothed before going to sleep and will remember little of the episode next day. Just what the connection is we do not know, but they are often persistent sufferers from nocturnal enuresis, even to the age of 14, 15 or 16.

School Indications.—"They may get along fairly well in school until they reach the fourth or fifth grade, sometimes even later on than this, but they are apt to be poor in

spelling and in geography. Sometimes they are poor in all subjects but these are relatively poorer than the others. They are usually difficult to handle in the regular grade work. Every school-room has one or more of them. They are the children on whom the teacher cannot rely and concerning whose misbehaviours she is always worried, for they are different and the regular punishments do not fit."

The above from an unpublished paper by Dr. Mateer well indicates the symptoms of the condition.

As to the cause of these conditions in children, little is known. Many of them are cases of congenital syphilis and in the absence of any other known cause it is natural to think of this as the causative agent. This is a matter for serious study and really points to the need of careful physiological investigation of the blood and other body fluids of this type of child.

Anti-syphilitic treatment has been administered in a number of these cases but as yet no marked results are reported. This, however, would of course not invalidate the hypothesis of syphilis as a cause since it may well be that, the damage having been done, nothing can cure it.

As to prognosis and treatment of the general run of psychopathic cases still less is known. Some cases that do not seem to be associated with congenital syphilis seem to get well; the natural growth processes apparently overcoming to a large extent, if not completely, any effect of the disturbing factor. So that while these cases may show the marks of the disease to the expert, nevertheless the condition does not so far interfere with life as to make them distinctly abnormal personalities.

Apparently another group remains unchanged and the victims grow up to be envious, unstable men and women, easily becoming delinquents and anti-social members of the community.

A third group grows progressively worse and finally distinctly insane and contributes to the adult insane population. In the case of the syphilitic, as already stated, anti-syphilitic treatment seems to be indicated. As for the others, little is known beyond special hygienic measures, regular living and the best possible environment; good food with as much outdoor life as possible; and from the moral standpoint strict and firm but not harsh discipline; and in general, conditions that make for happiness.

The possibility that any considerable proportion of this group of juvenile psychopaths is incurable and must be expected to grow into psychopathic adults, with all the possibilities of criminal activities, is one that calls for serious consideration.

There is no more pressing problem than that of curing or preventing this condition.

We have now to consider shortly the school in the service of vocational study.

It is, I think, generally conceded to be a mistake to place "round pegs in square holes," for by so doing not only is the community deprived of the maximum value of any member so placed but there arises also a great danger of the member so situated becoming, sooner or later, a victim to some disorder of mind.

To what extent the school or college can help to ward off sociological blunders of this kind, has been discussed in a most illuminating manner by Otto Lipmann of the Berlin Institute for Applied Psychology. He maintains that the function of every school should

be to provide vocational advisers with a part of the material upon which to base their advice. In no circumstances should the school itself undertake vocational advice for such facts as the school can provide do not constitute the whole of the data required. It should be the aim of vocational diagnosis to discover the nature of an individual's endowments before his professional career has actually begun.

In considering the different kinds of endowments, Lipmann distinguishes between what he terms "material" and "formal" aspects of endowments. By the material aspects he understands the direction of endowment towards those fields of knowledge or activity which, as the result of our civilisation, have developed into fixed "professions" or "occupations." In this sense we may distinguish abilities and interests for mathematics, languages, music, sculpture, electrical engineering, architecture, carpentry, shoe-making, etc.

It is not, of course, the function of the school to establish the existence of these material endowments for several reasons. For instance, the school has no opportunity to observe the behaviour of pupils with regard to these material fields of endowment, although the introduction of manual occupation into schools (a welcome feature of many modern schools) may help to bridge over this gap. Again, it would be in many cases difficult, if not impossible, to determine unequivocally the degree of endowment of any one of these material fields, since endowment is composed of both abilities and interests, and these exhibit no necessary correspondence one to another so far as these material fields are concerned. Lipmann instances Goethe's interest in pictorial art—an interest that was

Labourites. If there are 6 seats, the fair representation is 3 Unionists, 2 Liberals and 1 Labour. Assume that there are 5 Unionist candidates, 4 Liberal candidates and 1 Labour candidate. If all the Labour voters vote for the Labour candidate, he gets elected, for with the remaining 101 votes we cannot have 6 other candidates getting more than 19 votes; but as between the Unionists and Liberals, unless there be an exact knowledge of the party's electoral strength and a clever management of the votes, we might easily get a result such as the following in which 4 Unionists and 1 Liberal get elected instead of the fair numbers 3 and 2 respectively:—

Li_1	...	...	26	} elected.
U_1	...	...	20	
La	...	...	19	
U_2	...	...	15	
U_3	...	...	11	
U_4	...	...	10	} not elected.
Li_2	...	...	8	
U_5	...	...	6	
Li_3	...	...	3	
Li_4	...	...	2	

Thus a single vote by itself does not ensure a fair representation. This unfair result is caused by the excessive concentration of the Liberal votes upon the most popular Liberal candidate Li_1 . He gets many more votes than are necessary to get himself elected and if his extra votes could be transferred to the candidate Li_2 , this Li_2 would stand above U_4 and get elected. The problem is then to devise a means of making the extra votes of a successful candidate available for the other candidates of his party assuming that the voters who vote for him would also wish to see the other candidates of the party elected if possible. This is effected by allowing the voter to mark his preferences by setting the figures 1, 2, 3, &c., against the names of the

candidates in his voting paper and making the vote transferable in that order.

There has been much discussion as to the exact method of transferring the excess votes of an elected candidate. It is agreed on all hands that in making the transfer regard must be had to the rights of the candidates who are to be the transferees and the rules of the system of the 'single transferable vote,' given below in *extenso* as settled by the Reform Act of 1918, have been carefully framed so as to give effect to these rights.

If a true and fair result is to be secured, it is not enough if provision is made against excessive concentration by the transfer of excess or surplus votes of an elected candidate, but excessive diffusion of votes should also be guarded against. Otherwise a party may waste its votes by miscalculating its party strength and running too many candidates. This is effected by excluding from the poll the lowest candidate, in the case given above Li_4 and making his votes, which will otherwise be wasted on him, available for other Liberal candidates. By so doing, the voters who may have voted for a candidate whose election is hopeless are allowed to transfer their votes to a more hopeful candidate of his party.

Thus the transferable vote provides against too much concentration and too much diffusion of votes, i.e., a voter is given the option of transferring his vote when the candidate of his first choice gets more votes than he requires or when, after the excess votes are transferred, he stands at the bottom of the poll. The secrecy of the ballot is also preserved.

For a clear understanding of the details of voting and of counting the votes in this method of election, the rules that have been framed for the conduct of a Parliamentary

Election under the Reform Act of 1918 are given below.*

It may be remarked that the rules published in the *Fort St. George Gazette* of 18th Sept. for the conduct of election to the Senate by the Registered Graduates follow these rules very closely.

P. V. SESHU AIVAR.

RULES

For the conduct of a Parliamentary Election on the system of the Single Transferable Vote.

1. At a Parliamentary election, where there are two or more members to be elected, any election of the full number of members shall be conducted in accordance with the following rules.

2. (1) Every elector shall have one vote only.
Method of Voting.

(2) An elector in giving his vote—

(a) Must place on his ballot paper the figure 1 in the square opposite the name of the candidate for whom he votes;

(b) May in addition place on his ballot paper the figure 2 or the figures 2 and 3, or 2, 3, and 4, and so on, in the squares opposite the names of other candidates in the order of his preference.

3. * * * *

4. A ballot paper shall be invalid on which—
Invalid Ballot papers.

(a) The figure 1 is not marked; or

(b) The figure 1 is set opposite the name of more than one candidate; or

(c) The figure 1 and some other figure is set opposite the name of the same candidate; or

* The rules are taken from "The Reform of Political Representation," by T. Fischer Williams. (John Murray: London. 1918).

(d) Any mark is made not authorised by the Ballot Act, 1872, as modified by this Act.

5. After the ballot papers have been mixed, the returning officer shall examine the ballot papers and, after rejecting any that are invalid, shall arrange the remainder in parcels according to the first preferences recorded for each candidate.

6. The returning officer shall then count the number of papers in each parcel, and credit each candidate with one vote in respect of each valid paper on which a first preference has been recorded for him, and he shall ascertain the total number of valid papers.

7. The returning officer shall then divide the total number of valid papers by a number exceeding by one the number of vacancies to be filled, and the result increased by one, disregarding any fractional remainder, shall be the number of votes sufficient to secure the return of a candidate (hereinafter called the "quota").

8. If at any time the number of votes credited to a candidate is equal to or greater than the quota, that candidate shall be declared elected.

9. (1) If at any time the number of votes credited to a candidate is greater than the quota, the surplus shall be transferred in accordance with the provisions of this rule to the continuing candidates indicated on the ballot papers in the parcel of the elected candidate as being next in order of the voters' preference.

(2) (a) If the votes credited to an elected candidate consist of original votes only, the returning officer shall examine all the papers in the parcel of

the elected candidate whose surplus is to be transferred and shall arrange the transferable papers in sub-parcels according to the next preferences recorded thereon.

(b) If the votes credited to an elected candidate consist of original and transferred votes, or of transferred votes only, the returning officer shall examine the papers contained in the sub-parcel last received by the elected candidate and shall arrange the transferable papers therein in further sub-parcels according to the next preferences recorded thereon.

(c) In either case the returning officer shall make a separate sub-parcel of the non-transferable papers and shall ascertain the number of papers in each sub-parcel of transferable papers and in the sub-parcel of non-transferable papers.

(3) If the total number of papers in the sub-parcels of transferable papers is equal to or less than the surplus, the returning officer shall transfer each sub-parcel of transferable papers to the continuing candidate indicated thereon as the voters' next preference.

(4) (a) If the total number of transferable papers is greater than the surplus, the returning officer shall transfer from each sub-parcel the number of papers which bears the same proportion to the number of papers in the sub-parcel as the surplus bears to the total number of transferable papers.

(b) The number of papers to be transferred from each sub-parcel shall be ascertained by multiplying the number of papers in the sub-parcel by the surplus and dividing the result by the total number of transferable papers. A note shall be made of the fractional parts, if any, of each number so ascertained.

(c) If, owing to the existence of such fractional parts, the number of papers to be transferred is less than the surplus, so many of these fractional parts taken in the order of their magnitude, beginning with the largest, as are necessary to make the total number of papers to be transferred

equal to the surplus, shall be reckoned as of the value of unity, and the remaining fractional parts shall be ignored.

(d) The particular papers to be transferred from each sub-parcel shall be those last filed in the sub-parcel.

(e) Each paper transferred shall be marked in such a manner as to indicate the candidate from and to whom the transfer is made.

(5) (a) If more than one candidate has a surplus, the largest surplus shall be first dealt with.

(b) If two or more candidates have each the same surplus, regard shall be had to the number of original votes obtained by each candidate, and the surplus of the candidate credited with the largest number of original votes shall be first dealt with, and, if the numbers of the original votes are equal, the returning officer shall decide which surplus he will first deal with.

(c) The returning officer need not transfer the surplus of an elected candidate when that surplus together with any other surplus not transferred does not exceed the difference between the totals of the votes credited to the two continuing candidates lowest on the poll.

10. (1) If at any time no candidate has a surplus (or when under the preceding rule any existing surplus need not be transferred),

and one or more vacancies remain unfilled, the returning officer shall exclude from the poll the candidate, credited with the lowest number of votes, and shall examine all the papers of that candidate, and shall arrange the transferable papers in sub-parcels according to the next preferences recorded thereon for continuing candidates, and shall transfer each sub-parcel to the candidate for whom that preference is recorded.

(2) If the total of the votes of the two or more candidates lowest on the poll, together with any surplus votes not transferred, is less than the votes credited to the next highest candidate, the returning officer may in one operation exclude those

candidates from the poll and transfer their votes in accordance with the preceding regulation.

(3) If, when a candidate has to be excluded under this rule, two or more candidates have each the same number of votes and are lowest on the poll, regard shall be had to the number of original votes credited to each of those candidates, and the candidate with fewest original votes shall be excluded, and, where the numbers of the original votes are equal, regard shall be had to the total number of votes credited to those candidates at the first transfer at which they had an unequal number of votes, and the candidate with the lowest number of votes at that transfer shall be excluded, and, where the numbers of votes credited to those candidates were equal at all transfers, the returning officer shall decide which shall be excluded.

11. (1) Whenever any transfer is made under any of the preceding rules, each sub-parcel of papers transferred shall be added to the parcel, if any, of papers of the candidate to whom the transfer is made, and that candidate shall be credited with one vote in respect of each paper transferred. Such papers as are not transferred shall be set aside as finally dealt with, and the votes given thereon shall thenceforth not be taken into account.

(2) If after any transfer a candidate has a surplus, that surplus shall be dealt with in accordance with and subject to the provisions contained in Rule 9 before any other candidate is excluded.

12. (1) When the number of continuing candidates is reduced to the number of vacancies remaining unfilled, the continuing candidates shall be declared elected.

(2) When only one vacancy remains unfilled, and the votes of some one continuing candidate exceed the total of all the votes of the other continuing candidates, together with any surplus not transferred, that candidate shall be declared elected.

(3) When the last vacancies can be filled under this rule, no further transfer of votes need be made.

13. The returning officer shall record and give public notice of any transfer of votes made under these rules, and of the total number of votes credited to each candidate after any such transfer.

14. * * *

15. * * *

Definitions. 16. In these rules—

(1) The expression "continuing candidate" means any candidate not elected and not excluded from the poll:

(2) The expression "first preference" means the figure "1"; the expression "second preference" means the figure "2"; and the expression "third preference" means the figure "3," set opposite the name of any candidate, and so on:

(3) The expression "transferable paper" means a ballot paper on which a second or subsequent preference is recorded for a continuing candidate:

(4) The expression "non-transferable paper" means a ballot paper on which no second or subsequent preference is recorded for a continuing candidate:

Provided that a paper shall be deemed to be a non-transferable paper in any case in which—

(a) The names of two or more candidates (whether continuing or not) are marked with the same figure, and are next in order of preference; or

(b) The name of the candidate next in order of preference (whether continuing or not) is marked—

(i) By a figure not following consecutively after some other figure on the ballot paper; or

(ii) By two or more figures;

(5) The expression "original vote" in regard to any candidate means a vote derived from a ballot paper on which a first preference is recorded for that candidate:

(6) The expression "transferred vote" in regard to any candidate, means a vote derived from a ballot paper on which a second or subsequent preference is recorded for that candidate:

(7) The expression "surplus" means the number of votes, by which the total number of votes, original and transferred, credited to any candidate, exceeds the quota.

UNIVERSITY REFORM—II. (SHORTCOMINGS OF THE MADRAS UNIVERSITY)

By

MR. S. SANKARANARAYANA, M.A., B.L.

MADRAS UNIVERSITY CONFORMS TO THE FRENCH TYPE.

IN our last article we considered the types of Universities. To what type does our Madras University belong? We are inclined to think that though the reorganised University is professed to be a creation of an autonomous body it is merely for the introduction of a worst type of University—a University clipped and pared of even the little amount of individuality which our old University possessed. In the name of reform, under the pretence of reforming the old University, it has been placed under the mercies of the Government, and every resolution of the Senate has to gain the approval of the Pro-Chancellor who is the President of the Senate and the presiding judge in the Educational Department. Curiously he is a party and judge in one, for, every resolution that is passed in the Senate under his presidency has to be assented to by him as the Minister of Education. It should be admitted on all hands that such an anomaly places the Senate in an awkward position because only if the decision of the Senate conforms with the view of the President it will have a chance of being ratified and carried out by the President as the Minister of Education. The extraordinary powers given to the Chancellor, the powers given to him by Sec. 29 (5) of the Madras University Act, his right of disallowance given by Sec. 31 (2), and his powers regarding the Regulations of which we shall speak later,

will reveal to us the fact that our University is not after all born of an idea of bringing an autonomous body into existence. In an attempt to reform the University on the lines suggested by Dr. Sadler, the University is made more and more "a corporation of administrators" against which Dr. Sadler had directed his invective in his criticism of the Indian Universities. These facts sufficiently show that the Madras University conforms more to the French type than to the English one.

DEFECTS IN THE PRESENT-DAY EDUCATION IN THE MADRAS UNIVERSITY.

The dominant characteristic of Indian education and especially of Madras as noticed by the Quinquennial Report of 1917 is its top-heaviness. While elementary education is poor in India when compared with other countries, higher education in India is at a pitch equal to that of other countries where the social and economic conditions are more highly developed. Again, while the poorer classes in India are mainly illiterate, the higher classes are equally well-educated when compared with other countries. The differences between India and the other countries may be set at nought by reorganising the general frame-work of education, and by reforming the foundation on which the whole educational structure is built.

GAP BETWEEN THE HIGH SCHOOL COURSE AND THE UNIVERSITY COURSE.

At present there is a huge gap between the School-Final course and the Intermediate course. An ordinary student who passes the School Final examination finds it difficult to adapt himself to the advanced course of the Intermediate classes. Secondary education is so ill-equipped that it could not serve as the supplying agency for the University

classes. The general standard for the School-Final classes is low, unnecessary subjects are given undue prominence, important and useful subjects are neglected, so much so, the successful School-Final student is stranded on strange surroundings when he has to go through the heavy work of the Intermediate classes. A reform in the courses adopted by the School-Final classes will be a step in the right direction towards reforming the University of Madras. We do not much believe in the efficacy of creating Secondary Education Boards sitting in every District. We do not believe that the complication of machinery will in any way lead to efficiency in management or instruction. A sincere attempt at reforming the Secondary education will be a right beginning for reforming the Madras University.

WANT OF FREE MOVEMENT BETWEEN PROFESSORS AND STUDENTS.

The bureaucratic indifference of the Professors, especially of the Government colleges, towards the students is one of the stumbling blocks in the way of imbibing the real culture that every University professes to impart. In England the Professor does not assume airs, nor does he think that he is on a higher pedestal. He lives, moves, and has his being in the company of students and the students move very freely with the Professor and this relationship leads us to realise the full value of University life. This defect was apprehended even early and the Principal of the local Presidency College started the tutorial system by which some students were assigned to each Professor who had to give private advice and look after the general interests of the students. We give much credit to the Principal for his originality of thinking, but

we hold that it is a feeble imitation of Western countries—an imitation which was more in form than in spirit. The Professors made a pretence of holding some private classes, inquired into the parentage of every student and there they stopped. Is it not in the nature of the contemplated system and in the interests of the students that they should be looked after even in their general behaviour as in English Universities? The tutorial system is merely intended to give private advice to students in affairs which do not strictly come within the purview of the Professor in his capacity as Professor of the particular subject. It is, in other words, the delegation or the conferring of the power of the guardian in matters unconnected with the college. Quite unwilling to take up the responsibility of giving private advice, the Professors have abused the system altogether, and under the pretence of holding separate classes have failed to do the work assigned to them, thus exhibiting to the world the futility of the imitation of Western Universities to Indian conditions.

AN EXAMINATION-RIDDEN SYSTEM.

The organisation of the University, the peculiar social and economic conditions, and the general poverty of the people of our Presidency account for the narrowness of outlook and the exaggerated importance attached to the diplomas of this University. This in turn leads to the too rigorous insistence and the heightened emphasis placed on examinations. And the restricted scope given to the various professions leads to the overcrowding of students in Arts colleges and the anxious desire of every student to get the hall-mark of the University for the scramble for some paying jobs. The high importance attached to examinations in utter disregard of the dis-

cipline and the general training given by the University results in the wreckage of students, both intellectually and physically. Education tends to become over-literary. The physical side of education is utterly neglected and the facilities for games and pastimes unprovided for, so much so, the education of the Madras University is merely a discipline of the brain to retain an endless series of facts and figures, dates and names.

It is a wholesome thing that our University has thought of starting the residential system at Madras, the efficacy of which we shall speak of later. But it is enough for us here to note that there is no good that is to result from the residential system. Does the University think of insisting on all the students residing in the hostel? No. The English system of insistence on residence for at least two years will not be introduced into India. The only good that is to result, if it is a good at all, is the appointment of some more Professors, Readers, etc., who will make a pretence of delivering one or two lectures a year drawing a fat salary of about Rs. 15,000 per annum as it is being done at present. India has much better ideals on which to spend money upon, and it could ill-afford to see these drones drawing the fat pay that is offered to them, rolling on motor-cars to the Senate House while doing no real work. We exhort the powers-that-be to cut the coat according to our cloth, lest the cloth prove rather too small to require patches of inferior stuff.

AFFORDS POOR OPPORTUNITIES TO THE ABLE STUDENTS.

The Madras University has got a peculiar knack of failing to apprehend the genuine worth of some of the students whose genius

the whole world begins to appreciate. Probably it is because the genius of the individuals are left unnoticed because of their failure in the other subjects. Want of equal competence in the other subjects may have been a cause of their failure. Ramanujam, for instance, whose loss the whole world bemoans, was suffering here. He failed in the examinations of the Madras University, but his true worth was recognised by the English Universities. Now, the boy genius Rajanarayan has stepped into his shoes. To insist that he has to pass all the subjects before he could go to higher studies in the particular subjects in which he is a genius is to inflict a great hardship upon him, and probably to deaden the acuteness of his intelligence and his inborn genius in the particular subject. The Madras University should provide greater facilities for the able student so as to develop the higher powers latent in him. Madras is not wanting in geniuses, and why not a congenial atmosphere be created for the nurture of these seedlings?

LACK OF TECHNICAL EDUCATION AND EDUCATION AMONG GIRLS.

The one great defect of the Madras University is the want of the institution of degrees and colleges for technical and industrial education. Madras has not got a single industrial college to boast of. The technical school that holds its sittings in the Law College premises is in its incipient stage. Even there only diplomas are issued which are not recognised by the University. Bombay and Mysore have commercial colleges and commercial degrees. Especially as India has got great facilities for industries, an industrial college is quite a necessity. Again, the Madras Presidency could not count

more than three or four colleges for women. A new Medical College for Women is proposed to be started. Though the spread of education among women requires greater development in social conditions, still, an increase in the number of colleges, so as to remove them from contact with boys, will lead to a more healthy development of education among women. Many of the objections among orthodox Hindus will vanish if colleges for women, in Medicine, Law, and Engineering, are started separately and contact with boys is as far as possible avoided.

We have considered the general defects of the Madras University—the subjection of the University to bureaucratic dictates, the ill-adapted nature of the High School work and the University work, the restricted relationship between the Professors and students, the rigorous insistence on examinations, the difficulty to appreciate the genuine worth of geniuses, and the want of instruction in industries, technology, and commerce. Besides these, defects in particular classes of instruction as Law, Medicine, Engineering, etc., deserve much to be spoken of which we shall consider hereafter.

KARUNATARANGINI

(English translations from the author's original lyrics in Sanskrit)

By K. KRISHNAMACHARYA, B.A., L.T.

WITH A FOREWORD

By PROF. P. SESHADRI, M.A.

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EVEN at the risk of being charged with talking shop, I would, with your kind indulgence, say a few words as to how such institutions as educational exhibitions have come to be recognised as factors in the teaching of children. Time was when the spoken or the written word was an authority in itself. Generally speaking I may say that it was only by the latter half of the nineteenth century that educationists in Europe and other advanced countries definitely realised that there was in education something more than mastery of words and ideas of others and that the more important thing was to see and to do. It is an accepted creed now that every pupil passing through the school should be made to feel that he has possibilities of effectiveness in some direction. I do not by any means imply that our teachers have absolutely ceased to teach by rote or that pupils are as they should be, placed in surroundings where their education is a self-developing process, with the teacher standing behind the screen. But some change has come over the generality of teachers who realise more and more that to snub childish curiosity is an educational sin and that the child grows all the more healthy and free when he is untrammelled by tradition or by custom. This change in the mentality of the teacher is, to some extent at least, the result of the democratic tendency of the age. It is due

* Address delivered by Mr. A. Narayana Iyer, B.A., L.T., Inspector of English Schools, Travancore, on the occasion of opening the —.

partly also to closer and clearer insight into the psychology of children intended by the Creator to act and live in the world rather than drag on an existence like dumb-driven cattle.

It is this change in the angle of vision of the teacher that has introduced in the modern school curriculum such subjects as Science, Nature Study, Practical Geometry, Drawing and Educational Hand-Work. A study of these subjects requires the help of the concrete and a process of visualisation never contemplated in the pedagogics of old. Direct contact with Nature is intended to be encouraged wherever possible. Pictures, diagrams, charts and specimens are looked upon as indispensable adjuncts to every well-conducted school. No lesson on scientific idea is looked upon as satisfactory where it stops with mere demonstration. Whether it is in the laboratory or in the art room, whether in mastering details of handwork or in noting development in commerce and industry of a country in a lesson on Geography, the teacher is expected to teach the pupils to do the things themselves as much as possible, since full ease in this as in writing comes 'from art and not chance.' The ability to work with an instrument, or to draw a statistical graph counts far more than a load of undigested second-hand information.

In the attempt to concretise teaching, modern science and invention have come to the help of the practical teacher to a very great extent. Kinematographs and gramophones are now-a-days used to serve educational purposes far more than as recreative agents. Even as a means of imparting information, the Kinematograph serves a very useful purpose. Its utility to the school lies chiefly in its being a powerful aid to mental

vision, particularly in the case of children whose imagination is not fully developed. The human interests of foreign countries with which Geography deals can be studied here at first-hand. Moving pictures of ancient remains and modern pageants and scenes showing evidence of incidents connected with History or Civics can also be utilised with advantage. And in the teaching of Science, the habits of birds in their natural haunts, the formation and growth of crystals and even the very stages of preparation of gases in the laboratory and the like are shown through films to the pupils of schools in the British Isles and America. On the motion of the Headmasters of the Public Schools at Eton, Winchester and Rugby, the Chairman of the Representative Managers of L. C. C. Elementary Schools issued a circular ten years ago to the following effect:—"The position of the Kinematograph as a means of popular instruction is now so firmly established that it would be quite out of the question to attempt to suppress it in the schools." As for Gramophones as an aid to teaching languages, many an authority on education has admitted that as an instrument for frequent repetition as is necessary in teaching Phonetics, in teaching proper intonation as copied from an expert and in the teaching of Prosody and art of reading as practised by good reciters, the instrument will be invaluable as a piece of educational appliance.

Apart from such mechanical aids mentioned above, regular institutions in the shape of museums are attached to schools, also with the object of assisting sense perception. Specimens or samples of objects and curios collected by the pupils and teachers of a school and even live animals reared within the walls of the school-house have a fascina-

tion which may lead to the study of details in a way which no public museum can do. A well-arranged museum with a satisfactory stock of all that may be useful or necessary for teaching the different subjects of a school cannot be the growth of a year or two. It requires patient collection, discrimination, analysis and an insight into the realm of nature which only perhaps one pupil in a hundred can have. But when once a supply is at hand it will be a source of genuine pleasure to the teacher to fall back on it on all reasonable and necessary occasions.

One of the best methods by which a school museum can be enriched from time to time is to hold occasional exhibitions. Such an arrangement which is in reality an exposition of what is best in the working of an educational institution may partake of the nature of a class exhibition, or a school exhibition or an inter-school exhibition. In all these kinds, the underlying idea is one of competition and healthy rivalry, whether it is among the pupils of a class or among the various classes of a school or of each school against the others. Such an opportunity calls forth the best that is in an individual whether the motive be love of approbation or self-satisfaction. Viewed from the strict stand-point of school discipline, awards such as medals and prizes may not perhaps be approved by all. But I suppose that until we reach the stage when we learn more fully to love knowledge for its own sake, our children may be excused for the pardonable weakness of requiring an artificial external stimulus for their activity in this direction.

The idea of holding pedagogic exhibitions has sprung from general exhibitions intended to promote arts and industries. Education was never an object of attention in the early exhibitions of towns or Empires. The great exhibition of London in 1851 took no account of schools. But the advance of ideas of

specialisation necessitated different sections in the later exhibitions; and in the great International Exhibition in Japan in 1917 education became a recognised factor. We can understand what a strong hold the idea has on modern life when we hear that in the proposed Empire Exhibition of next year in England, educational exhibits will have a separate building for themselves wherein the varied activities of school and college life are to be represented on a grand scale.

It may be superfluous to expatiate upon the advantages of such occasional shows. So far as the pupils of the school are concerned, an educational exhibition, in addition to promoting friendly rivalry, rouses their imagination and constructive genius, cultivates their powers of observation, develops their artistic sense and engenders a spirit of corporate feeling besides imparting many a valuable lesson on the side of morality. The teachers get an opportunity to understand the peculiar aptitudes of different children and of their possibilities and limitations. The parents and guardians who are brought in contact with the school authorities on such occasions come to know more of their wards and the school than they could ever understand from an ordinary school atmosphere.

But there are at the same time defects inherent in the system against which we have to guard ourselves. There is the possible injury to ordinary school work when attention is directed to love of display. Faulty standards of judgment about the relative importance of school subjects may be adopted and the importance of what can be readily represented may be over-estimated. There can be no guarantee that all that is exhibited is the result of unaided work on the part of the exhibitor. Care has also to be taken to see that the pupil who may show particular aptitude does not become conceited with

possible discouragement to the pupil of moderate talents.

Dangers such as these will dwindle to nothing when the scheme is organised by a committee of the school such as this which knows the capacity and taste of individual pupils. I understand that an educational agency such as this has been in existence in this school during the last twelve years. The members of the staff and the management of the school deserve to be congratulated on the tenacity of purpose with which they have been going through this annual function. The pupils of the school cannot be sufficiently thankful to the school authorities for affording them an opportunity which may appear to them perhaps merely as a relaxation from the dull routine of the class-room but which is nevertheless a potent factor in the educational world.

I may, before concluding, say a few words about the school week as a whole. The celebration, I know, has been going on now regularly these seventeen years without any break or hitch. The incidents of the week (consisting of sports, social gatherings, excursions at times, dramatic performances and the like) are all calculated to strengthen the bond of attachment between the teachers and the taught and make the love of their school abiding in them. If I may make a suggestion in this connection, I may state that it will be a decided gain if all the items of engagements and even the arrangements are gone through by the boys of the school, young and old, without the help of any extraneous agency or individual. There are pupils in our schools who for want of opportunity or out of mere shyness, remain "mute inglorious Miltons;" while, if tapped properly, they show themselves capable of coming out very well in

different kinds of activities. Recitations and action songs, dances and mimicry and even the very play for staging and preparation of scenery and stage decoration will gain more of life and genuine educational value if conducted by pupils themselves. However crude and imperfect they may be, viewed from the æsthetic standpoint, such activities will appeal to the guardians and the general public with a good deal of force.

I am afraid I have been indulging in my desultory talk for too long a time. If there be any fault it is due to the fact that there is no other school in the State where annual functions are being conducted so elaborately and so successfully too and where therefore there is the scope for making suggestions. I am sincerely thankful to the school authorities for having afforded me this opportunity and for the kindness they have shown me in asking me to preside over this day's function. I wish the pupils and teachers of this school all success.

I shall be failing in my duty if I do not give the due share of praise to the Revd. Fathers of this institution who have taken up the work here as a labour of love and whose untiring energy keeps it up at its present level of efficiency and usefulness.

With these words and with the kind permission of all present here I declare the Exhibition open.

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NALANDA UNIVERSITY.

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IT is quite an axiom that Education should be a 'training for citizenship.' That the school should prepare the student to earn his livelihood by himself, and make him to lead, at the same time, a life of purity and exemplary conduct. To combine a Vocational with an Ethical course of training has always been the ideal set up, and pursued by all true educationists. The ideal has been, almost always, difficult of realisation. But it was once at least a living principle, and guiding force of conduct, in the Mediæval University of Nalanda.

2. The town of Nalanda (represented by its present name Baragaon) was situated 7 miles north of Rajgriha in Bihar. Although co-eval with the days of Asoka, it rose to importance as the seat of a flourishing University by the lavish patronage of the Imperial Guptas, in the fourth and fifth centuries after Christ. Narasimha-Gupta Baladitya enriched it with magnificent buildings, temples and other kinds of endowments. The University of Nalanda drew its income from 200 villages, and supported more than 3000 priests, who were mostly teachers. The buildings of the University comprised of six monasteries, each nine storeys high, and a temple for worship, 300 feet in height, built by Narasimha-Gupta. The whole site was enclosed by a high rampart wall, both for safety and seclusion.

3. The subjects taught in Nalanda reveal to us the practical bent—the "horse sense"—of the people. They were five-fold—Pancha Vidya:

- (1) *Sabda Vidya*, grammar and lexicography;
- (2) *Silpa Vidya*, arts and crafts;
- (3) *Chikitsa Vidya*, medicine; "the art of healing;"
- (4) *Hetu Vidya*, logic; and

(5) *Adhyatma Vidya*, religion and philosophy.

4. The education was begun in the seventh year of a boy, and it was not considered complete till he attained his thirtieth year. It should also be noted that "grammar" included in its higher stages, compositions in prose and verse, and the meaning and definition of words. Besides a knowledge of the Three R's, the student learnt a trade or craft in the school, which helped him to earn his bread later in life, and did not turn him out into a glorious little quill-driver only. More than all, the divine dignity of labour, and self-reliance were taught along with obedience and reverence to elders, and faith and reliance in God. As though to make every one fully self-sufficient and self-reliant, a knowledge of medicine was imparted to all pupils invariably.

5. The education was not simply one-sided, neglecting the upkeep of the body 'the soul's temple'. It has been a long recognised Indian principle that religious merit could be won only if the body is kept strong and healthy. Nay, more, it is an essential condition of all *Sadhana*. Hence the Chinese Doctor of Law records with pleasure that "Both priests and laymen are in the habit of taking long walks, backwards and forwards for health, so that diseases might be cured and food digested. At the end of the long promenade was situated a *Chaitya* for perambulation during the walk." Any comment on the above quotation will be indeed superfluous.

6. Hienn Tshang observes that the *Adhyatma Vidya* was taught to the Buddhists alone, and the first four subjects were studied by both Buddhists and Non-Buddhist Hindu students. "The priests, several thousands in number, are men of the highest ability, and repute. Their fame has spread rapidly through distant regions. From morning till night,

they engage in discussion. The old and young mutually help one another. Learned men from different cities come here in multitude to settle their doubts, and then the streams of their wisdom spread far and wide."

7. But admission into the University professorship was difficult to attain. It is said that about seventy to eighty per cent. of the would-be teacher-priests failed to pass the entrance test. Only "the pick" of the *intelligentia* were entrusted with the work of imparting knowledge and training up the pupils.

8. Though the education was in the hands of the Buddhist priests, it was not wholly sectarian and narrow, so as to fit the student to become a priest only later on. The Non-Buddhist students were not all compelled to attend the lectures on Religion, unlike the modern Missionary Schools. The professor-priest was honoured in direct proportion he was proficient in the secular literature as well. He even received the honorific title of *Bahusruta* ("learned in many") for his high attainments in the secular and sacred literatures of the country. Those students who studied the secular subjects only (the first four, as enumerated above) were distinguished by the title of *Brahmacharins*. "There are many such Brahmacharins," says the Chinese Pilgrim.

9. The students led a willing life of severe discipline and self-control. Though they paid no regular fees for tuition, their foremost duty, after their graduation, was to reward their teachers. The student, while studying, had to support himself by begging or any other unobjectionable means. He was not to be fed by the *Sangha* or monastery, unless he worked for the *Sangha* and earned his food as his wages. This system of wage-earning

by students reminds us of similar life of the students in the United States of America.

10. There were also several grades of teachers according to their age, experience and learning. No one who had not put in at least ten years in the monastery could become a teacher. He was called *Upadhyaya*, "Assistant Professor." The Chief Professor was called "*Acharya*". Men of pure conduct, and learned in the monastic discipline only (*Vinaya*), were appointed as tutors "*Karma-charya*."

11. "The teacher pays attention to the pupil as if he were his own child," says Pt. Sing, a Chinese Pilgrim. The pupil rubbed the teacher's body, folded his clothes and swept his apartments. The relation between the teacher and the taught was characterised by affection and reverence in their respective parts.

12. Sir M. Sadler has defined that in Education "will should be kindled by an ideal, and hardened by discipline, enjoining self-control." The Hindu system of learning satisfied all the criteria of true education in the hey-day of its prosperity. The strong sense of discipline in Nalanda was impaired only in the ninth and tenth centuries when the Tantric form of religion spread in Bengal and Bihar, and decay set in the morals of the people.

13. But it was reserved for Muhammad-bin-Bhaktiyar to destroy the monasteries of Nalanda, and to flesh his sword in the general massacre of the "shaven headed" priests of Bihar.

V. RAGHAVENDRA RAO BELATHUR.

VERNACULAR ANSWERS IN THE NEXT S. S. L. C. PUBLIC EXAMINATION.

AN APPEAL TO THE SIXTH FORM TEACHERS.

DEAR SIRS,

In the G. O. No. 239, Law (Education), dated 14th February, 1923, embodying the Report of the Education Reorganisation Committee, it is stated, on page 9, that a concession granted to the S. S. L. C. candidates to answer the non-language subjects in the Vernacular has, in no single case, as yet been availed of. The same remark appears in many of the Dissenting Minutes appended to the Report (*vide* pp. 36 and 50).

This is a serious charge laid at the doors of many of us who have been crying for 'Vernaculars as the Media of Instruction.' Some of us have not been aware of this concession at all. There is a distinct echo of a memory that a kind of concession was allowed to teach the non-language subjects of the IV Form in the Vernacular.

Whatever that might be, when the existence of a concession of the sort mentioned in the Report is brought to our notice, it is time that we should try to acquit ourselves of this serious charge, and encourage the less fortunate of the candidates, who cannot command good English, to answer their non-language papers in their own Vernaculars, *this very year*. If they can rightly pronounce the several technical terms and proper names in English, they may easily transliterate them in their Vernacular languages; but if the English words themselves cannot be properly pronounced, they must at least be bodily imported into their Vernacular answers.

Dear Teachers, do make a beginning in the ensuing half-yearly examinations of your respective schools, so that many of these less fortunate students may have a kind of practice, before they can venture out in the Public Examination in March 1924. You will thus help in thinning the ranks of the 'un-selected,' and of the 'failures' in the Public Examination.

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Your sincerely,

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UNIVERSITY OF BOMBAY— CONVOCATION, 1923.

THE CHANCELLOR'S ADDRESS.

Mr. Vice-Chancellor, Members of the Senate, Ladies and Gentlemen :

This is the last time on which it can fall to my lot to address Convocation in my capacity as Chancellor, for my fifth year of office is drawing very near to its close. During these years of my Chancellorship I have of course been very closely in touch with the educational problems of India, both through the medium of this University and directly as the responsible head of the administration, and I have been so immensely impressed with the importance of those problems that I see them now as vital above all others to the future prosperity of this country.

It is perhaps natural therefore that at this, my last Convocation, I should be conscious of a desire to make very plain to my hearers the views I have formed as to the needs—the crying needs—of the present situation. I ask you to believe that in so doing I have no wish to be dictatorial or censorious; that my only desire is for the sound progress of this Presidency and my only inspiration, the deep affection and gratitude engendered in me by my five years of sojourn in its midst.

I realise that I cannot claim any degree of infallibility either for my reading of the present situation or for my forecast of the future, but there is at least proverbial support for the contention that as an onlooker deeply interested and closely in touch, I have seen more, and with a more comprehensive vision, than those who are participating. Let me, then, declare myself in my preface as one of those who are sincerely convinced that education is an end in itself, and not either a mere means of livelihood or a commercial asset.

The ideal of right education is to make each individual actually a better individual and not merely to give him a better appearance; to make him actually better able to sift the grain of truth from the chaff of words and phrases; and finally to imbue him with the ambition of service for the common weal as a truer ambition than that of his

own personal advancement. Given the most favourable circumstances for this work, that ideal should be the sole aim of the educationist. But the lines of approach cannot be the same in all countries, and his policy towards his ideal must be shaped by the special conditions obtaining in the country where he works and the stage of evolution it has reached. He must decide first what is needed in his fellow-citizens to bring that evolution successfully and surely to its appointed end, and what are the particular necessities of his time.

In India, the first and essential need appears to me to be that of unity. India as a whole has arrived at an advanced stage of its evolution, but further progress is now being retarded by the dissensions which prevent the formation of a united front. These dissensions are fatal to the emergence of an Indian nation, and they are caused by the suspicion and mistrust which the uneducated members of one religious community or social caste feel for those of another. Can that suspicion and that mistrust be eradicated until the mass of the people are sufficiently educated to form for themselves right and independent judgments, and to recognise where their true interests lie? I think not, and I am strongly convinced that to educate the masses of the people up to that point is India's first vital need to-day.

And the second need, and one in my judgment equally vital, arises out of the fact that India has been very definitely committed in the last few years to a democratic form of Government.

I am not concerned here to compare the advantages of democracy with those of other forms of Government. The time for such discussion is past, and our duty now is to supervise and assist the growth to completion of the democratic institutions which have already taken firm root.

And to that end it is necessary that the electorate, the large body of the people, should be sufficiently educated to understand that they and they alone are responsible for the selection of the *personnel* and the policy of Government on the transferred side. If the voting portion of the population are incapable of understanding the

fundamental principle of genuine democracy, or, if understanding it, they are incapable by reason of lack of education of distinguishing the true metal from the false and so remain at the mercy of sentiment and superstition, then no real progress on democratic lines is possible. The corollary to these statements is inevitable that for your further progress towards evolving a stable and broad-based political constitution the principal need is the rapid spread of education among the backward classes. So long as this does not take place, so long will the causes of internal dissension remain in India, national unity will be delayed, and little progress will be possible towards the democratisation of the whole fabric of Government.

These, then, are to my mind the essential needs of India to-day and the most important factors which must condition its educational policy. But it is not sufficient merely to point them out without uttering a word of warning in regard to the future. For whilst these needs may condition, they must not be allowed to control, our educational policy; nor in the effort to meet them must we lose sight for a moment of the ideal of right education which I have endeavoured to describe to you.

Indeed, when I try to foresee the future, these dangers do appear to me at any rate, to be in no sense imaginary, but very real and to some degree imminent. For what will be the result if, bending all our efforts towards the spread of a minimum standard of education, we at the same time neglect to inculcate and to publish abroad the aim which we have in view? We shall have increased enormously the proportion of young men who have passed through the primary educational standards, and unless we have taught them and the people at large that education is not a commercial asset to the individual but is a means for improving the community as a whole, the result will be merely a tremendous increase in the demand for higher education. The demand will be far greater than the resources of the Presidency can meet, or if it is met, there will be a vast increase of the number, already too great, of young men claiming appointments in the clerical professions. And they will have much justification for considering that those

who are responsible for the system under which they have been brought up have grievously misled them by representing or allowing them to believe that education is a passport to a livelihood, when as a matter of fact it is no such thing.

It needs no words from me to convince you of the disasters which lie ahead if my prognostications have even the smallest degree of accuracy. But there is still something lacking to complete the picture, and when it is supplied there is good ground for refusing to be pessimistic. I mean that there is a method, and a sure method, of preventing such a trend of affairs as I have depicted. For the real truth is that the strict ideal of education can be maintained and made clear to all, and that the supply of education can be made to keep pace with the demand, if only the standard in every grade is kept at a high level and not allowed to deteriorate. That is to say, the greater the demand for higher education the higher the standard should be. That is the chief and most important thing that I want to say to you to-day and it is upon that point that I wish to make my meaning completely clear to you. For I see that on this, and on this alone, depends India's prospects of future greatness. The fear, ever present to my mind, is that the potentialities which are latent in this great country will never exercise the immense influence and pressure of which they are capable, unless a rigidly high standard of education is maintained and the right ideal of education is everywhere accepted.

It is as if the potentialities of India were the mighty waters of some great lake and the standard of education were the outlet through which the pressure of those waters exerted its power. If the outlet is left broad so that all the waters can flow easily out, the pressure is nowhere exercising its true strength; but if the outlet is rigidly narrow, then the pressure of the water that issues from it is irresistible; and remember that, although the actual volume of water that passes the outlet may be small, yet all the water behind is playing its part in creating the full actual strength that will be felt outside.

And so in India, if the standards of education are maintained at a high level—although the

numbers of those who pass that standard will be comparatively small, yet their strength will be incomparably greater, and although many will be left at the lower levels, yet they will all be contributing to the force that is exerted by the whole country, and that force will be far more effective if each in his appointed station contributes to it than it would be if the majority drift placidly, almost aimlessly, through the wide passage of a degree that is too easily won. For this reason, therefore, I appeal earnestly to those who direct and control this University. For it is clear that throughout the whole range of educational institutions, from the highest to the lowest, the standard at which each one aims is entirely dependent upon the standard set by the University. That is the touchstone of our whole educational system. And I see little or no hope for the future of education in this country if the University's standard is not maintained at the highest level, indeed a definitely higher level than to-day, or if both teachers and examiners do not always adhere with absolute strictness to that standard. But if the standard is rigidly maintained and all attempts to lower it are resisted, then no vain hopes which are incapable of fulfilment will be roused, and this University in whose hands lies the future fate of education in Western India and of which this Presidency is proud will have done all that lies in its power to teach by example the right ideal of education. Indeed, I make bold to think that it will have done much more, perhaps than any other body, towards the evolution of India, and therefore I appeal to you with all the conviction of which I am capable, to do your utmost in this matter and to strive to maintain at the highest possible level the standard of education which you demand from those who desire to enter upon the struggle of life under your ægis.

SWARAJ THROUGH EDUCATION.

By W. W. PEARSON.

"One single problem presents itself as the basis of all education: how are we to give the child freedom."
—Dr. Maria Montessori.

FREEDOM for India is the wish of all those who love her. But how can we liberate a nation unless we first liberate her children? Even in Europe we find that the nations are in reality not free simply because education has, in the past, been of such a nature that the minds of the children have been enslaved. All the efforts of those educationalists in the West who believe in the coming of a new age, are directed towards freeing the mind and soul of the child from the fetters of convention and tradition. They feel they must enable the young to express their highest and truest aspirations in creative activity. This, too, must be the effort of those in India who are trying to re-model the education of the nation, an education which in India especially has been so bound by a tradition entirely foreign that the children of India have never known what it is to launch out with a free spirit into the realms of a hopeful and unfettered life. In the words of that true lover of childhood, Jean Paul Richter, "the school-sceptre has carried off the mental source of all fire." The old methods must go if India is to be truly free.

Even in the West the same holds true. Since coming to Europe I have been studying afresh the problems of education, and on every side I find signs of dissatisfaction with the old methods and established institutions. Wherever that dissatisfaction has become so intense as to make the old bondage intolerable, attempts have been made to rebuild education on a basis more in harmony with the realities of child life, and so to release the vast stores of creative energy which have been for so long pent up in the children of most of our schools. Only through the motive force of this vitalising energy can the new age of humanity be built up and organised. Dr. Montessori, who more than anyone else, is helping to open out new channels in the educational methods of the West, refuses to let her 'teachers' be called by that name;

She calls them 'leaders'. She has so profound a faith in the nature of a child that she feels he can be left to find his own way with an occasional helping hand over the rough places.

"If we stand aside and do not confuse them with dark counsels, God will lead His children aright. *What education has to learn is chiefly how to stand aside.*"

Three main points have struck me in every new educational experiment in the West. The first point is that everywhere stress is being placed on the necessity for freedom in schools—complete freedom of the child to develop on his own initiative and on the lines which his own individual character, temperament or disposition demands. This is the central and essential element in all those educational experiments which claim to be progressive and liberal. Only thus,—by granting the individual complete liberty of self-realisation,—can the community of the school grow to that harmonious though complex unity which every ideal communal life should express. Thus in many schools which I have visited and read about, there is not any of that "discipline" of the old type—there are no externally imposed rules, no ten commandments of the 'Thou shalt not' type, no punishments and no rewards or other incentives to the competitive instinct—and as a consequence there is perfect order, perfect because spontaneous, and true because it is self-imposed from within and not demanded of the children by an external authority.

Let me quote the words of one teacher in England who has successfully carried out these principles of freedom in large classes. He said, in the course of a lecture before the New Education Fellowship, in reference to the duty of teachers to the children placed in their charge:

"Seeing that education in our country has, for many years past, had as its chief aim the development of character, why are the evidences of strong character of so rare occurrence? Simply because

people have not realised that development can only go on from within and cannot come from without. The living plant must develop its own cells; the most skilful gardener is incapable of producing in the plant even the most imperfect and rudimentary growth of cells. The best he can do is to provide conditions which will favour development—nourishment, air, space.

"So with the child. His character will show development in proportion to the exercise permitted to his individuality, for it is by *doing*, and by doing only, that he can grow. We as teachers, are, of course, excellent persons: but even if we were perfect, those qualities which we, by the authority of our personality, by the exercise of our greater strength, imposed upon the child, would not be truly his; he would reflect our individuality and not develop his own. And let this fact deepen our sense of humility: by the attempted imposition of our own personality we may work incalculable harm. I do not think I am exaggerating when I say that the bad child—I do not mean the unmoral child, but the anti-social child—is, in a very large number of cases, the product of the very educational system that set itself to develop him. The bad child is a child of strong character; he must be, or he could not defy usage and convention as he does. Upon this strong personality we have vainly tried to impose our own individuality, or some generally accepted type of individuality. The child has been strong enough to will otherwise, and has won his battle. But the remembrance of an attempted repression is ever there, and the trend of his development does not simply deviate from that which we would have imposed by force, but runs directly counter to it.

What then must we ask for the child? We must ask for him liberty from the authority of the teacher, so that the development of his individuality may be truly individual."

• Again he said:

"What I am proposing is, not that the teacher shall prevent wrong-doing by the exercise of his

authority, but that he shall so arrange conditions that the child, with his relative liberty, shall avoid wrong-doing of his own free will.

"To come to details. How can school-life be adjusted so that the individuality shall develop itself, not only without harm, but with profit to the community? Conditions must be such that at every turn the child, instead of doing right because the teacher insists, does right because circumstances require that he himself shall make a decision to do right. Instead of the teacher carefully removing all obstacles to right-doing, the child must be faced with the problem of deciding for himself what is right and what is wrong, and the course he takes must be that of his own choice, influenced by circumstances. In this manner his personality, his individuality are ever being exercised and, in consequence, developed. These circumstances can be produced by the simple process of allowing the teacher to resign his functions as disciplinarian, and of throwing on the class the responsibility of good government.

"Now, after four years' experience of self-government by school-boys, I am more than ever convinced of the advantages of the system as a means of developing character."

Freedom then leads inevitably to self-government which is the second point which has struck me in the schools where attempts are being made to carry out the new principles. The danger that complete liberty of self-expression would lead to licence, chaos, or social disorder has proved to be unreal because as a matter of practice each individual child is a member of a community and has to act as such. He must behave, not as though he were alone on a desert island and at liberty to do just as he chooses without any consideration for the welfare of those around him, but as, what in reality he is, an integral member of a corporate body. When once this has been understood by a child—and every experiment has proved that it is understood very rapidly by almost every child of normal type—there is no longer any danger of the

child acting as though he were an isolated being, and it becomes as natural for him to co-operate with the other members of the school community as under the old system it is natural for him to complete with them—it becomes as natural for the child to submit to a discipline which has been self-imposed by the whole community for its own good as it was natural for him to rebel against the discipline which was imposed upon him by the external authority of the teacher.

This external authority of the teacher, no matter how good a man the teacher may be, is invariably bad. Mr. A.S. Neil, an author of several highly entertaining and revolutionary volumes on education, has said in reference to this question of authority:

"Authority will always lead to repression, and by authority I mean not only stern commands, I mean also moral lectures. I refuse to teach morality for the simple reason that every child is moral—until the moralist gets hold of him."

Again he says:

"Authority is making timid souls. The suppressed child remains for ever an inferior, dependent on others."

The essential fact about both these characteristics of the New Schools—The Schools of Tomorrow as Mrs. Ensor calls them—is clear. It consists in the fact that development takes place from within and not from without. From the inner souls of the children themselves will grow the seeds of the New Order. Freedom and Growth are the watchwords of the true educationist, not discipline and information.

This brings me to the third point about the new methods. Interest, not attention, is what must be aimed at. Otherwise what is taught by the teacher will not be retained by the pupil. That which a child is interested in he will teach himself by hook or by crook. The teacher acts then only as adviser or guide,

Mr. Norman MacMunn of Tiptree Hall, the author of an inspiring little book "The Child's Pathway to Freedom," has applied this threefold principle of Freedom, Self-government and Interest in place of slavery to tradition and a forced attention, with wonderful success at his community at Tiptree Hall—a community where old and young alike are living a life of mutual co-operation in their search for knowledge. He allows the child to do exactly what he wants—nothing at all if he so wishes, though no child could tolerate doing absolutely nothing for long when the children all around him are eager and busy with their creative work. This too is what Dr. Montessori regards as right. In her schools "if the children do not want to work, but only to look on, or to meditate, or to gaze out of the window, or lie down, or swing on the parallel bars, they are perfectly free to do so. Since they return to work sooner or later, without pressure, the aim of the school is eventually attained."

The result is a constant activity of some sort or other. Tiptree Hall is a living community of co-operating research after knowledge, and on visiting the place one is instantly impressed by the natural spontaneity with which all the children behave—a spontaneity which speaks of life in place of the stagnant atmosphere of the class-room in the average school. Even where classes are inevitable on account of numbers the teacher may apply this principle, especially if the Dalton Plan of each pupil assigning to himself an individual task is adopted. Often in class-work golden opportunities of winning the spontaneous attention of the whole class are lost because of a stupid adherence to the idea that the thread of "work" must not be broken. For example, should a pupil in a class suddenly inform the teacher that the cat in his home had had kittens, or that a neighbour's house had been burnt down, the teacher ought not to order the child to keep quiet, or even to wait till the class is over, because in all probability the instantaneous interest and attention of the whole class has been aroused by the child's remark, and this is the teachers' golden opportunity. Even if it is an Arithmetic class that is in progress he could switch his class on to the problem of calculating how

many cats there would be in their village at the end of five years if each cat there had six kittens every six months! If it happened to be a geography class he could tell them of the way in which rabbits had become the greatest pest of the Australian farmers on account of a settler having brought out from England a couple of rabbits as pets some years ago. In this way the vista of interest in the minds of the children becomes an ever-widening one because it opens out from their own minds and not from that of the teacher.

In this way the children become their own educators and their thirst for knowledge becomes insatiable. The old method of imparting knowledge in so many bundles of facts doled out at so many a week is, to quote the words of Rabindranath Tagore in "Gora," "like forcing a child to eat when he is not hungry." Food given in such a way cannot be properly digested and in fact does the system real harm. In the same way facts imparted to a child when he has no interest in them—when in fact he does not want them, and would do anything to avoid them,—not only remain unassimilated, but does positive harm to the intellectual growth of the child.

To sum up the points so far emphasised:

Complete liberty must be given to the child, but it must be given in a community which forms an environment carefully selected so as to draw from the child its latent faculties of unselfishness and co-operation. This, too, is what Dr. Montessori says: "There are only two alternatives: either the provision of sufficient concrete interests for the child, which will bring about self-discipline through attention, or else a formal imposed discipline by word of command."

The first alternative has yet to be tried on a large scale. The latter has failed everywhere.

This sense of community life is all-important, for the children thus become their own inspirers, co-workers and judges of one another. Because they realise that in judging the actions of each other they are judging their own, and they thus develop a sense of discrimination and of justice. Each child knows that in judging a comrade he is really passing judgment on himself. This leads children to govern themselves, self-government.

being a natural corollary of true liberty. The children soon learn that the task of self-government can only be successfully carried out by self-discipline, for Swaraj or Self-Government means not merely government *by* the self but government *of* the self.

Thirdly the teacher, or director and adviser of the children must no longer attempt the impossible task of trying to impart knowledge by compelling the children by his authority to listen to his teaching even when they are not interested in it, for such a method does positive harm to the delicate and growing fabric of the child's mind. He must allow the child to discover his own particular interest for the time being, and he will then find it all that he can do to supply the child's avid appetite for knowledge and to keep himself up to the same high level of intense interest that the child exhibits. The teacher must above all learn humility and when standing in the presence of the children whom he is guiding in their search for knowledge, he should feel the reverence that he would feel for something divine.

It may have crossed the mind of some reader to ask—What has all this got to do with Swaraj?

It has everything to do with it. In every aspect of the changing and crumbling life of Europe to-day people are discovering that the changes that are necessary if the world of Western civilisation is to be saved from chaotic confusion and suicide must take place first and foremost amongst the Young. Do the Pacifists want to abolish War? They realise that they must begin with the child and introduce into the education of the young an atmosphere congenial to the growth of international brotherhood and the ideals of co-operation in place of a selfish and narrow patriotism. So also those who are anxious and distressed at the obvious failure of the churches to meet the most pressing problems of the present day, realise that the failure is largely due to the lack of a right spiritual atmosphere in the environment of the child. No change can take place, as Evelyn Underhill has pointed out in the chapter on Education in her recent volume, "The Spiritual Life and the Life of To-day," in the spiritual outlook of our

people until the young are taught, as they would teach themselves if left alone, that there is a real spiritual kingdom, the key to which is within each one of us. Here again the secret of growth is within and not without, and the failure of the churches, and of organised religion everywhere, has been almost entirely due to their lack of recognition of this fact. No amount of external authority, or ethical teaching through the imposition of creeds or dogmas, can take the place of the human soul's own longing for the divine. In the words of St. Augustine:

"Our hearts are restless until they find their rest in Thee."

Mr. Edmund Holmes, the noble pioneer of the new movement in education in England, has recently published a book entitled: "Give me the Young," but by this he does not mean 'Give me the young to torture and to repress' but 'Give me the young that they may be freed to express their own divine nature.' This applies not only to education in its ordinarily-accepted meaning, but also to religion, politics and social matters. It is the Young who will reform the world, for they belong to the Future, and the task of the teacher in India should be to release in the Young the endless energy and idealism which is the most vital creative force in the world.

No great change can come to India unless and until her Young are rightly educated. No political action—no constitutional agitation, no revolution by the masses even will lead to any real change in India's destiny until this first great problem of education is faced and solved.

Even if India were to be granted full Self-Government to-morrow, or if she were to wrest from the hands of the British the reins of Government, there would be no real change for the better in the condition of the Indian people. If education still continued in the same old groove—if the task of educating the imaginative and emotional youth of Bengal were still to be carried out in the same unimaginative fashion that has characterised the past efforts of most of the Government Schools and Colleges, there would be no hope of any great change in the methods by which the people would

be governed. The administration would still be carried out by a bureaucracy trained to worship red-tape as its deity, and to distrust initiative as its devil. It would be characterised by the same want of imagination that was exhibited by some medical authorities in Europe who had been asked to propose a method of curing the prevalent spinal curvature found amongst children in certain schools as a result of the unnatural way in which they are compelled by their teachers to sit for hours each day. The method suggested is quoted by Dr. Montessori in her volume: "Spontaneous Activity in Education:"

"The child, seated at the table, should have feet planted flat upon the ground, or upon a foot-rest. The legs should be at right angles to the thighs, as should the thighs be to the trunk, save for a slight inclination of the bench itself. The trunk should be in such a position that there will be no lateral inclination of the vertebral column, the arms should be parallel with the sides of the body, the thorax should not be interfered with by the front edge of the table, the pelvic basin should be symmetrically supported, the head slightly bent forward at a distance of thirty centimetres from the level of the table; the axis of the eyes, remaining parallel with the front edge of the table, should be horizontal; the fore-arms, two-thirds of which should be laid on the table, should rest on it, but without leaning upon it."

In the meantime the *natural* position for the child is probably that of dangling from the branches of a tree or running up a hill!

Were such a lack of imagination to mark a system of government by a bureaucracy in India, Swaraj would not be worth the effort of struggling to obtain, for it would merely be government by Indians who had been trained in a wholesale manner to ignore the true self of the Indian people—the soul of its youth. "Give me the Young" should be the watchword of all those who long for real Swaraj. Not to cram them with useless knowledge for examinations, nor to forcibly

feed them with ideas and theories foreign to the inner genius of the Indian people, but to prepare them for life by giving them the freedom to develop and express the divine life that is in them. For only thus can a free nation realise itself. Mahatma Gandhi was right when he urged students to leave the enslaving environment of the Government Schools and Colleges, not only because from the political point of view it was humiliating to study in them, but because they are for the most part still wedded to the educational methods which are now recognised by the freer spirits of the West to be obsolete and destructive of the finer feelings natural to the Young and so to be detrimental to human progress.

In India we ought to start schools entirely free—free from Government control whether that Government be British or Indian in *personnel*—schools or colleges free also from the deadening effects of the old conventions and traditions of the present-day educational system—schools especially where children from their earliest years may be given the opportunity to develop, in an atmosphere of complete freedom, the divine faculties of spirit and creative imagination which are the natural birth-right of every child born into this world—schools in which the teachers would be content to stand aside and to watch with a spirit of deep humility and reverence the growth of the child's soul, the spontaneous self-expression of the child's developing, understanding of this world's problems—an understanding which comes to them so naturally because they are so near to that divine kingdom where all the problems of human life find their solution.

Open such schools in a spirit of complete trust in the innate goodness of child-nature and confident faith in the inborn capacity of every human being to solve life's problems by the light of the inner life instead of by conventional and traditional judgments. Such schools must be completely free in every sense of the word—free from the paralysing effects of the examination system;

which injures the growing mind of the child as a delicate plant would be injured if it was periodically dug up by the gardener to see how its growth was progressing—free, too, to experiment as so many of the schools in Europe and America are courageously doing, for we are only at the commencement of the great discoveries of the human soul, and it is in the study of Child-life that we shall make our most wonderful discoveries of the infinite and varied possibilities of human life. The contribution which India has to make to the world can only be fully made when her children are free and in unfettered liberty can express the aspirations and longings of the Indian soul.

We ask for Liberty and Freedom for India. We claim Swaraj and Self-Government. Let us first give freedom to our Youth, to express the wonder of their nature and when we have done that we shall feel impelled to stoop to touch the feet of little children,—for of such is the Kingdom of Heaven.—*The Modern Review*: Calcutta: Sept. 1923.

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SPEECH DAY REFLEXIONS.

The average English school has its being in a little world of its own. Once a year, however, usually on a day towards the close of July, it opens its doors to all interested in its affairs, and copies of the local paper containing reports of Speech Day are now coming into the hands of parents in distant parts of the Empire. There is a certain sameness about these functions. On the platform austere gowns are gay with crimson or white hoods; rows of leather-bound books are ranged in front of the headmaster whose awe-inspiring figure is to-day wholly benignant, and on his right is the guest of honour, an old boy of the school who has attained distinction in later life. The headmaster delivers an address which reviews the prowess of the cricket and football teams and mentions scholarships gained at the Universities. Then the guest of honour makes his speech preparatory to distributing the prizes. If, as is not seldom the case, his own school-days were not particularly distinguished, he makes tactful allusion to the fact, introducing nevertheless some dimly remembered fragment of his ancient learning such as that Pericles found Athens a city of brick and left it a city of marble. The past thus happily disposed of, he delivers some words of exhortation to the boys in which a phrase about playing the game is reasonably certain to occur, after which the boys have it their own way. The school choir sings the school song and "Integer vitae." There is a scene from Shakespeare, done shyly but with a good deal of appreciation. There is a scene from Moliere done less shyly—a boy does not think he is making a fool of himself when he is talking a foreign tongue—but with less appreciation. There may even be a scene from Aristophanes, done in costume, which the boys thoroughly enjoy but by which the modern parent is no longer edified. Then the cheers, with a final cheer for the holidays. Such is the face which secondary education in England exhibits to the world, and it is not altogether surprising that

in the comments which intelligent foreigners occasionally permit themselves to publish on English institutions the chapter on public schools is most divertingly misrepresentative. Some sympathy may, however, be felt for the distinguished, though possibly legendary, Chinaman who announced his intention of sending his son to an English school for character, to a French lycee for education and to an American University for commercial training. Nor is it only the celestial mind which finds difficulty in apprehending the strictly educational aspects of the English public school system. It is well hidden from the world, and at times it would almost seem that the school authorities are in conspiracy to deny its existence altogether.

But this is only the English manner, another example of the national dislike for self-display. In fact, there is no country in the world where educational thought is so active and educational practice so varied as in England. Herein lies the clue to the difference between English and Continental educational methods. On the Continent the secondary school is the keystone of the educational arch. From its pupils the higher professions will be recruited, and foreign Governments have, therefore, felt impelled to bestow special pains on their secondary schools. In England this condition of affairs is reversed. It is now more than a generation since Matthew Arnold appealed to the English to organise their secondary schools. The appeal has met with singularly little success. The English have organised their elementary schools, and have recently made a beginning at organising their Universities, but the secondary schools remain, for the most part, independent entities. They are alike, in that all draw on the common stock of English tradition, but this likeness is in no way due to the influence of the central government. Moreover, it is a likeness which leaves room for the utmost diversity of curriculum and method. In these matters, which together make up the greater part of education as treated in the text-books, each great English school follows

the line marked out for it by its local dynasty of headmasters. There is, in consequence, no English system of secondary education as the French, for example, understand the phrase, but there is a remarkable fertility in educational ideas. Schoolmastering has become an international business nowadays, with technical journals of its own which carefully note the current of thought in Europe and America, and, whenever some new suggestion is propounded an English teacher will be found to give it a trial. All he requires is the headmaster's consent, and the headmaster, who is properly jealous of other schools, is usually willing enough. Hence it is that England has become a great laboratory of educational experiments, and for this very reason has to meet the charge that it lacks an educational system, the truth being rather that it possesses all systems. Because of this richness in experiment, the products of its schools are particularly versatile. Public school-men are found in every country and in all occupations, and, as a general rule, they do well wherever they go. Character is not a wholly comprehensive explanation of their success. The average business post, in particular, demands a considerable measure of technical knowledge, and under the stress of modern competition an Englishman who lacked it would stand no chance against a foreigner who possessed it. In practice the Englishman is found to have the knowledge required, and ultimately its source can be traced back to his public school. The school may not, indeed, have taught him his facts; but it has taught him how to learn facts, and this because of its own accessibility to ideas and its constant anxiety to make the actual process of learning interesting and attractive. Just this, however, is the educational ideal, for education measures its true results by the general power to acquire knowledge which it inspires, and not by a multitude of facts learnt by rote and put down in examination. The only object of the intelligence tests devised in America and now so widely applied is to measure this general power of apprehension,

and it is most significant that tests framed with a view to practical life completely justify that tutorial independence and initiative which is the special pride of English public schools.

Their success in meeting the exigencies of modern life is the more noteworthy because they themselves derive from an earlier epoch. The world, as we know it now, is largely the world which the middle classes have made since their assumption of power in the nineteenth century, but the schools of England are still the schools of the Aristocratic Renaissance. As things have turned out, it is just as well that they were none too eager to open their doors to the new-comers, for the new-comers retaliated by making new foundations of their own in which the old conceptions were modified to meet the new needs. These foundations, whose list begins with Marlborough and ends, for the moment, with Stowe, have reacted in their turn upon the older institutions, so that nowadays the English public schools have set science and modern languages side by side with the "grand old fortifying classical curriculum" and have substituted organised games for manly sports. But in an age of transition like ours the question is urgent whether these changes are sufficient for the democracy which is now knocking at the doors. It must be admitted at once that, though the children of the people are beginning to find their way to the Universities, the public schools are still closed to them. It would even appear that an educational "carriere ouverte aux talents" will involve greater breaches with tradition than were ever made in the nineteenth century. But since the public school spirit is obviously of value, and since the English have a knack of preserving valuable things, it may be conjectured that a way will somehow be found. Perhaps the great day-schools in the cities have already found it. Once essentially middle class, they are now growing more and more accessible to chosen boys from schools provided by the local education authorities. The way of approach has been contrived by alterations in the

scholarship system, and it may well be that this is an educational experiment destined to be carried far. The Continental principle which enables the nobleman's son and the baker's son to sit side by side on the forms of the same secondary school hardly admits of direct application to England, where school life is far more self-contained, and where the various classes which compose society are far more mutually exclusive. But as the English schools are honourably anxious to get the best boys they will probably succeed, and some measure of public school democratisation is distinctly foreshadowed by the experiment in holiday camps inaugurated by the Duke of York. There, perhaps, we must leave it not without some wonder as to what the average Speech-day will be like, say, fifty years hence.—*The Pioneer*.

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BY

P. R. KRISHNASWAMI, M.A.

Govt. College, Kumbakonam.

SRINIVASA VARADACHARI & Co., MADRAS.

TANJORE DISTRICT TEACHERS' GUILD.

We are asked to publish the following by the Secretaries:—

The first meeting of the Tanjore District Teachers' Guild for the year 1923-24 was held in the premises of the Board High School, Ayyampet, on 18-8-23 with the President, Mr. R. Swaminatha Iyer, B.A., L.T., Headmaster, Town High School, Kumbakonam, in the chair. There were present about 100 members—representatives of over 15 affiliated Associations.

The report on the working of the Guild for 1921-22 and 1922-23 was then read by Mr. V. Raghava Iyengar, M.A., L.T., Joint Secretary.

The Guild has completed its twelfth year of existence. It was one of the premier institutions of the kind in the Presidency. It had 29 affiliated Associations, the total number of members being over 600. Of the 26 High Schools and 12 Incomplete Secondary Schools in the District only 4 High Schools and 5 Incomplete Secondary Schools yet remain unaffiliated to the Guild.

During the years under report the following subjects were discussed:—

Educational Reconstruction; Formation of a District Secondary Education Board; The Dalton System; Mr. Patro's University Bill; Relations between the Teacher and the State; Opening of a Publishing and Trading Company; Pupils' Co-operative Societies; Vocational Education in Schools, and Pay and Prospects of Teachers.

The substance of the discussion on these has been communicated to the Government, Managers and Headmasters of Schools, and Secretaries of Teachers' Associations, in the form of resolutions. It was a matter of great satisfaction to the Guild that the principles underlying its proposals regarding the S.S.L.C. system, moral instruction in schools, unification of the teaching service, formation of a District Secondary Education Board and institution of a common provident fund for the entire teaching profession, have found general acceptance at the hands of the Government,

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and that already effect has been given to its suggestions. It was unfortunate however that the Guild was not able to make a similar report about its activities for improving the pay and prospects of teachers. Its efforts in that direction have borne no fruit so far. The Minister of Education, who was once interviewed by a deputation appointed by the Guild, held out no hope of bettering the teacher in the near future. It was deeply to be deplored that even the people's representatives in the Government who have now direct control over education should remain so oblivious of the teacher's interest which was identical with that of the country and its future. A strong and powerful agitation seems to be the only remedy for the redress of the long-standing grievances of the teachers.

The desirability of appointing one or two full trained officers of the Guild charged with the duty of popularising the ideas of the Guild, the opening of a press fund with a view to publish monthly journals, the institution of a central bureau of information, the starting of a trading and publishing company were pointed out to be the immediate needs of the Guild. The report then exhorted the members to take a living interest in the working of the Guild as a body is what its members make it. The balance sheet was then presented.

The discussion of the Grants-in-Aid Code was opened by the President. The Code had already undergone 12 revisions. Yet the Government Secondary Education Reorganisation Committee had suggested that it must be further revised. This showed that none was satisfied with the Code as it stood, not even the Government. He read out extracts from the educational administration reports of other provinces to show that Madras has not been spending as much as other provinces in the matter of education. This affected the growth and development of private enterprise in the field of education. Yet, more than any other province, Madras is specially beholden to private enterprise for the

spread of education in its area. In calculating the fee receipts of a school a reduction of 20% must be made, 10% as a set-off against the loss to the school by the award of free scholarships to deserving pupils and 10% to serve as a reserve fund for the school. The teacher's salary must be standardised and in calculating the charges of the school the standardised salaries disbursed to teachers must be kept in view. Contingent charges of a school may be settled taking the average of the previous 3 years. If the Government would pay the difference between the receipts and charges, i.e., the entire net cost of the school (receipts and charges being calculated as noted above) the teacher and the manager are bound to be satisfied. The Manager free from the task of having to find funds for the management of the school can direct his attention to the efficient administration and supervision of the school. The teacher feeling sure of his pay and having got what he has been long coveting, a standardised scale of pay, a scale settled by the Government according to his merits and qualifications and not drifting and changing according to the whims of individual managers or the financial resources of individual schools is bound to think less of his pay and more about his work. Such a standardisation of the teacher's salary has been made in other provinces. A revision of the Code in the light of the above suggestions is bound to conduce much to the efficiency of education imparted in schools.

Messrs. Aravamuda Aiyangar of Papanasam and V. Santanam Iyer of Thiruthuraiipoondi, who followed, pointed out that the management must not be exempt from making any financial contribution to the school. Mr. Gurusami Sastrial pointed out that 20 or 30 years back, Government paid more grants than now. Madras was paying the lowest grant. There were few aided schools in other provinces. The grant given to Anglo-Indian pupils was unduly high. It bore no proportion to their strength. The irony of the situation was that so far as the teachers were concern-

ed, even the scales fixed by the Government forty years back are not paid to them now. It was unfair to a school manager to be asked to make a financial contribution for the running of a school. He helps the Government by running schools more efficiently and economically than Government can do. He must not be penalised for it by asking to pay something himself.

Mr. V. Mahadeva Iyer of Kumbakonam was also of the same opinion and contended that the recurring net cost of the school must be borne by the Government.

Mr. N. Kalyana Rama Iyer of Thirukhattupalli next spoke on the Govt. Provident Fund Scheme. He thanked the Government for the forward step they have taken by instituting a common provident fund but deplored that by offering an absurdly low rate of interest they should take away with one hand what they gave with the other. With the help of the calculations made by the Secretary S. I. T. U., he demonstrated how if interest is charged at the rate of 6 or 5½ per cent. the real contribution by the Government at the end of the 25th or 30th year of a teacher's service is not only nil, but is a minus quantity. If interest is charged at 6 per cent. the real contribution by the Government occurs when the teacher retires in his tenth year and even then the Government contribution is only Rs. 210. There is nil contribution if he retires in his 18th year and if he serves his full term of 30 years the Government will gain from the teacher Rs. 1,559. A compulsory Provident Fund Scheme intended to benefit the ill-paid teacher should not have been conceived thus. Either the Government must increase the rate of interest or they must give option to the contributors to deposit their money in Banks of their choice. Mr. Srinivasa Iyer of Tanjore also spoke in favour of the raising of the rate of interest.

Mr. V. Mahadeva Iyer pointed out that the Government must be made responsible for the repayment of the contributions and must be requested to raise their interest to 6 per cent. Investment

in Banks always carried with it grave risks.

Messrs. Venkatarama Iyer of Kumbakonam and K. S. Narayanasamy Iyer pointed out that permission may be given for depositing the funds in co-operative banks. That would also encourage the development of co-operative enterprises. More funds would be available in the country for industrial enterprises which have now to go to the foreign market for capital, paying high rates of interest.

Mr. V. Raghava Iyengar of Mayavaram pointed out that the aim of the provident fund was not to encourage co-operative or industrial activities but to offer the teacher on the eve of his retirement something to fall back upon. To make the schoolmaster play the patriot with his poor savings intended to benefit him and his children in his old age was demanding too much of the miserably underpaid teacher. In these days of increasing political freedom financial resources in the hands of the Government could be harnessed for the country's benefit as well. The best thing for the teacher was to request the Government to pay the contributors 6 per cent. interest leaving it to them to invest it in any manner they choose.

Mr. Ramamirtham Iyer of Papanasam opened the discussion on 'The District Secondary Education Board and its Work.' It had a very important duty to discharge, for example, the spread of education in the land. The percentage of literates in the country was yet appallingly low. The teachers were very inadequately represented on the Board. The scales of pay resolved upon by the Guild must be given effect to. The Board should take the steps needed for bettering teachers and must sit as an appellate authority to settle disputes between teachers and managers. Teachers must be encouraged to write books. The institution of a common library or laboratory for schools is practicable only in big towns and even there only to a very limited extent. What is feasible is the establishment of special circulating libraries or laboratories under the control of special librarians

or demonstrators. These may be useful for nationalising school education. The District Sports activities may be controlled by the Board. A common play-ground for a number of schools will not do. Each school should have a minimum play-ground area. The Board should periodically get up educational exhibitions. A course of moral instruction must be framed by the Board. All schools must be made to provide for instruction in as many vocational subjects as possible. The Board should allot grants to all schools on a fair and equitable basis.

Mr. Aravamuda Aiyangar of Papanasam could not understand why teachers serving in local bodies should not be included in the teacher electorate.

Mr. V. Mahadeva Iyer, one of the teacher representatives in the Board, expressed in a very humorous speech the difficulties the teacher representatives of the Board have to face in serving in it. Their number was disproportionately small, 2 out of 12 in the Tanjore District. The faith of managers of schools and members of local bodies in the success of their own administrative methods cannot easily be shaken by this meagre number unless more educationists are drafted into the Board; one has to be very sceptical of any good coming out of the Board. He could see nothing but a fruitful source of friction between school and school in the idea of common play-grounds, libraries and laboratories. The exact position which the District Educational Officer occupies in the Board is not clear.

The President, another teacher representative in the Board, also dwelt upon the difficulties that lay before them in serving in the Board but promised nevertheless that he and his colleague, Mr. Mahadeva Iyer, who has also been elected Joint Secretary of the Guild for the next two years, would try their very best to see that the proposals of the Guild are given a proper hearing in the Board.

The office-bearers were then elected.

Reviews and Notices.

'KALINGATHUPARANI,' BY A. GOPALA Aiyar,
GUINDY HIGH SCHOOL, MADRAS.

The author has done a distinct service to Tamil literature by bringing out the Tamil work of *Kalingathuparani* composed by Jayankondar, who earned in his days the title of "The Prince of Poets." This edition of the work is distinguished by its clearness and freedom from errors. He has tried his best to find out correct readings of verses. The book contains a good introduction, containing new facts and valuable notes to the verses at the end, which are sure to serve as a great help to intending readers.

The book is neatly printed on good paper, and is priced very low for its value as a great historical work.

'MATHEMATICAL PROBLEM PAPERS' FOR INDIAN COLLEGES WITH AN APPENDIX CONTAINING DIOPHANTINE AND OTHER RECREATION PROBLEMS, BY A. A. KRISHNASWAMY, M.A., L.T.
Crown 8vo. Price Re. 1 4 as.

The book consists in the first part of a series of exercises of twelve problems in each on the model of Radford's *Problem Papers on Algebra, Trigonometry, Geometry*, with an occasional leap into the elementary portion of the *Theory of Numbers*.

The papers are graduated in order of difficulty and are not mere mechanical exercises, but are likely to test the capacity of the student to understand the principles underlying the application of the formulæ. This book will also serve as a very useful handbook for students preparing for the Intermediate and Entrance Examinations of any of the Indian Universities and we are certain that there will be a wide circulation for the book once its usefulness as a guide to the University student is recognised.

The recreation problems are really diverting; much material has been delved from our ancient books for the benefit of the student.

The teachers in various schools also will find it a useful hand-book to guide and to instruct.

THE ADVENTURES OF HAJJI BABA OF ISPAHAN, BY JAMES MORIER—EDITED WITH INTRODUCTION AND NOTES, BY C. W. STEWART. (OXFORD UNIVERSITY PRESS: WORLD'S CLASSICS). Pp. xxiii and 450.

We had occasion, some years back to review an abridged edition of this famous work (pp. 115 and 116 of Vol. XXIII of *The Educational Review*) which was intended for study in schools and published by Messrs. K. and J. Cooper of Bombay. The famous book was first published in 1824 by J. J. Morier who spent most of his active life in diplomatic service in the Asiatic courts, mainly at Teheran and at Constantinople and who, though by profession a diplomat, was "by temperament an ideal traveller, revelling in the surprising interests of strange lands and peoples, and gifted with a humorous sympathy that enabled him to appreciate the motives actuating persons entirely dissimilar to himself." He understood all sides of the Persian character very well; and his aim was in *Hajji Baba* not to satirise the Persians, but to give a plain and truthful account of them and of their neighbours like the Turcomans, the Armenians, the Kurds and the Osmanlis and he was "too honest to satirise a nation for faults that he attributed principally to bad government, defective education and the force of local conditions. Morier tried to model his work on that of *Le Sage's Gil Blas*. The book is supposed to be the English translation of a Persian manuscript written by the hero, Hajji Baba, about his own adventures—an innocent device common enough among novelists who intend to give their stories a more realistic setting. The hero is an imaginary character and his adventures are equally the product of imagination. But the account gives a very good picture of Persian life and manners, tastes and society as they existed in the generation of Morier or a little before his time. Through all his adventures related with a singular charm, wealth of appropriate expression and never flagging interest; and the story never strikes a really false chord of Persian character and conduct and never makes the hero say or do anything which is intrinsically improbable. Hajji Baba is "a characteristic Persian adventurer, one part good fellow and three parts knave, always the play-thing of fortune..... equally accepting her buffets and profiting by her caresses, never reluctant to lie or cheat or thief or get the better of anybody else...and equipped with the ready casuistry to justify any transgression of the moral code."

He takes us on through every form of adventure and experience, through great cities like Meshed, Teheran, Ispahan, Baghdad and Constantinople, through the life of brigands and nomads, through court and camp life and through love-scenes and harem intrigues. He describes the character of the English, Persian and Russian nations with whom the Persians came into close contact at that time as they appeared in Persian eyes. The phraseology employed in the narrative may seem quaint to Westerners; but ideas expressed are comparatively familiar to the Indian mind. The book, long a cherished treasure of quaint book-lovers, stands according to the editor on a level with the brilliant studies of Eastern lands like Warburton's *The Crescent and the Cross*, Lane's *Modern Egyptians*, Curzon's *Monasteries of the Levant* and Kinglake's *Eothen*. Lord Curzon waxed enthusiastic over *Hajji Baba* and declared that even if the Persians were to be blotted out of existence as a nation and their great cities should share the fate of Persepolis and Susa, this book would yet remain as a portrait of unrivalled humour and accuracy of a people who have played a great part in Asiatic history.

Morier wrote other books also about his journeys and travels; but it is *Hajji Baba* that gives vivid impressions to the mind and presents facts in a dramatic form. It can satisfy equally the student of Persian manners and the lover of sparkling romance. We welcome the cheap and attractive edition of this old attractive book.

LEGENDS OF ANCIENT EGYPT—STORIES OF EGYPTIAN GODS AND HEROES, BY F. H. BROOKS-BANK—ILLUSTRATED BY EVELYN PAUL. Pp. 256. (G. G. HARRAP AND CO., LONDON, 1923). INDIAN AGENTS: P. T. I. BOOK DEPOT, BANGALORE.

This book was first published about 9 years back under the title of 'Stories of Egyptian Gods and Heroes' and is now brought in uniformity with the *Told Through the Ages* Series, published in quick and rapid succession by the same enterprising publishers. Egyptian legends about Ra and Isis, Horus and Typhon, and stories about their ancient rulers, Hateshet, Rhampsinitus, Rameses and Psammetichus and a host of others the glory and magnificence of whom are unfolded to us more and more by advances in archaeological, folklore and other branches of research—these are bound to become part of the knowledge that every boy should know. Egyptology and kindred studies are becoming more important and more familiar with

increasing knowledge to students and a good handy popular account of the chief incidents and heroes of Egyptian mythology and of their historic heroes cannot but be welcome. The titles of the chapters are, as usually with books in this series, very attractive like the Builders of the Pyramids, the Treasure-Chamber, the Glory of Sunset, the Shadow of the End. We are brought down by the narrative to the times of Cleopatra and the beginnings of Roman Egypt. The style is good and pleasing and the several coloured illustrations are excellent and historically accurate. The handy form of the book and its cheap price are further attractions.

OUTLINES OF BRITISH HISTORY BY GEORGE GUEST (OXFORD UNIVERSITY PRESS, 1922.) Pp. 240.

The aim of this small manual, according to the author, is to present in a clear and easily understood and readable manner a complete summary of the chief events and movements in British History from the invasions of Julius Cæsar down to the present time. Popular movements and social institutions in each epoch are clearly traced; while agricultural and industrial conditions and progress and the expansion of trade are treated in very full and clear detail, relatively to the size of the book. The growth of governmental institutions, both central and local, have also found a place and the causes that have led to the founding and extension of the Empire and the strengthening of the Imperial sentiment and ties as well as the chief features of the present day administration of Britain have not also been overlooked. Even the late Peace Conference with its product, the League of Nations, has received its due notice; while the Irish Peace Treaty of 1921, the latest phenomenon in the Empire has also been described. The book is a good manual for use by the students of the upper forms of our High Schools. There is a useful chronological table at the end of each part.

HARRAP'S *New World Atlas* IN CONTOUR COLOURING FOR JUNIOR CLASSES, EDITED BY J. BARTHOLOMEW. (G. G. HARRAP & CO., LONDON). INDIAN AGENTS: P. T. I. BOOK DEPOT, BANGALORE.

This atlas is handy and cheap being priced one shilling. It contains 32 full page maps besides

illustrations of parallels of longitude and latitude, earth measurements and zones. The world and the chief countries are shown both in physical and in political colourings; while the chief countries of the earth are shown each in a page with both physical and political features. India and Indo-China are forced to be content with a single page—a fact which makes the atlas not so useful to Indian students as it might otherwise be. The new countries created by the Peace Conference are shown. A full general index giving the latitude and longitude of important places enhances the value of the book.

PHILIP'S VISUAL CONTOUR ATLAS FOR INDIA.
(GEORGE PHILIP AND SON, LTD.)

This atlas edited by Mr. George Philip contains 50 maps in 32 full pages. One page gives illustrations of the scales of maps. Eight pages give the world in the contours of the two hemispheres, in its temperature, seasonal rainfall, annual temperature and rainfall, vegetation, population, political divisions and communications. Four pages are devoted to the Indian Empire dealing respectively with the contours, climate, etc., Northern and Central

India and Southern India and Ceylon. As usual the newly-formed political countries are marked. Besides the index of places with latitudes and longitudes there is a list of the principal countries and divisions of the world with the numbers of the maps in which they are found. On the last page of the cover the principles of map projection are explained.

THE OROGRAPHICAL, REGIONAL, ECONOMIC ATLAS
—PART 5—NORTH AMERICA, EDITED BY T. FRANKLIN. (W. & A. K. JOHNSTON, LTD.).
1s. 6d. net.

This atlas contains maps with information about the orographical, economic and other details of the regions of North America. Routes, political divisions, isobars, rainfall in winter and summer vegetation, vegetable and mineral products, population, etc., are illustrated by plain maps. The chief features like the great Lakes, Erie Canal, etc., are also shown. The basins of the Pacific and Atlantic Oceans are illustrated. We have a number of maps useful for the study of the economic geography of Canada and the U. S. A. The index is useful.

THE HISTORY OF EDUCATION IN THE MADRAS PRESIDENCY

By Dr. S. SATTHIANADHAN, M.A., LL.M.
Board, Rs. 3.

(Published with the sanction of the Director of Public Instruction, Madras.)

Opinions.

"The Director welcomes the appearance of this much-needed volume, the publication of which was sanctioned in Proceedings No. 609, dated 26th January 1894. Mr. Sathianadhan has spared no pains to get at facts, and having got them, he has presented them in an orderly arrangement and in clear, well-chosen language. The book deserves to be in the hands of every one engaged in educational work in this Presidency."—*Proceedings of the Director of Public Instruction, No. 11817, dated 6th December 1892.*

"This is a most useful and valuable book and well deserves the high praise the Director of Public Instruction has given it. The information is very complete, well-arranged and well-written."—*The Madras Mail.*

A Manual of Method in Tamil, for the use of Primary School Teachers,
by the late Rao Bahadur C. Nagoji Rau, B.A. New edition. As. 8.

**A Handbook of Manual Training or Educational
Handwork in Paper and Card-Board Modelling**
(in Tamil)

By S. YAGNASWAMI,
Supervisor of Schools, Namakal.
Book I. As. 8.

SRINIVASA VARADACHARI & CO., MOUNT ROAD, MADRAS.

The Educational Review.

The movement for starting a University for Rajputana is gathering strength with the recent reorganisation of the University of Allahabad and the separation of the Central Provinces from the jurisdiction of that University. It is absurd that the large number of States which constitute Rajputana should remain without a University of their own and have to depend on distant Allahabad. It is true that education has not developed very much in the States of Rajputana and the colleges are very few, Jaipur and Ajmere being practically the only two centres of higher education and even these two not being of any great magnitude. But geographical limitations constitute a serious handicap in the way of the States benefiting either by distant Allahabad, or by the no less distant Nagpur, which has just become another University centre. It is also probable that the numerous States in Central India will join in the movement. A meeting of the representatives of the educational institutions of Rajputana and Central India was to have been held at Ajmere on the 1st September to resolve on a definite decision on the subject. We understand that there is no wide-spread desire to separate the Intermediate classes from the higher courses, though the idea seems to find favour in Central India, where the Agent to the Governor-

General has already put forward a proposal to form a Board of Secondary and Intermediate Education to serve all Central India.

The absence of general knowledge on the part of the Indian student has often been a subject of adverse

criticism on the part of observers. Even when he is hardworking, he is often apt to be too bookish, cramming up notes and summaries, without much acquaintance with the affairs of the world. The dominance of the examination system is probably in the worst condition in Bengal and the poor culture of the average student is therefore particularly notorious. The *Statesman* of Calcutta is responsible for the revelation of ignorance on the part of some candidates seeking for office at one of the Deputy Commissioners' Offices in Bengal. All the candidates had some University education ranging from the Intermediate to the B.A., one of them being actually a graduate. Three of the candidates could not give the name of the Governor of Bengal—though one boldly hazarded the name of "Lord Montagu"! Four were at a loss to mention the name of the Governor of Bihar and Orissa, while none had heard of the name of the Governor of Assam. Some were under the impression that "the Hon'ble Mr. C. R. Das" was one of the *Ministers* in Bengal. But

the strangest answer of all was that of one of the aspirants to office who declared that Mahatma Gandhi was a leading 'Bengali novelist', though there was another who maintained that 'Myckle'—he probably meant Michael Madhusudan Dutt—was a Bengali poet. The *Statesman* does not say what the Deputy Commissioner did with these applicants—we presume he was compelled to appoint one of them! This is however a state of affairs which is not at all creditable to Indian education. Heads of schools will do well to encourage the acquirement of general knowledge on the part of their pupils by the holding of occasional contests in the subject and by the offer of prizes to the best pupils. Obviously, it cannot be made a part of the regular school curriculum.

The passing of legislative enactments by Provincial Councils for the formation or re-constitution of Universities does not solve effectively the question of the effective lives of such bodies. It is no use priding oneself on such enactments in any case unless money is forthcoming for the establishment of a real *live* University centre. We are afraid the Government of Bihar and Orissa is just now coming to a better realisation of the truth and probably the Government of Madras will soon be in a similar position with regard to the newly-re-

constituted University of Madras. The Patna University has been a University in name only and nothing has been done there beyond what was done formerly at the Government College, Patna, and the other Government College in the Province, the Ravenshaw College at Cuttack. Only a paid Vice-Chancellor has drawn his pay where there was formerly no paid Vice-Chancellor and some extra money has been spent as administrative expenses. The Government of the Province appointed a Committee the other day to consider the development of the University. The Committee—at least the majority of it—has recommended that a Residential University should be developed on a site near the city of Patna, the non-recurring expenditure of sixty-three lakhs being required for the purpose! A minority, among whom is the well-known Indian educationist, Prof. Jadunath Sarkar, have suggested a very much more modest scheme of expansion on the present site. In its present state of economic bankruptcy, the Government of Bihar and Orissa will not be able to proceed with the former scheme, while the adoption of the latter on the other hand will not mean any advance in ideals of University education. We commend this position to the Ministry in Madras which is apparently expecting some miracles to happen because of the passing of the New Madras University Act!

We are glad to find that among the activities of the Christmas season at Cochin, the All-India Libraries' Conference, held at the time of the ensuing Indian National Congress, there is to be an All-India Libraries' Conference, to preside over which the organisers have chosen the illustrious Indian scientist and scholar, Professor Sir P. C. Ray. The Library movement, in spite of the talk there sometimes has been in Madras at least in the 'pre-reform' days, has not taken any root in Southern India, and neither Government nor Local Bodies have done anything in the matter. Love of learning or enthusiasm for books is the last thing to be expected of the Non-Brahmin Ministry in Madras which relies for its strength on the blind caste prejudice of its ignorant followers and no wonder that nothing has been done. We trust the holding of the ensuing Libraries' Conference will awaken interest in the movement and Government will be compelled to embark on a suitable scheme in the matter. If other considerations fail to appeal, we may mention that there may be some prospects of support from the present Ministry if a certain lure is dangled before it. If a number of Libraries are established all over the Presidency, the Non-Brahmin Ministry can find employment for a large number of Non-Brahmins! If they are not quali-

fied for such jobs, it does not matter, though the work is in connection with libraries.

The welfare of our young men proceeding to foreign countries for their education must always be a matter of serious concern to us.

Indian Students in Germany.

Separation from the wholesome influences of home and society at an impressionable period of a man's life must always be a serious matter and the dangers attaching to such a position must make the question specially important. We have repeatedly drawn attention to the greater need for helping Indian students in Britain in the direction of making their lives more comfortable, but there are a large number of Indian students in other countries whose position also deserves sympathetic attention. According to the correspondent of the *Hindu* of Madras in Berlin, there are as many as three hundred Indian students in Germany, of whom about two hundred are at the capital. There is yet no organisation to help them during their stay in Germany and to furnish them with a social centre where they may find compensation, at least in some measure, for separation from the land of their birth. If the Indian community, as in the past, is unable to do anything in the matter, may not the Y. M. C. A. open a centre as in London for the purpose?

The Teachers' Guild at Trichinopoly is one of the most active of teachers' organisations in Southern India. If each District centre can run a Teachers' Guild with the same ability and sustained effort, we have no doubt that the teacher will come into his own in this part of the country. It was an excellent speech that the Rev. Father Quinn delivered there the other day. He started with a complaint about the new Madras University Act, but pleaded for people's co-operation to make it a success in spite of its grave defects, the legislative measure having been passed. The following is an extract from the remaining part of his speech :—

He deplored the sad want of public sympathy for the school-master and pointed out the insignificant position he held in society at present. The teacher was made to pipe a certain tune and was paid scantily for it. He did not know to what tune or to what end he was to pipe and yet he had to pipe all the same and make his boys dance to the tune of the set syllabus. The public who paid the piper did not care to know whether he piped at all or whether his piping was to their needs and to the needs of life.

In conclusion the speaker congratulated the Guild on the excellent aims it had set to itself. Perhaps their aims were one of the best he had ever seen drawn, but it remained to be still worked and given effect to. No scheme of educational work should be tied down by narrow ideals of politics and individual or national weal. It should aim at arousing in the minds of the pupils an universal sympathy and try to make of them cultured, broad-minded and noble citizens.

The almost complete exclusion of Indians from the higher ranks of the Railway Service, even in State Railways, has till now been a matter for serious complaint. With the recent opening of some of the higher appointments to Indians, the question of their proper training for the purpose has come into prominence. We are glad to find that the Railway Board is alive to the situation and arrangements are in progress for the imparting of training to aspirants for Railway employment, a beginning being made under the auspices of State Railways for the present. It is understood that Provincial Governments and Educational Institutions are also to be approached with a view to secure such preliminary technical education in schools and colleges, as may be possible before candidates enter on the practical training of actual work on Railways.

It is interesting to know that an educational organisation which will embrace the whole world is not quite chimerical. The National Education Association of the United States of America has just adumbrated such a scheme at a recent session of the body when there were present representatives of thirty-two racial groups and as many as eighteen thousand visitors. The Association has put forward a scheme for a

Training for Railway Employment.

A World's Educational Association.

World's Federation of Educational Associations and we hope that India also will join the group and enjoy all the benefits which may be derived from it. We are glad to note that one of the first matters discussed at the Conference was the need for wiping off ignorance from the face of the world. It was resolved that efforts should be made to remove illiteracy entirely from the world before a certain date, and after discussing various dates it was fixed ultimately that the year 1935 should be decided for the purpose. It was suggested that it would not be possible at all to remove the illiteracy of some of the backward countries before the year 1935, but true to the American spirit, the members of the Conference would not agree to any postponement of the date as they argued that if they made up their mind about it, there should be no difficulty in the matter. It is significant that when a speaker said in that connection that where there was a will there was a way, the remark was greeted with tremendous applause on the part of the huge audience. On a rough calculation, it would appear there are five million teachers in the world entrusted with the teaching of two hundred million children and these figures give one an idea of the great potentialities underlying the movement.

The witty American writer, Mr. Stephen Leacock, was discoursing recently on his *Discovery of England*, speaking of the Universities of Oxford and Cambridge besides other things in England as they impressed themselves on a visitor from America. A correspondent in the *Educational Supplement of the London Times* has just drawn attention to what he regards as the most salient points of difference between American and English Universities. In many important matters they represent undoubtedly two different ideals, but it is interesting to know how exactly each strives to attain the highest educational ideal. Most of the American Universities being Unitary Universities, the allegiance of the *alumni* is directly to the University itself, while in Oxford and Cambridge the fact that the University in each case is made up of a large number of colleges, makes the college with which the student is concerned a greater reality than the University itself. But that is a small matter when compared with a material distinction to which attention is drawn in the following lines :—

The most striking feature concerning the average American University—to English eyes, at least—is the highly organized nature of the daily life. The student is given a time-table which would appear incredibly crowded to an English undergraduate, and he is expected to adhere to it rigidly. The general impression received in an American college is that life is organized, punctual, and effi-

cient, while in England the University atmosphere is leisurely, haphazard, and discursive. Except in three or four of the greatest Universities, an American student is to a large extent dominated by his time-table. A bell rings, and breakfast is to be had for a brief half-hour. Another bell rings, and everyone goes to chapel for twenty minutes. The bell rings once again, and classes commence—and so on throughout the day. The students have little breathing space and few unfilled hours.

In an English University the attitude is based on the idea that a student is a responsible man or woman. With the exception of a small compulsory minimum attendance at lectures in the more modern Universities, the student is free to follow his own devices, and follow them he does. He often spends an incredible amount of time sitting in front of the fire, with his feet on the mantelpiece and a pipe in his mouth, discussing every subject under the sun. Bells may ring and clocks may strike, but they will ring and strike in vain for him; absence from lectures involves no penalty save that of knowledge unacquired. He will spend long periods of time reading books which have no discernible bearing upon the subjects he is studying, and consume much mental energy in exploring by-paths irrelevant to his main path. Some students fritter away in unprofitable pursuits the major part of their time at college. Others, stimulated by freedom of opportunity for endless talk and broadened in mind through browsing in suggestive fields of thought, no doubt develop their character and intellect to a higher and more original point than would occur under a more organized system.

While lectures and class-work form the incentives to work at the American University, it has been suggested that the final examination for Honours forms the main incentive for work in the English University. While the American

University caters for the average student and tries to make him an efficient worker, the English University by the freedom which it affords to the student throws a greater weight of responsibility on him and thus seems to appeal more to the person of more than average ability only. There is considerable difference even in the matter of University vacations between the two countries. As the writer puts it:

Another important difference between University life in the United States and in England is in the manner of passing vacations. In America the vacations are shorter, and the usual procedure of an under-graduate at the end of them is to shake himself clear from the dusty volumes in which, theoretically at any rate, he is enveloped, and either frankly to go and enjoy himself, or alternatively to seek work of a social or economic character in order to earn money or to get into touch with the outer world. In the English University an enormous mass of debates, discussions, social and club meetings of every kind effectively prevent much work being done in term time apart from lectures. When vacations start many students pack up a suit case full of books and depart—two or three friends together—to their homes, or to some spot on the Continent of Europe; and there, free from the distractions of the college round, proceed to combine reading and reflection with the pleasures of rest and recreation. Between five and six months of the year are vacations in most English Universities, and these long periods provide the under-graduate with what are in many cases the most valuable of all his opportunities for the process of intellectual assimilation and development. He is expected to work during vacation.

It is interesting to have the assurance from this very well-informed correspondent that in such material matters as buildings, equipment, etc., the American Universities are distinctly superior to the English ones in spite of the rich endowments which have been forthcoming even in recent years in England. With its wonderfully rich resources, America is able to provide facilities for the education of its young on a lavish scale serving in this respect as a worthy model to the rest of the civilised world. The accounts of these Universities where thousands of dollars are sometimes spent for sports alone during one year in a University furnish eloquent testimony to the truth of this proposition.

A fundamental difference is involved in the enormous superiority of the United States in the matter of the University buildings, dormitories, laboratories, auditoriums, and other material equipment—libraries excepted—over anything which is to be found in England. There may be greater antiquity in the English University, and at Oxford and Cambridge greater beauty, but for luxury, convenience, spaciousness, hygiene, and scientific modernity America leads. How has this material magnificence been accomplished? In other than State Universities very largely by the enormous endowments given by millionaires. These munificent donors have in a great many cases become trustees of the University they have endowed, and business men control the life of the Universities in a way unknown in England, where the University is governed largely by the

faculty, and where the presidential office, with its large powers, is virtually unknown. The influence of these business trustees does not appear to be disadvantageous in any direction save one, but that one is of importance. I refer to the question of freedom of speech among student groups or clubs and among the faculty. There have been frequent instances of professors being dismissed or virtually compelled to resign; of advanced student groups or clubs being broken up; of speakers whom the under-graduates wished to hear being refused permission or stopped by the authorities. No doubt the business trustees act in perfect good faith according to their own particular lights, but there is undoubtedly, with a few exceptions, an absence of that freedom of speech, both inside and outside the class room, the lack of which would be regarded in an English University as constituting a much greater danger than the danger of false gospel. In England the Universities are the centre of every sort of orthodox and heterodox creed. Both students and professors, if they feel so inclined, take a vigorous part in the discussion of social problems. Their discussions have a basis of reality in the University franchise that gives the *alumni* special extra representation in Parliament. Perhaps it is because the present condition of Europe is so critical, and the problems with which Great Britain is confronted so serious, that a consciousness of their existence and their urgency inevitably penetrates within the University walls. Certainly there is in England a closer affinity between life within the University and the life of the greater world without than is usually to be observed in America; and this results in the average English student being better informed politically, and more fully aware of the existence and significance of the great social problems of the day, than his American comrade. The American University, on the other hand, probably fits a man more adequately to take his place in the economic life of the nation.

We regret we have heard very little of the doings of the newly-reconstituted University of Madras, in spite of the presence of a full-timed Vice-Chancellor. Beyond one or two notifications issued by the Government of Madras sometime back about the appointment of advisory committees and the proposed holding of elections to constitute the various University bodies, we have heard nothing. The reorganisation of a University is an important matter in which the public certainly deserves to be taken into confidence and we hope

something will soon be heard about the movements taking place inside the Senate House on the Marina. Those who know the Rev. Dr. Macphail will feel convinced that there could not have been any intentional withholding of information from the public. We would commend to the Vice-Chancellor the practice followed in the case of some of the newly-constituted or reconstituted Universities in Northern India, of issuing in the early stages of organisation periodical bulletins to the public conveying information on the progress of events.

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ENGLISH LOVE-POETRY.

BY

Prof. P. SESHADRI, M.A.

I.

TRACING the characteristic features of English poetry in the earliest productions of the language, the Rev. Stopford Brooke writes in his Preface to the monumental volumes on the *History of Early English Literature*: "It will be seen that a great number of the main branches of the tree of English poetry had already opened out at this time from the stem, and that the ideal and sentimental elements of the earliest poetry have continued, with natural changes, up to the present day. * * Here, like the oaks of Dodona, it began to discourse its music; and there is not a murmur now of song in all its immemorial boughs which does not echo from time to time with the themes and passion of its melodies." Whatever truth there is in this observation of the learned writer, it is difficult to discern at least the better elements of love-poetry in the earliest poetical works of the language like *Beowulf*, the *Wanderer* and the *Fight at Finnsbury*. Love of adventure and sea-faring life are there, so also courage on the field of battle and a deep intensity of religious feel-

ing, but the refinements of sentiment and love come in only at a later period when the experience of the nation has mellowed and become richer as the result of contact with the civilised people of the continent who came as conquerors, but stayed on to share their home with them.

Whatever Anglo-Saxon enthusiasts might say, the first beautiful utterances of love are in the poetry of Chaucer who has cast transcripts of life with a prodigal hand all over the pages of his poetry and who has pictures of knights and ladies set in a fascinating world of love and chivalry. It is the awakening of a great love which comes on Palamon when he sees Emily gathering flowers in the garden a fine May morning and through all the elaborate framework of knights and tournaments so characteristic of the poems of the Middle Ages, the flame is kept undimmed and it culminates in a magnificent act of renunciation for love on the death-bed.

Much of the romance of the story of the passionate attachment of Howard, Earl of Surrey, for Lady Geraldine has been destroyed by the revelations of recent historical research, Lady Geraldine having been discovered to have been a mere girl of nine years when she received the tribute from

her courtly admirer, "Happy is he that can obtain her love!" Another interesting poem is his *Praise of His Love*. His lady's beauty passeth more the best of others, more than the sun the candle light or brightest day the darkest night.

II.

It is however only when we come to the Elizabethan period, to the poetry of Spenser, Sidney and Shakespeare that we come to the first full utterance of love. Most of their obscurer companions were poets whose productions would only amuse the modern reader. Edmund Gosse complained that love-sonnets came in the Elizabethan period like 'swarms of locusts' and the description with all its implications is by no means unfair to the average 'University wits' who thought it necessary to write Sonnets of Love the moment they came out of the portals of the University. If they were not in love they imagined they were in love and wrote of Celias and Delias who existed nowhere except in their brains in abject imitation of Dante and Petrarch and with numerous failings of thought and form. Their Beatrices and Lauras were extravagant beauties intended to outdo even Dante's *Beatrice* and Petrarch's *Laura*, but they were unfortunately buried under a mass of verbiage, far-fetched conceits and fantastic figures of speech and it was difficult even to have an adequate glimpse of them.

Spenser's *Amoretti* is however of a different type with its air of dignified melancholy which will not allow itself to be dragged down into the grotesque trivialities of his smaller contemporaries. Dark is the day if he misses the light of his love, he is like the mournful dove wandering here and there all desolate. Even if Spenser had not written the *Faerie Queene*, he should probably be a well-known poet by virtue of his lyric pieces, his sonnets and his *Shepherd's Calendar*; but his nuptial song the *Epithalamion* is like a piece of noble organ-music which will continue to call people to the great triumphs of love. When his love is ready to come forth he asks after the pardonable manner of all bridegrooms on their wedding-day

Did ye see
So fair a creature in your town before;
So sweet, so lovely, and so mild as she?

Here is the final triumph, the conquered Venus and the happy lover:

The night is come, now soon her disarray
And in her bed her lay;
Lay her in lilies and in violets,
And silken curtains over her display
And odoured sheets, and arras coverlets,
Behold how goodly my fair love does lie
In proud humility.

Sidney's love for Penelope Devereaux is responsible for his *Astrophel and Stella*. He was not to be her fortunate husband, but that did not deter him from continuing to place his platonic offerings at her shrine. One of his finest Sonnets is his *Inspiration*. He knows he has not drunk of Aganippe's well, nor have the heavenly muses come down to earth to keep his poor company. His inspiration to poetry comes from some other source:

My lips are sweet, inspired with Stella's kiss.

Love-poetry reaches its culmination in the Sonnets of Shakespeare and in spite of some of the eccentric theories put forward about their circumstances of origin and their alleged conventionalism, they are models of the most beautiful passion. The words sometimes burn into the soul and the reader who fails to be impressed by their sincerity has no ear for the true feeling of poetry.

Love is not love
Which alters when it alteration finds,
Or bends with the remover to remove;
O no! It is an ever-fixed mark,
That looks on tempests and is never shaken.

He is the true lover—he sees no decay in his love's beauty:

To me, fair Friend, you never can be old
For as you were when first your eye I eyed
Such seems your beauty still.

Well has it been remarked that beauty never fades if it is writ on the tablets of a man's heart.

All his concern is only for her happiness and what greater sacrifice can be expected of a lover than the wish that if he is to die, she is not to mourn for his death, but to seek such happiness as she can find on earth as if nothing had

happened. The Sanskrit poet, Bilhana of Kashmir, went a step further and prayed that if he should die and be resolved like every living being into the primal elements, he should continue to devote himself to her. As earth he would love to be where she treads; as water fill the lotus-pools where she will bathe; as light illumine her dwelling and as air spread himself where she will breathe.

Besides the *Sonnets* there are beautiful songs scattered all over his plays, many of which deal with the eternal theme of love, and there are the plays themselves which are an admirable commentary on love in all its stages, and in its most varied aspects, from 'the precipitate and violent outbursts of youthful romance to the quiet and unswerving loyalties of home, from the sparkling vivacities of bewitching maidens to the noble dignity of elderly matrons. But the dramas belong to a different literary sphere and need separate attention.

The most hurried examination of the love-poetry of the Elizabethan period cannot fail to take note of Marlowe though it is a critical commonplace to say that at least in his plays he did not understand a woman's heart. But there is the lovely romance of *Hero and Leander* which, in spite of its rhetorical extravagance here and there, speaks in genuine poetic language of love's devotion and death. Let us remember that Marlowe has had the unique honour of being the only English poet quoted by Shakespeare himself, his famous line:

Whoever loved, that loved not at first sight
coming into Shakespeare's mind, with a full realisation of its might in *As You Like It*.

It is Marlowe again that is responsible for the famous outburst in praise of Helen's beauty in *Dr. Faustus*. Looking at Helen who has been conjured back to life, the greedy lover who is anxious to have the beauties of the past in addition to those of his own time, exclaims:

Was this the face that launched a thousand ships,
And burned the topless towers of Ilium?
Sweet Helen make me immortal with a kiss!
Her lips suck forth my soul!

The Elizabethans were great lovers; they moved in those spacious times with all the enthusiasm for Beauty and the delights of existence so characteristic of the intoxicated times of the Renaissance. But some of the distrust of womanhood so common in the poetry of the Middle Ages of all Europe still lingers at least in the smaller poets. Here is one of them commenting on a *Woman's Face*:

A woman's face is full of wiles,
Her tears are like the crocodile:
With outward cheer on thee she smiles,
When in her heart she thinks thee ill.

Her tongue still chats of this and that,
Than as pine leaf it wags more fast;
And as she talks she knows not what,
There issues many a truthless blast.

Thou far dost take thy mark amiss,
If thou think faith in them to find;
The weather-cock more constant is,
Which turns about with every wind.

I know some pepper-nosed dame
Will term me fool and saucy jack,
That dare their credit so defame,
And lay such slanders on their back.

What though on me they pour their spite:
I may not use the glosser's trade,
I cannot say the crow is white,
But needs must call a spade a spade.

If this offends the sentimental susceptibilities of ladies, they may find consolation in the fact that Shakespeare is on their side and he is willing to return the compliments to the other sex, at least in one of his well-known songs:

Sigh no more, ladies, sigh no more;
Men were deceivers ever;
One foot in sea, and one on shore,
To one thing constant never.

Then sigh not so,
But let them go,
And be you blithe and bonny.

Before we take leave of the Elizabethan period and pass on to Milton and the Caroline lyrists, reference has to be made to Drayton's noble poem: "Since there is no help, come let us kiss

and part" distinguished by a greater dignity of feeling than Wither's poem in the next period:

Shall I wasting in despair,
Die because a woman's fair?
Or make pale my cheeks with care
'Cause another's rosy are;
Be she fairer than the day,
Or the flowery meads in May,
If she be not so to me,
What care I how fair she be?

The learned Ben Jonson sometimes condescended to treat of lighter topics in a manner not devoid of grace and attractiveness. We are told that women are like men's shadows; follow them, they fly you; fly from them, they will pursue you.

To court a mistress, she denies you;
Let her alone, she will court you!

III.

Milton's Puritanism, his confirmed and ineradicable belief in the absurd doctrine that God gave man supreme dominion over woman and his unfortunate experiences of married life prevented him from becoming a great love-poet. Adam and Eve in *Paradise Lost* filled him with such awe as the first great parents of humanity that his efforts at describing their love do not rise to the heights of lyric ecstasy. They always seem to be over-conscious of their high dignity as the progenitors of the human race and thus miss the happy raptures of love. Milton's beautiful Sonnet on his dead wife, his dream of his late espoused saint, come vested all in white is as fine a memorial to love as one might wish:

Love, sweetness, goodness, in her person shined
So clear, as in no face with more delight.

The work of the Caroline lyrists is full of pretty sentimentality and delicate feeling though lacking in depth of passion and never rising to any heights of greatness. Conceits and clever turns of thought are also scattered all over, making them dainty and attractive, though not distinguished by any capacity for real inspiration. The fashionable cavalier of the Court of Charles II, full of politeness and good manners, anxious to invite the attention of the other sex to himself whispering sweetly into the ears of pretty ladies is

reflected faithfully in the love-poetry of the period. Herrick may serve as the type, especially in his lines to *Anthea* who may command him anything:

Bid me to live, and I will live
Thy Protestant to be,
Or bid me love, and I will give
A loving heart to thee.
A heart as soft, a heart as kind,
A heart as sound and free
As in the whole world thou canst find,
The heart I'll give to thee.

Bid that heart stay, and it will stay
To honour thy decree.
Or bid it languish quite away,
And 't shall do so for thee.

Bid me to weep and I will weep
While I have eyes to see:
And having none, yet I will keep
A heart to weep for thee

Bid me despair, and I'll despair
Under the Cypress-tree
Or bid me die, and I will dare
E'en death to die for thee.

Thou art my life, my love, my heart
The very eyes of me
And hast command of every part
To live and die for thee.

His lines advising maidens to marry in time is another pretty piece:

Gather ye rosebuds while ye may,
Old time is still a-flying;
And this same flower which smiles to-day
To-morrow will be dying.

Then be not coy, but use your time,
And while ye may, go marry:
For having lost but once your prime,
You may for ever tarry.

Whatever their defects, they had an eye for grace and elegance in female beauty and understood the fascination of woman to the extent to which her mystery can be intelligible to the other sex. Herrick's *Delight in Disorder* is a lyric of beauty. A sweet disorder in his lady's dress kindles him more than when art is too precise in her. A lawn thrown carelessly on the shoulder, an erring lace, a neglected cuff, a confused ribbon,

a tempestuous petticoat and a careless shoe-string delight him.

Reference has already been made to Wither and the same note is heard in Fletcher and Carew, in Waller and Crashaw and in Suckling and in Lovelace. One may single out Waller's lines to his lady's girdle:

That which her slender waist confined,
Shall now my joyful temples bind;
No monarch but would give his crown
His arms might do what this has done.

A narrow compass! and yet there
Dwelt all that's good, and all that's fair,
Give me what this riband bound
Take all the rest the sun goes round.

Lovelace's lines to *Althea from Prison*

'Stone walls do not a prison make,
Nor iron bars a cage'

are too well-known to need quotation here.

IV.

Coming to the Age of Pope and the Eighteenth Century one has to confess that it is all an arid waste as far as love-poetry is concerned. Sir William Watson is not wrong in complaining that the Muse of poetry only 'festooned the porch of things' in this age of prose. It was not only that the stars may set and rise unkennd by her and the daisies bloom and fade unwatched, but even the beatings of the heart found no expression in verse which toyed with the mere externals of things. There are some pretty compliments to beautiful and clever women by Pope and others and there is the *Vers de Societe* of Matthew Prior and nothing more.

This spell of silence is broken by the early voices of the Romantic Movement, not even by all of them but only by Thomson and Burns. It is difficult to go into ecstasies over the love-episodes, with which Thomson's *Seasons* is interspersed enough the Hon. Justice Stephen Coleridge speaks highly of one of them—the episode of Damon and Musidora in *Summer*: "His treatment in *Summer* of Musidora bathing in a secluded

stream, and unmasking her beauty unawares to her lover Damon, is treated in so chaste and delicate a spirit as to display the power of poetry to refine and purify the passions." That is certainly exaggerated and extravagant praise.

Burns must be ranked among the masters of love-poetry in English or in any other language, his Scotch dialect adding additional vividness to some of his songs while all his love-lyrics have got a rounded perfection which made Tennyson exclaim that they were like 'dew drops.' We have the true lover in his poems:

My love is like a red red rose
That's newly sprung in June;
My love is like the melody
That's sweetly played in tune.

Or,
To see her is to love her,
And love but her for ever;
For Nature made her what she is,
And never made another.

Or again,
I see her in the dewy flowers,
I see her sweet and fair:
I see her in the tuneful birds,
I hear her charm the air.

V.

The coming in of the Romantic movement resulted in a revolution in many aspects of English poetry, but in none was it probably so marked as in the expression of love. Poetry was no longer mere matter of intellect; it aspired to leap right from the heart, right to the heart and we have the new manifestation in unmistakable form in the two first protagonists of the movement, in Wordsworth and Coleridge "the twin morning stars of the new century's song" as they have been effectively called by Sir William Watson. The only limitation to Wordsworth's work in the line is his want of poetic abandon, without which at least love-poetry can never be expected to reach its highest pinnacles of glory. Constant insistence on all the conventions of morality and an anxiety not to rebel against all the Philistine notions of decorum

and propriety are circumstances in which the most rapturous kinds of love-poetry cannot flourish. But Wordsworth is nevertheless a great love-poet, as one who brought into prominence the beauty of the humbler womanhood apt to escape the attention of courtly poets and as one who has idealised the fundamental affections of the home which constitute the greatest fruit of love and its surest foundation for permanence. Like Austin Dobson who discarded the beauties of St. James and preferred his own humbler Phyllida with "her breath of heath and furze," one might open one's heart to Wordsworth's Lucy who dwells among the untrodden ways beside the springs of Dove, like a violet by a mossy stone half-hidden from the eye, in preference to the bejewelled maidens of many a courtly romance of love and chivalry.

Let us also remember he is the author of "She was a phantom of delight" and if he is keen on telling us that she was not "a creature too great and good for human nature's daily food," he is also conscious of the fact that she is "a lovely apparition" and a "spirit of angelic light."

We owe to Coleridge the magnificent poem on love beginning with the well-known lines:

All thoughts, all passions and delights,
Whatever stirs this mortal frame,
Are all but ministers of Love
And feel his sacred flame.

Walter Savage Landor and Leigh Hunt at least deserve passing mention in this sketch of English love-poetry. One of the best elegiac love-lyrics in English is the farmer's *Rose Aylmer* who lies buried as may not be generally known in the City of Calcutta.

Ah! what avails the sceptred race?
Ah! what the form divine?
What every virtue, every grace?
Rose Aylmer, all were thine.

Rose Aylmer, whom these wakeful eyes
May weep, but never see!
A night of memories and of sighs
I consecrate to thee.

Leigh Hunt has no doubts in his mind in matters relating to love, because he sings prettily:

If you become a nun, dear
A friar I will be;
In any cell you run, dear,
Pray look behind for me.

Love is the special province of Byron, Shelley and Keats and the spirit of Romanticism in Love has found passionate utterance in them in a manner in which it has not done in any other group of English poets. There are however at the same time striking differences in their manners and spirits. We have the violence and energy of its passion in Byron, in his verse-tales, *The Corsair*, the *Bride of Abydos*, *Lara* and the *Giaour* and all its licence and boisterousness in *Don Juan* though the voice is toned down to a quiet sweetness in some of his lyrics. Its ethereal idealism and its continued pursuit of perfection on earth finds utterance in the lyric enchantments of Shelley, especially in the aspirations of *Alastor* and the *Epipsychidion*. Alastors will find no satisfaction on earth and the possibilities of a romantic flight with the object of one's love to a beautiful, solitary island under the Ionian skies cannot be a practicable proposition to every lover in the world—but these dreams were intense realities to Shelley and they got crystallised into matchless lines of verse which will live as long as the English language lasts. If Keats has not the strength of Byron, or the rapturous ecstasies of Shelley, he has still his own expression of love in his lyrics and narrative poems distinguished by the highest tenderness and delicacy of emotion. The student who is anxious to enter into communion with the spirit of the best love-poetry in English must devote his days and nights to Byron, Shelley and Keats. They open up a fascinating world of love and romance, superseding all consideration of worldliness, in bold defiance sometimes, of all accepted conventions of morality. It is all love which knows no limitation, is worthy of any sacrifice and is the very crown of life.

VI.

There are few romances in the history of literary biography more inspiring than the loves of Elizabeth Barrett and Robert Browning. The story is told that whenever Robert Browning visited England during the years he had made his home in Italy, he never failed to make a pilgrimage to the church where he was married and kiss the steps of the altar for it was there that he was ushered into such a world of marital happiness. It is not surprising therefore that Love should speak in such exquisite accents through their poetic lips. Mrs. Browning's admirable series of *Sonnets from the Portuguese*—herself being the beloved little Portuguese as she was called by her husband enshrines some of the finest love poetry written in English in the nineteenth century. By their delicacy of feeling, purity of passion and utter surrender to love, they constitute contributions of great worth to the poetry on the subject. Here are wonderful offerings to the 'prince of her heart,' to the princely giver 'who hast got the gold and purple of his heart, untainted, untold.' She does not wish to be loved for her smile, her look, her way of speaking gently, her trick of thought as a lover might say:

But love me for love's sake, that ever more
Thou mayest love on, through love's eternity.

With true feminine instinct she declares that "her thoughts do twine and bud about him as wild vines about a tree."

It was not in any spirit of poetic exaggeration that she wrote:

How do I love thee? Let me count the ways.
I love thee to the depth and breadth and height
My soul can reach, when feeling out of sight
For the ends of Being and idle grace.
I love thee to the level of everyday's
Most quiet need by sun and candlelight.
I love thee freely, as men strive for Right,
I love thee purely, as they turn from Praise,
I love thee with the passion put to use
In my old griefs and with my childhood's faith
I love thee with a love I seemed to lose
With my lost saints—I love thee with the breath,
Smiles, tears, of all my life! and if God choose,
I shall but love thee better after death.

It has been said that if one could imagine seraphs singing and writing of love it would probably be after the pure and unalloyed manner of Elizabeth Browning's *Sonnets* and that is enough compensation for the looseness of structure and such other artistic defects as are discerned in them.

Browning's love-poetry is not concentrated in a series of poems written professedly on the subject, but love is a constant theme in his poems. We have it not only when he has occasion to speak of his own

Lyric love, half-angel and half-bird,
And all a wonder and a wild desire

and hopes in the years of his solitary mourning for her death to clasp her again in the other world when 'the journey is done and the summit attained, and the barriers fall,' but also in all the shifting scenes of his poems so full of dramatic vividness, intensity of thought and deep emotion. Amidst all the ruggedness of his verse, the strangeness of background of many of his poems, and his subtleties of philosophy, it is easy to trace his profound expression of love in many forms, ranging from the quietness and devotion of domestic fidelity to all its strange developments on the wider stage of life. He is human at "the red-ripe of heart" and his poetry, in the words of her who lived with him through life and knew intimately his soul as well as all its visible manifestation in his work, his poetry is

Like some pomegranate which if cut deep down the middle,
Shows a heart within blood-tinctured, of a veined humanity.

Tennyson was not less insistent on the theme and he who runs may read how he smote with varying degrees of might on the chords of love, beginning from the fanciful melodies of his youth like *Claribel*, passing through the romantic developments of the loves of Lancelot and Guinevere who fought in vain against the cravings of the flesh and culminating in the soul-stirring tragic happenings of *Maud*. It is of no small significance that the woman-question should be solved by love

in his *Princess* and all mighty ambitions should reach the conclusion :

"Come, for Love is of the valley, come thou down and find him." Who has invoked his love with more dreadful earnestness than Maud's lover in the well-known lines "Come into the garden, Maud." He can hear her coming 'were it ever so airy a tread' and even if he had lain for a century dead he

Would start and tremble under her feet
And blossom in purple and red.

When was love's invitation to night's repose conveyed in sweeter words than in the lyric of the *Princess* :

Now folds the lily all her sweetness up
And steps into the bosom of the lake
So fold thyself my dearest, thou and slip
Into my bosom and be lost in me.

VII.

The pre-Raphaelites were among the most devoted exponents of Love in the nineteenth century. In their zeal to sing of woman's beauty and their apotheosis of man's eternal hunger for women, they incurred much of public disfavour and drew on themselves such diatribes as Robert Buchanan's famous attack on the *Fleshly School of Poetry*. But some of the best love-poetry in English is in their work, though here and there, the expression of feeling is not true to the best English traditions of delicacy and reserve and there are in it elements of violence and exuberance more characteristic of the poetry of the Southern nations of Europe.

As the translator of the *Vita Nuova*, Dante's platonic offering to Beatrice and as the author of the magnificent series of the Sonnets of the *House Life*, embodying the ecstasies of his love and its later tragic disappointments by Death, Rossetti must be assigned the first place among them from the standpoint of this subject. Rossetti's burial of the manuscript of the Sonnets with the dead body of his wife who was the source of their inspiration and their later rescue from the tomb

are circumstances which add to the intense reality of the passion embodied in them. He has gazed 'Actaeon like' on woman's loveliness and has had splendid visions of Beauty enthroned

Under the arch of Life, where love and death
Terror and mystery, guard her shrine.

He has also known the sorrows of Love though even its past memories of fulfilment are a source of satisfaction and joy in themselves. In a more elaborate examination of this subject, it should be possible to trace its treatment in the voluminous writings of Morris and Swinburne, through many of the lovely romances of the *Earthly Paradise* and the architectural elaborateness of *Love is Enough* of the former and in the lyrics and narrative poems of the latter including his exquisite translations and adaptations from the French.

VIII.

Meredith's *Love in the Valley* is among the greatest love poems in the English language and should find a place in the smallest anthologies devoted to the subject. In his novels, Meredith has rightly been credited with the introduction of a new heroine, the healthy, well-built girl, full of gaiety and animal spirits, fond of out-door life and not the weak sentimental mid-Victorian maiden languishing on pillows in the heavily-carpeted drawing-room, 'in gloss of satin and glimmer of pearls.' It is the characteristic Meredithian type of heroine we find also in his *Love in the Valley*, the young lady with ripples of sparkling laughter, with a strong family likeness to his own Diana of the Crossways and his Clara Middleton whose spirits Sir Willoughby tried to subdue in vain. Here is his picture of the country girl who stirs his heart to its most profound depths :

Under yonder beech-tree single on the green-
sward,
Couch'd with her arms behind her golden head,
Knees and tresses folded to slip and ripple idly,
Lies my young love sleeping in the shade.

We are told that she is 'hard to catch and conquer,' but who will not join in his exclaima-

tion 'Hard, but O the glory of the winning were she won.' Let us behold her again :

Stepping down the hill with her fair companions,
Arm in arm, all against the raging West,
Boldly she sings, to the merry tune she marches,
Brave is her shape, and sweeter unpossessed.

When at dawn she sighs and turns her eyes to the window released from dreams,

Beautiful she looks like a water-lily
Bursting out of bud

and again,

When from bed she rises clothed from neck to ankle,
In her long night-gown sweet as boughs of May,

Beautiful she looks, like a tall garden-lily
Pure from the night, and splendid for the day.

Soured by bitter experiences in life, the same poet could however sing of love in a strangely different strain in his series of cynical, tragic pieces which constitute his *Modern Love*. Here man is duped by woman who is guilty of faithlessness underneath her nun-like ways. Love has become a serpent and he will suffer in silence bearing all the venom of his tooth. He feels 'the promptings of satanic power' when his love pretends 'sole homage.'

Before we bid farewell to the Victorians and glance at some of our own contemporaries, it is necessary to pay a tribute of praise to Coventry Patmore whose *Angel in the House* is a perfect embodiment of love in the purely domestic sphere. The romance of love, dealing with the adventures of heroes and heroines bent on the fruition of their ardent desires in the face of all obstacles in their path inspires poetry easily enough, but the steady and subdued passion of husband and wife through all the years of their married life is not apt to inspire poetry with equal readiness; but it must be said to the credit of Coventry Patmore that he has idealised it in permanent form in the series of poems which form the *Angel in the House*. It may be that his verse lapses occasionally into painful mediocrity; he is too full of diluted sentiment and

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trivialities often claim his serious attention. But even making allowance for all these failings, Coventry Patmore's *Angel in the House* is a noble poem well-worthy of Tennyson's praise. "It will add to the very small number of great poems which the world has had." His romance does not end with the wedding, it continues through the details of every-day married life and he can easily explain why even after having won her, he continues to win her. There is no better idealisation of domestic virtue in the entire range of English song.

IX.

It is rather difficult to make any choice among the large number of contemporary poets, some of them being too near to be seen in proper perspective; and the work of others being too incomplete to admit of fair criticism, but it is easy to single out for special attention the great survivor from the Victorian era who is still happily in our midst, Thomas Hardy. If the sweetness of love is not actually banished from his lyrics, it is too often clouded with tragic disappointment, mocked by bitter irony, or surveyed with grim cynicism. The dominant note is unfortunately the wish: 'May my heart's table bear no woman's name,' but the only consolation is that the feeling is due more to sorrow than to anger, to the fear of "the chilling that agonizes disappointed aim." Rather than run the risk of dismal and tragic endings to love he will not think of love at all. He is apparently not prepared to administer to himself Tennyson's consolation: "'Tis better to have loved and lost, than never to have loved at all."

Reference must also be made to Robert Bridges, our Laureate, who has some choice love-lyrics to his credit. There is his outburst—love is :

My faith here upon earth, my hope above,
My contemplation and perpetual thought :
The pleasure of my fancy, my heart's fire,
My joy, my peace my praise, my happy theme,
The aim of all my doing, my desire
Of being, my life by day, by night my dream.

there is the magnificent invocation to his heart :

Awake, my heart, to be loved, awake, awake !
The darkness silvers away, the morn breaketh,
It leaps in the sky

and his firm determination :

I will not let thee go
I hold thee by too many bonds :
Thou sayest farewell and lo !
I have thee by the hands
And will not let thee go.

What a tragedy in the ways of life that one has often to give up the object of his love in spite of such determination. Without entering into any elaborate examination of the work of the younger generation of poets who are happily quite numerous and whose achievements worthily sustain the great traditions of English song, one may venture on the statement that Love continues to be the perennial source of inspiration it has been in the past. The English poet of to-day will join as gladly as any of his predecessors in his praise of the *Eternal Theme* :

It's only woman that's worth a song,
As poets know full well ;
Though many a time
For the charm of rhyme
They babble of Heaven and of Hell.

Has not Shelley said that so soon as this Love is dead : " man becomes the living sepulchre of himself, and what yet survives is the mere husk of what once he was."

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PROGRESS OF EDUCATION IN MADRAS IN THE EIGHTEENTH CENTURY.

MR. PRAMATHA NATH BOSE, writing in the last volume of his *Hindu Civilisation under British Rule*, and in full admiration of the beneficent fermenting influences of the British mind and culture upon India would regard the six or seven centuries of Muhammadan rule as a period of arrested development and comparatively stunted growth of the Hindu intellect. He says that the decline was synchronous with the Muhammadan conquest and no doubt facilitated by it. According to him the last great name in the annals of Hindu Philosophy was that of Shankara, who lived about the 9th century ; and the last great name in Hindu Mathematics was that of Bhaskara, who lived about the middle of the 12th century. Barring a few exceptional literary figures with great creative powers in them like Jayadeva, the author of the immortal *Gita Govinda*, and Tulasi Das, the great Hindi bard of the *Ramayana*, our principal writers in the so-called Muhammadan epoch were mostly commentators on the Vedas and Dharmasastras, like Vignanesvara and Sayana, dialecticians like Ragunath Siromani and Raghunandan of Nuddea, and popular reformers like Kabir and Chaitanya. Of course it is true that there was from time to time displayed a certain amount of intellectual and religious ferment and progress. But there was no great and continuously growing intellectual movement such as has characterised Modern India as it has been influenced by Western culture and ideals.

Of the agencies for the transmission of Western education the earliest and one of the most important has been missionary effort. Jesuit priests had long been settled in various places on the West Coast and in South India. The efforts of Jesuit scholars like Father Beschi in the early eighteenth century, and Father Nobili in the seventeenth century in the cause of Tamil scholarship have been detailed by the present writer in another place (*vide "The Educational Review"* for December, 1918—*The Madura Mission* and

Tamil Scholarship). Jesuit Missions in South India made a surprisingly large number of converts ; but they did not attempt to break down caste and idolatry. They were, according to one writer, converting the heathen by becoming heathens themselves ; they practised undisguised idolatry and shortly afterwards they were suppressed by order of the Pope. After a time they emerged and are now overrunning India mightily as of old. They conduct numerous educational institutions of all grades and standards ; but in the seventeenth and eighteenth centuries they were not the purveyors of Western culture to the Indian mind.

The Dutch and the English East India Companies which began to get a footing in South India from about the middle of the seventeenth century were for a long time totally absorbed in their commercial pursuits and political jealousies and quarrels. In Ceylon however the Dutch, partially with a view to abolishing the Portuguese tongue as well as the Romish religion, began missionary and educational activities through the agency of Philip Baldæus, who was appointed from Holland to superintend the religious institutions in Ceylon (1656) and who began his duties with true missionary zeal. He composed a short treatise containing the chief points of Christianity which was translated into Tamil and introduced into the schools and churches of Jaffna. Following him, a Brahmin convert wrote an account entitled ' A History of the Life and Passion of our Saviour ' in High Tamil abounding in Sanskrit terms. Soon the Gospel of St. Matthews, the Psalms of David and other works were translated ; and Baldæus extended his activities to Tuticorin, Negapatam and other places on the mainland. He contrived to establish a seminary for the training of schoolmasters and catechists in Jaffna and another at Colombo for Sinhalese teachers.

The Dutch Government in Ceylon fostered this movement of combined education and conversion ; and when Valentyn, an indefatigable Jaffna missionary who, long resident in Malaya, had translated the Scriptures into colloquial Malay, wrote his history (1717), the Old and

the New Testaments had been almost completely translated into both Tamil and Sinhalese. This Dutch missionary activity in Jaffna and elsewhere in Ceylon was the first attempt to introduce Western education among the people. The scriptural system of instruction, the extensive establishment of schools, the training of schoolmasters and catechists, the publication in translations of the Bible—these were the methods employed and they were attended with a large measure of success and amply repaid the means. (*Hough : History of Christianity in India*, Vol. III, p. 104.)

Barring the intermittent efforts of the Dutch clergy in a few places on the coast, the first regular Protestant mission to work in South India was that of the Danes ; Bartholomew Ziegenbalg and Henry Plutsch, sent by the King of Denmark in 1705 to Tranquebar, started their mission work. They with great sincerity and piety used the two weapons for the propagation of their faith which proved most successful, *viz.*, the translation of the Scriptures and the education of youth. Ziegenbalg laboured for over three years on the translation into Tamil of the New Testament and a part of the Old ; and according to Sir John Kaye " if it were only for this, he (Ziegenbalg) would be entitled to a place in the foremost rank of Indian missionaries."—(*Christianity in India*, p. 73). Striving amidst poverty and neglect, against the intolerance of the Hindu priesthood and the immorality of the European community of Tranquebar, these pioneer missionary teachers raised funds, after much trouble, for the erection of a printing press, imported the necessary press and types and contrived to make paper for themselves. Ziegenbalg, worn out with incessant fatigue, died at his post, while yet a young man. Plutsch had to return home shortly afterwards with broken health. Their successor M. Grundler, equally enthusiastic and zealous, succumbed and soon " put on immortality." Another missionary Schultze, assisted by a colleague, whom the historian quaintly names Kiestenmacher, carried on the translation of the Bible from where Ziegenbalg had left it. Schools and school children began to

grow in numbers and the missionaries began to gain influence at the court of Tanjore where they contrived to get some soldiers and officials converted. Father Beschi, then at the height of his power, "the instigator of most of the violence against the Protestants and their native teachers" now attempted to excite suspicion against the Tamil Translation of the Bible. But in spite of difficulties, there were in 1746, 281 scholars in the Tranquebar Seminary.

In 1750 the Danish Mission was reinforced by the arrival of three missionaries among whom was the pious Christian Frederick Swartz, who, within four months after his landing, was able to preach his first Tamil sermon. Swartz laboured with singular zeal and effect for forty-eight long years. He soon got into the favour of the Raja of Tanjore where he took up his residence in 1777. Soon the whole land resounded with the praises of the Christian missionary "to whom money was no temptation and whose lips never uttered guile." When Haidar Ali ravaged the Carnatic and the English power trembled in the balance (1779) he told the English who wanted to treat with him, "Let them send the Christian to me; I need fear no deceit from him." So Swartz was summoned by the English Government from Tanjore to play the part of an ambassador, the one man whom the Muhammadan ruler of Mysore deemed incapable of falsehood and treachery. Swartz failed indeed in his mission; but Haidar's regard and respect for him were in no way diminished. He had an overwhelming ascendancy over the Tanjore Raja and his heir; and the prince, when he became ruler while yet a minor, was placed under Swartz's guardianship. "Beautiful was the relationship that thenceforth subsisted between the venerable missionary and the youthful Hindu prince—great the lessons that were taught and abiding the influence of the teaching." Surfoji regarded his master with unbounded reverence and affection; and when Swartz died, no more genuine tears were shed than those which fell from his eyes; and the Raja

caused to be placed in the Mission Church of his city, a beautiful marble statue of his master by Flaxman, the famous sculptor.

Swartz's contemporaries and colleagues, Gericke, Kohloff and Kiernander, made great progress in mission work at Cuddalore, at Tinnevely and at other places. In their schools the children were employed in the afternoon in spinning cotton, knitting stockings and making hats and baskets of cane and the profits of these works were a great relief to mission funds. But the decadence of the settlement, the havoc wrought by death in the ranks of the missionaries and want of funds, all contributed to reduce the number of their pupils and schools towards the end of the century. The English captured the settlement in 1801; and though the Mission was treated kindly, the schools decayed, and the missionaries had to send many scholars back to their parents and decline receiving others who came in for instruction. The press however continued to work and supply the congregations and schools of English missions with the Scriptures and other works in Tamil, the materials being provided by the Society for Promoting Christian Knowledge.

The educational activity of English missions now demands our attention. Fort St. George was indeed founded in 1639; but nearly 60 years elapsed before the English inhabitants of the settlement erected the first Church. Governor Streynsham Master laid the first stone of St. Mary's Church in Fort St. George for the use of the factors and others in 1680. English chaplains at the Fort, among them Messrs. Lewis and Stevenson, became acquainted with and patronised the Tranquebar missionaries, and succeeded in starting two charity schools for the boys and girls of the settlement which together contained 30 children (1716) under the name of St. Mary's Charity School. As early as 1695 was the Company urged to erect schools at Madras, Bombay and Fort. St. David for the education of the native inhabitants. The Society for Promoting Christian

Knowledge which was started in 1698, having originated free schools for the poor in England, was greatly interested in the starting of such schools in India. The school-house was chosen on a spot outside the Fort in the present Island Ground and took two years in building. The School was not fortunate in its first master. John Mitchel who was first appointed to the place was within six months of his appointment, prosecuted in the Mayor's Court by the commandant of the garrison for deluding his daughter by a pretended marriage in which he acted both as priest and husband. The charge was proved and the culprit was ordered to be deported to England. The trustees of the school struggled on with diminished grants from Government and increasing expenses. In 1746 the school came to be under the special protection of the Company and was commended to the special care of the Governor and Council.

The Rev. Frank Penny tries to white-wash the indifferent attitude of the Company towards early missionary effort at the education of the youth in their settlements. He says: "The attitude of the Honourable Company towards the early missionary effort has been very much misunderstood and misrepresented. The Directors had shown signs of anxiety forty years before the Danish missionaries arrived in India (1706) to establish schools for the children of the Portuguese Eurasians and of the Tamil natives in their employ. The difficulty of establishing them was the difficulty of language. The Chaplains were as a rule short-service men, without any inducement to stay longer than their covenant obliged them.* * * During their stay they had plenty to occupy them amongst their English-speaking parishioners, without attempting to learn the two necessary languages to enable them to carry out the wish of the Directors with regard to Portuguese and Tamil schools."—(Rev. Frank Penny: *The Church in Madras*, Vol. I, p. 180).

When the Danish missionaries approached them, the Company's servants needed no order from

the Directors to receive them and assist them. The S. P. C. K. pleaded with the Directors in their favour. The Company's Directors were most liberal to the S. P. C. K. in the grant of free passages for its missionaries all through the eighteenth century as well as for goods of all kinds connected with their work. Many of the Company's servants at Madras and at Fort St. David were most kind in their reception and treatment of them, "most liberal and sympathetic in furthering their designs." The S. P. C. K. had greatly assisted the Danish Mission in its early endeavours and enabled it to start schools at Madras and at Cuddalore. In 1717, a charity school had been established at Cuddalore; and M. Grundler, the Danish Missionary, had been permitted to start a Portuguese school in the White Town and a Tamil school in the Black Town at the Presidency. Shortly afterwards, both Ziegenbalg and Grundler, first missionaries of the Royal Danish Mission, passed away. One of their successors, Schultze, was taken into the service of the S. P. C. K. and began his educational work as an agent of the Society in 1728. He and other Danish missionaries used the English Prayer-Book or translations of it and they taught the English catechism in their schools. The school at Cuddalore was worked by good Missionaries like Sartorius, Kiernander and Breithpant. Swartz was sent to Trichinopoly in 1762, settled at Tanjore in 1778 and died there twenty years later.

Thus, with the activity of the S. P. C. K. and the Danish missionaries, the educational activities of the Presidency and the outlying settlements were closely connected. In the seventeenth century, we find the Directors taking the initiative in educational work, but with the arrival of the missionaries in the beginning of the eighteenth century, we find a change gradually setting in. "They shifted their educational duties to the shoulders of the new-comers, though of course they did not stand aloof altogether. During the first three-quarters of the eighteenth century, they

gave assistance to schools of various kinds in various ways. They ordered, for instance, their servants at Fort St. David to act in the schools as accountants and occasionally repaired the school buildings. They did not however want to have a hand in the actual educational work, so that up to 1787, all that was done outside Fort St. George was done by the missionaries either in their capacity as such or as garrison or station chaplains."—(Penny: *The Church in Madras*, Vol. I, p. 505).

All these missionary teachers were themselves graduates of Universities. The great majority of the Germans and Danes were trained at the University of Halle. They were all of them sincere and enthusiastic educationists; and none of them worked or tried to work without schools. Swartz's Vestry School at Trichinopoly and the English Charity School that he founded later at Tanjore, both did excellent work. The S. P. C. K. had about 1773 two English schools for Eurasians of both sexes, as already told, one at Vepery (Madras) and the other at Cuddalore. It was only the St. Mary's Charity School in the Fort that continued to be managed by the Company. The Roman Catholics of Madras who had been in temporary disgrace about the time of the French occupation of Madras (1746-49) and later, had contrived to establish a Roman Catholic School under the management of Capuchin Missionaries for the education of Europeans and Eurasians along with boys from other communities. This school was liberally endowed from private funds and was also under the protection of the Company.

In 1787, Lady Campbell, wife of the Governor of Fort St. George, started a Female Orphan Asylum, after collecting considerable funds; and within a few years, as many as 150 girls were schooled in it. The Company agreed to pay a monthly subscription of Rs. 5 for each of the children. Steps were also taken for the establishment of a Male Asylum, to educate and maintain orphan boys, mostly sons of soldiers in the service of the Company. Govern-

ment made a similar grant of Rs. 5 a pupil to this institution also. The School within a short time after its foundation was placed largely through the exertions of its Secretary and Director, Dr. Bell, who was the Presidency Chaplain, on a sound financial footing and the number of boys in it had increased to 150 in 1790 and to 200 in 1792.

The method of education followed by Dr. Bell in this school was a novel one and soon came to be well-known in England as the Bell System, explained by him in a book entitled *An Experiment in Education*. The system is also called the Madras System and the Pupil-Teacher System. Dr. Bell had closely observed the method of teaching obtaining in the indigenous pial-schools of the land and based his ideas upon this. It consists in the older or more advanced students teaching the younger; thus in each class of boys there will be an equal number of smaller pupils and a little more grown-up elder pupils who act as teachers. The pupils when promoted to the next class themselves become the teachers of the newcomers to the lower class. "Every boy is either a master or a scholar or generally both. He teaches one boy, while another teaches him." By this arrangement the master could do without assistants, and the system is no doubt excellent so far as primary education is concerned.

Dr. Bell, after his retirement, devoted the remaining years of his life to the task of introducing the Madras System of Education into Great Britain and enlisted on its behalf the support of many eminent clergymen and educationists. Bell's successor at Madras, James Cordiner, was full of admiration for this system. He thus describes the system in his *Voyage to India*: "From the perpetual agency of the system no idlers can exist. On entering the school, you can discover no individual unemployed, nobody looking vacantly round him; the whole is a picture of the most animated industry and resembles the various machinery of a cloth or a thread manufactory completely executing their different offices

and all set in motion by one active engine. The system creates general activity and attention; it gives, as it were, to the master, the hundred hands of Briareus, the hundred eyes of Argus and the wings of Mercury." Cordiner describes the actual working of the Male Orphan Asylum under this system; the boys being paired off into tutors and pupils; and every class having a teacher and an assistant who continually inspected the tutors and pupils, kept them busy, and heard them say their lessons as soon as prepared which was generally once every half hour. The lessons were short, easy and frequent and every lesson was learned perfectly. A register of offences was kept by every boy in every class and the offences were tried weekly by a jury of their peers. The boys were admitted at the early age of 4, and when they were 14, were apprenticed to artificers, surveyors, clerks and sailors and otherwise employed.

The education imparted in the Asylum went far; and Dr. Bell sometimes taught Natural Philosophy and explained to his boys the use of scientific machines. The Asylum made use of lotteries for collecting money for its funds; and it raised through this means as much as 14 lakhs of pagodas in the 10 years between 1795 and 1805. The working of the Asylum at the close of the 18th century gives one an idea of the rules and practices of teaching that prevailed at the time. We may also note in this connection the educational methods of the eminent Swartz who believed that English should be the medium of instruction. Mr. Sullivan, Resident at Tanjore, was also of the same opinion and as early as 1785 advocated the establishment of English schools for all classes. Both drew up a scheme and submitted it to Governor Macartney and the Nawab of the Carnatic and contrived to establish 3 schools at Tanjore, Ramnad and Shivaganga, the ruling princes of the three places promising regular annual grants. The schools at Ramnad and Shivaganga soon fell into decay; but that at Tanjore was placed under the Danish Missionary Kohloff and continued to flourish. In 1790, Swartz, with the assistance of the Raja of Tanjore,

opened another school at Kumbakonam and contrived to endow it along with the Tanjore school with permanent funds. These schools, though under the direct management of missionaries, were not marked by compulsory Bible teaching or any open attempts to instil Christian doctrines into the minds of the pupils.

Outside the Presidency Settlement it was at Cuddalore, besides Tranquebar that the Danish missionaries laboured longest and most earnestly. There Kiernander and Giesler at first and later Hutteman and Gericke laboured and kept green both the Christian spirit and the tree of learning. In 1782 Haidar and the French attacked Cuddalore and turned the missionaries out. But the good work that they did there was described in an admiring report to Government drawn up by Gericke in 1802 representing the good that they had done, both among Indians and among Europeans by means of schools, poor relief and dissemination of good literature.

The promotion of learning and schools by European agency in South India has been brought in this article down to the close of the 18th century. The period of activity, though not showing striking results, was yet marked by steady progress. The bulk of the classes that received the benefit of a Western education seems to have been the Eurasians with a few Indians of the higher classes sprinkled among them. The establishment of English schools at Tanjore and Kumbakonam could not but bring English education before the very doors of the Brahmin community which took such advantage of it in the succeeding century.

Before we close we can note the rise of the first printing press in India. It is to the Portuguese that the credit of introducing the printing press in India is due. In 1577 the first printed book in India appeared—the *Doctrina Christiana* of Giovanni Gonsalves, a lay brother of the Order of the Jesuits who first cast Tamulic characters (*vide*

p. 101 of N. N. Law : *Promotion of Learning in India by Early European Settlers*). After this appeared in 1578 a book entitled *Flos Sanctorum* and a long time after *The Tamulic Dictionary* of Father Antonio de Proenza printed in 1679 at Ambalacate on the Malabar Coast. Some say that five years after the death of the great Saint Xavier his *Catechismo de Doctrina* was printed at the press set up in Goa by the Portuguese. The Portuguese had also presses at Ambalacata, at Cochin, at Angamale, and at Panikkayal, all on the Malabar Coast. The first Tamulic types were cast by Gonçalves and the *Flos Sanctorum* was published at Panikkayal. It was at Cochin that Tamil types were cut and important Tamil books published. The Danish missionaries, as was seen, had their own press. The first printing press in British India was established at Madras by the S. P. C. K. in 1711 and an edition of the Tamil New Testament was issued from it. From then the growth of printing has been steadily and continuously advancing.

C. S. SRINIVASACHARI.

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THE MODERATION FORMULA IN THE S.S.L.C. SCHEME.

It is the object of the present note to discuss in some detail the implications, mathematically deduced, of the well-known moderation formula $\frac{bx+ay}{2a}$ and its variant $\frac{bx+ay}{a+b}$ recently suggested in the course of the deliberations of the Special Committee for the Revision of the S.S.L.C. Scheme in Mysore. The symbols a, b, x, y in the formula stand for the Form Average, the School Average in the Public Examination, the candidate's marks at School and at the Public Examination respectively. The symbols being explained, I believe there is no harm in conducting the discussion, now and then, in algebraical language for the sake of brevity.

1. If $x = y$, $\frac{bx+ay}{2a}$ becomes $\frac{(a+b)x}{2a}$ which is greater or less than x according as $a+b$ is greater or less than $2a$, i.e., according as b is greater or less than a .

Thus, even though a candidate may have got the same marks both in the class and at the public examination, his moderated marks will not be equal to these but be either greater or less than them according as the Form average is less or greater than the School Average in the Public Examination.

Whereas if $x = y$, the other formula $\frac{bx+ay}{a+b}$ gives merely x , which is independent of the two averages. In this respect the second formula seems to be superior to the first.

2. By properly adjusting a and x , it is possible to make $\frac{bx+ay}{2a}$ greater than the greater of the two quantities x and y and even greater than 100.

(i) Let $x > y$; then $\frac{bx+ay}{2a} > x > y$ when the ratio $\frac{y}{x}$ lies between 1 and $2 - \frac{b}{a}$, and vice-versa, provided $a < b < 2a$,

In case $b > 2a$ or $b = 2a$, it is evident that $\frac{bx+ay}{2a} > x$.

(ii) Let $x < y$; then $\frac{bx+ay}{2a} > y > x$ when the ratio $\frac{y}{x}$ lies between 1 and $\frac{b}{a}$ and vice-versa, provided $b > a$.

In these cases, the moderation formula is advantageous only to a particular class of boys the ratio of whose class-marks to their marks in the Public Examination lies between certain defined limits. It is certainly unfair to make a candidate's fate depend on such accidental circumstances.

(iii) It is possible that $\frac{bx+ay}{2a} > 100$, if $b > a$ and $\frac{b}{a} > \frac{200-y}{x}$.

Illustration (1) Let $x = 30, y = 20, a = 15, b = 40$.

Then $\frac{bx+ay}{2a} = 50 > x$.

(2) Let $x = 28, y = 30, a = 20, b = 40$.

Then $\frac{bx+ay}{2a} = 43 > y$.

Thus a boy who fails both in the class examinations and the Public Examination can get very high marks after moderation.

(3) Let $x = 90, y = 30, a = 20, b = 40$.

Then $\frac{bx+ay}{2a} = 105 > 100$.

The application of the second formula to the above cases yields respectively the results 27½, 28½, and 70, showing that the second formula avoids the anomalies of the first. In fact, whatever positive values x, y, a, b may have, it can be mathematically demonstrated that $\frac{bx+ay}{a+b}$ must always lie between x and y ; so that, the moderated marks can never exceed 100 but be always greater than the lesser and less than the greater of the two marks, viz., the class-marks and the Public

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Examination marks. If a boy fails both in his class-marks and the Public Examination marks, he cannot pass even after moderation according to the second formula. The chief merit of the formula lies in this.

3. The discussion of the two preceding paragraphs makes it plain how advantageous it is to make $a < b$ or the Form Average sufficiently low so that it can never exceed the School Average at the Public Examination. We shall now show how there is scope for manipulation even in the second formula. For, it may be pointed out that $\frac{bx+ay}{a+b}$ or $x - (x-y) \frac{a}{a+b}$ can be made favour-

able to the boys making $(x-y) \frac{a}{a+b}$ least possible, assuming of course $x > y$. (In the other cases, where $y > x$ and y greater than the pass-minimum, the candidate passes by virtue of his own Public Examination marks and no moderation is applied to him, as it may tend perhaps to fail him). To make $(x-y) \frac{a}{a+b}$ the least possible,

it is advisable to make the ratio $\frac{a}{b}$ as small as we can. This can be effected by making the Form Average as low as possible under the circumstances. Thus, even in the application of the second formula, the low average plays a prominent part in the manipulation.

To make the second formula work very favourably, a head-master may adopt the procedure of giving good boys low marks and bad boys high marks. I shall illustrate below how this may be done in practice, without giving room to the least suspicion of manipulation.

Illustration (4) Strength of a class: 40 boys. (Say $A_1, A_2, \dots, A_{40}$).

Class-marks.

$A_1, A_2, \dots, A_{10}$ (10 boys) 25% each.

$A_{11}, A_{12}, \dots, A_{20}$ (10 boys) 20% "

$A_{21}, A_{22}, \dots, A_{40}$ (20 boys) 50% "

Form Average $36\frac{1}{2}\%$.

*Public Examination Marks.*A₁, A₂,.....A₁₀ (10 boys) 60%.A₁₁, A₁₂,.....A₂₀ (10 boys) 40%.A₂₁, A₂₂,.....A₄₀ (20 boys) 30%.

School Average 40%.

Form Average is very nearly equal to the School Average and so there may not be any suspicion about manipulation. The boys A₁, A₂,.....A₂₀ will pass by virtue of their own marks no moderation being applied to them (according to the proposed revised rules); while the boys A₂₁ to A₄₀ will also pass, for moderation gives them

$$\frac{40 \times 50 + 36\frac{1}{2} \times 30}{76\frac{1}{2}} = 40\frac{30}{61}.$$

Thus all the pupils pass and the school produces excellent results!

4. Another anomaly. Suppose $y=0$, i.e., a candidate gets zero marks in the Public Examination. If moderation be applied, he will get $\frac{bx}{2a}$ or $\frac{bx}{a+b}$ according as the first or the second formula is applied. It is possible to make both of these expressions greater than the pass minimum by suitably adjusting x and a — marks which are in the hands of the school.

Illustration (5) Let $x=72$, $y=0$, $a=30$, $b=40$.

$$\text{Then } \frac{bx}{2a} = \frac{72 \times 40}{60} = 48$$

$$\text{and } \frac{bx}{a+b} = \frac{2880}{70} = 41\frac{1}{7}$$

Thus a teacher can make any student he likes pass in the S.S.L.C. Examination by giving him very high class-marks.

5. From the above discussion, it will be fairly obvious that all the mischief of the Moderation formula is due to the ratio $a:b$ which occurs in them. It is therefore desirable to devise a formula not involving the ratio. I may venture to suggest

the following formula: $\frac{m(x+y)+a+b}{2m+2}$ where m

is the co-efficient of correlation or association of the individual marks and the group-marks, i.e., the Form and the School averages.

If we mean to give equal importance to the individual as well as to the group-marks we may put $m=1$ in the above formula and derive the formula

$$\frac{x+y+a+b}{4}$$

which is extremely simple both in respect of form and ease of application. It is obviously devoid of the mischievous element $a:b$.

Applied to illustrations 1—5 above, this formula yields at least equally reliable results, if not more reliable ones as may be seen in the following Table of Moderated marks:

Illustration Number.	Moderated Marks.		
	Formula $\frac{bx+ay}{2a}$	Formula $\frac{bx+ay}{a+b}$	Formula $\frac{x+y+a+b}{4}$
1	50	$27\frac{3}{11}$	$26\frac{1}{4}$
2	43	$28\frac{3}{4}$	$29\frac{1}{2}$
3	105	70	45
4	$42\frac{1}{3}\frac{7}{8}$	$40\frac{3}{8}\frac{7}{8}$	$39\frac{1}{18}$
5	48	$41\frac{1}{7}$	$35\frac{1}{2}$

It is needless to add that $\frac{m(x+y)+a+b}{2m+2}$ will always be less than 100, because x, y, a, b are all less than 100.

6. Since every formula must give some scope for manipulation as long as it involves some variables which are in the hands of the manipulator, it is advisable to keep the co-efficient ' m ' confidential. If necessary, its value may be indeterminate, being fixed each year by comparing the performances of the candidates in the Public Examination and in their own school examinations.

The tendency for manipulation may also be checked effectively by prescribing that a candidate's moderated marks shall count for a pass only if they exceed by 5% either the Form Average or the School Average in the Public Examination, whichever is the greater.

One point more before closing the present discussion. Moderation need not be applied to a candidate's marks in the Public Examination if they are discredibly low. A minimum such as 25% in English and 20% in the other subjects may be prescribed as the low minimum to deserve moderation, so that a candidate falling short of this minimum deserves to fail and no moderation need go to his relief.

A. A. KRISHNASWAMI AYYANGAR.

FROM A RURAL SCHOOL-WINDOW.

By

Mr. K. R. R. SASTRY, M.A.,

Fellow of the Royal Economic Society (Lond.)

III. THE PHYSIQUE OF CHILDREN.

MEDICAL Inspection of School Children has now reached a stage beyond experiments; and it is an important part of modern educational practice to insist on the periodic medical inspection of schools. A casual review of books on school-hygiene by Lyster or Dressler is bound to impress one with weighty conclusions on the percentage of whooping cough, teeth, ill-nutrition, and other common diseases among school-children.

SOME REASONS ANALYSED.

From a layman's point of view certain reasons strike one obviously. Over-work in untimely hours, late o' nights, the evil aggravated by reading in kerosene light, the unwholesome practice of reserving close study to the last week prior to the examination, reading in twilights regardless of the elementary rules of hygiene, the vicious habit of sitting with a book during play-hours,—all these have the cumulative effect of affecting the health of school children.

FACILITIES FOR PURE AIR.

While we shudder to encroach on the domain of the medical expert in suggesting remedies, the more natural and obvious remedies can be suggested on good authority by the educationist. Dirty hovels, dingy huts, filthy compounds, vast dust and rubbish-heaps in the vicinity of the school, are bound to shed their unhealthy influence on the ill-clad and ill-nourished pygmies within the school. The power vested in the educational authorities to refuse recognition on grounds of sanitation needs to be used with firmness and caution. In the

case of the richer Board Elementary Schools, in seven cases out of ten, the building is left without a decent compound, thanks to the generosity of the contractor. More than twice was the present writer forced to inform the villagers through tom-tom that the school-compound was never intended to be used as common latrine. The urgent necessity of providing for extensive compounds in the first instance, the co-operation of the village-panchayat in maintaining the school compound in a neat condition, and the work of the enthusiastic school-master in keeping the school-garden in a tidy state not merely during the week of inspection,—all these are bound to provide for the first necessity of existence, free air.

PROVISION OF GOOD DRINKING WATER.

In some villages the dearth of good wells is a marked feature. All thanks are due to the efforts of the Government to sink wells in the needed places. In such a hard fight against nature, the willing co-operation of the villagers is highly necessary. The prevalence of malaria in some of the Taluqs of Salem District is not a little due to the wretched water in such localities. It is a heart-rending sight to witness school-children getting fever suddenly at 9 A.M. while at school; the haggard looks of the boys, the dirty dress which aggravates the outlook, and the mournful mien of the ill-fed schoolmaster—all these are characteristically pitiable sights of the ill-fated Uttangarai Taluq.

FACILITIES FOR PHYSICAL EXERCISE.

What with the advent of the new Kindergarten Drill, the old South Indian exercises of bhaskies and dandals are on the wane. The old school-master who has not yet mastered the new drill is not courageous enough to stick to his with the identical result of hunting after the two in the bush. Most of the Aided schools go without any physical exer-

cise; and kolattams and kummies, if any, are not regularly practised. Insistence need not be made on particular types of drill, since it often results in no physical exercise at all.

FINAL OBSERVATIONS.

The most sympathetic and enlightened inspection cannot remedy the existing state of things. In fact the singular blemish that has been observed as standing in the way of rural education is the lack of co-operation from the villagers. In no other sphere is it so badly needed as in the neat upkeep of the school compound, the provision of good drinking water, and the much needed facilities for vigorous physical exercises. We are living in times when physical efficiency is vouchsafed in the West through bodily as well as psychical drills; and Sandows are being well represented by the softer sex as well. If the true basis of all existence is denied or niggardly parted to the young in our Elementary schools, we need entertain absolutely no hopes about the future manhood of India.

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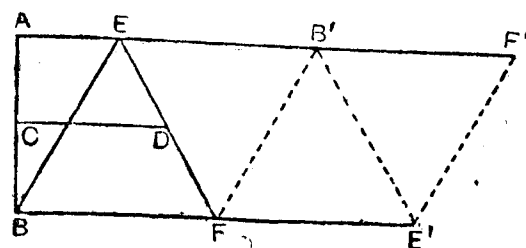
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EXERCISES WITH A RIBBON OF PAPER.

1. A ribbon of paper can be folded into a series of equilateral triangles with the breadth of the ribbon for their altitude, and their bases alternately on the edges of the ribbon.

2. The initial triangle is thus obtained:—

Bisect the short edge AB and get CD perpendicular to AB and parallel to the long edges. Fold through B placing A on CD and get the line BE. Fold EDF. Then BEF is the required equilateral triangle.



The series of equilateral triangles is obtained by folding successively upon this initial triangle.

3. The ribbon can be folded upon a regular hexagon, made up of six of the triangles.

4. The ribbon can also be folded upon the regular icosahedron—solid enclosed by twenty equilateral triangles. The ribbon should be made up of at least thirty triangles.

5. The same for the simpler solids—tetrahedron, and octahedron.

T. SUNDARA RAU.

HOW TO ADOPT THE DALTON PLAN IN OUR SCHOOLS.

IN a previous issue of this *Review* we had a brief description of the Dalton Plan, and we shall now see how we may begin to adopt the plan in our schools. As far as I know, some of the schools in our Presidency which made a bold venture in this direction have failed and they had to resume the old teaching out and out. This is a deplorable state of things contrasted with the enormous success which attends the introduction of the plan on the Continent and in America. The causes of failure of the plan in our schools are several such as a lack of understanding of the spirit of the plan, an attempt to rigid imitation, lack of faith in the plan and consequent absence of co-operation from students, teachers and parents, and also ill-equipment of schools in staff and appliances.

In this paragraph, we shall see how best a school may start the plan. First and foremost of all, the teachers must realise that there are serious defects in the present teaching system which one cannot tolerate any more if one can help it. It is no use trying the plan with teachers of an easy-going type who think that all is right in the school. So the first step to be taken in the school is to hold meetings of the teachers and discuss the defects of the existing method and the merits of the Dalton Plan and secure that the teachers understand fully the spirit and scope of the new plan, have faith in it and are willing to work hard to derive the benefits of the plan. In this connection one may observe that the success of the plan may be only proportionate to the zeal and enthusiasm of the teachers. It is also considered necessary to discuss with the more-educated parents (and why not the higher-class students also?) the advantages of the plan, the increased responsibilities of the student and

then obtain their co-operation to work the plan. Without this precaution neither the student nor the parent may understand the *raison d'être* of the change and they might rebel against the reform thinking that teachers are inventing ways of doing less work and are paid for their idleness. Boarding-schools might easily start the plan, also small schools. But large High Schools will do well to begin with the Fourth Form towards the close of the year and thus put the plan into working in the V and VI Forms also in the succeeding years. The masters will in the beginning have weekly meetings to discuss results and suggest improvements and though in the beginning everything may seem to be confusion they will get settled into the plan in the course of a few weeks.

One of the most important deviations from the plan is to retain class-teaching as an integral part of the scheme (say, two periods in Elementary Mathematics for the VI Form instead of five as at present); this on the one hand satisfies the wants in the Dalton Plan, that is, the advantages of the teaching system and is a safe-guard against the loss of time and energy, and wastefulness resulting from an ill-made start if the plan fails and has to be given up altogether. But the amount of teaching may be reduced in course of time and may finally only occupy a very small fraction of the school hours of instruction. (My own experience in our school is that such a modification of the plan gives valuable results). Then a large portion of the school-time will be devoted to independent work on the pupils' part and the teacher will remain in the classes ready to help the pupils in addition to supervising their work. Therefore the time-table is retained only for the

teaching-periods. Pupils according to this plan need not work at home till late at night as they do now and they will be at liberty to carry on studies in which they are specially interested or exceedingly dull.

The week's (or fortnight's, as the case may be) assignment is prepared duly and posted on a special notice-board in each class on the last working-day of the previous week; or, better still each student is supplied with a copy of the assignment in each subject. The student finishes the week's work in any subject and makes a mark in what is called the 'work sheet' which gives in a tabular form the names of the students and the several set tasks for the week. Thus the teacher knows when a student has finished the assignment in his subject and then proceeds to check it or to mark it. Students are encouraged to be honest and to seek help, one of another only with the permission of the master. (This is a deviation from the Dalton Plan, this does prevent laziness, copying, etc., and also enables the teachers to keep a record of the student's progress indicated by his marks).

What is accomplished so far is a *compromise between the Teaching and the Dalton Plans*. In a subsequent issue I hope to give in detail illustrations of assignments, etc.

Let us review what work the teacher has to do under this plan. If one should do one's work sincerely, the Dalton Plan means harder work for the teacher and also increased responsibilities. I have said 'sincerely' for one has very truly observed that the Dalton Plan might well permit the easy-going teacher to go to school with 'a pillow under his arm-pit and sleep in the school.' The teacher must inspect the note-books

regularly, minutely and often, his preparation for the teaching-periods must be thorough and the teaching itself must be inspiring and impressive; it must elucidate or discuss general difficulties and weak points in the students' essays. Imagination, emotion, appreciation of beauty and Nature, these should be cultivated by suitable suggestions. One thing is to be clearly borne in mind. Since there is more personal contact between the teacher and the students the teacher must be dignified, commanding and clever; that is, he must have a good personality. Students will repay him in proportion to the extent they love him and they love him as they find him clever and good. Here is an opportunity for the really capable teacher, more decisive and useful than under the old wearing-out method of education.

V. RAMACHANDRAYYAR.

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THE INCORRIGIBLES.

THE present system of education produces only mediocrities. It tends to dwarf individuality and destroy all originality. It puts all material into one common mould which turns out a uniformly colourless product distinguished by nought but the characteristics of the mould, *viz.*, a stale uniformity and a tame mediocrity. This huge and complex machine of education takes in all material, packs it, presses it, stamps it with its patent marks and then throws it out in the market to find what value it can for itself. In this process of manufacture several are broken on its wheels while others are maimed and mangled for life, but none come out whole, and still this universal process goes on. The immolation of the youth of the country which ought to be at once its pride and glory goes on continuously at this altar of education. Indeed the system claims more victims and sacrifices than any god or goddess of ancient savages. If the system could find tongue, alas! what a mournful tale it would have to tell—a tale of appalling waste, of awful destruction of human effort, of human energy, of human intellect. The best intellects that are pointed out in support of the system are not a result of it. They are what they are in spite of the system, and not on account of it. They are those heroic spirits which take birth in every country and rise above all systems and circumstances and cannot be fettered by either. They are rather the survivors of the system like the few stray grains of wheat that come out whole out of the mill while the rest are all pounded into flour.

The above criticism is often levelled at the present system of education and has considerable force in it. It is a recognized fact that

the present system of education is not able to do much for the best and the worst students. It only helps the average boy to earn his pittance in life. While conversing on the above subject with a brother teacher a few years back, I told him that under the present system we are helpless to do much for our best boys, that indeed a teacher is hardly responsible for the growth and development of such boys. He turned upon me in indignation and exclaimed: "You are much mistaken. You do not know what you are saying. The best boy in the class is best because of his teacher." "And what about our worst boys," I asked, "what can a teacher do for such boys?" "Ah!" he replied, "you are right there. Indeed the teacher is helpless in the case of such boys. He can do nothing." What a sad commentary on the mental attitude of the profession, if indeed it is a general attitude. It needs no further words to comment upon it.

In this article I shall speak about these worst boys, these hopeless dunces, these incorrigibles as they are called. In every class there will be naturally some boys who will be backward in their studies or lacking in character, boys whom for one reason or the other the teacher neglects and relegates to the back benches. The common device of putting these boys at the back of the class or interspersing them with other boys on occasions of inspection, etc., is very much to be deplored. Of course the teacher may thus deceive the Inspector and manage to make a good show on these occasions, but otherwise the consequences are very baneful. For one thing it lowers the teacher in the estimation of his pupils, for they are quick to notice this subterfuge, and, so to say, become his tacit accomplices in it. It also makes the pupils in question lose their self-respect and extinguishes the last spark of emulation in them. Such devices are below the dignity and nobility of the profession and a teacher should

not stoop to them. Rather should he put such boys together in one place, preferably on the front benches, and show them to the inspecting officers as boys for whom, much as he would wish, he is not able to accomplish much on account of the system in vogue.

To remedy this it is generally suggested to have a very small class consisting of about twenty boys so that the teacher may be able to give individual attention to every boy and thus do something for the incorrigibles. But economy like the Eye that never sleeps is ever watching this as other departments ready to pounce upon any proposal likely to cause expenditure. Another remedy suggested is to form separate classes of these dull boys. But this remedy is not unattended with some risk. It, as in the case of ordinary congregating of these boys on occasions as mentioned above, destroys their self-respect and sense of emulation and ambition, and kills their hope which is the breath of human life. The boys know why they are thus grouped together and with whom they have to compete. There is also the risk of the teacher degenerating into a mere coach thus forgetting the higher things of life. The last mentioned and other remedies are mere makeshift arrangements and do not go to the root of things. A good and a true teacher should however look elsewhere for a proper remedy.

Now among the reasons which go to make dull boys may be cited the following:—Family and home influence, physical defects and mental aptitude.

The first, *viz.*, family and home influence is a very potent factor responsible for the dullness and indifference of several boys. For, where the home is not a happy home, where the child comes from scenes of quarrellings and disturbance, from amidst poverty and squalor, ignorance and disease, ill-fed and ill-clad, and can look forward to no happier scenes on

his return, what wonder if he is dull and listless at school, if he does not do his lessons properly. How different is the case of the boy who is surrounded by love at home, who is well looked after by his mother and who looks forward to a bright home and a warm welcome on his return. The first boy is more to be pitied than condemned, loved than punished, for punishment will only harden him towards men and things. Such a boy should therefore be treated sympathetically, and the teachers should try to brighten his life at school and endeavour to persuade his parents to take a more lively interest in the rearing of their child. Sympathy in such cases will go a long way, and a teacher with a little patience and sympathy will be able to raise the boy from his mental torpor and despondency and help him to take a bright view of things. Slowly the boy will unfold himself to the teachers and bring him his little woes and vexations. Here the teacher will have opportunities to play upon the hidden springs of the boy's nature, to bring out all that is noble in him, to teach him lessons of patience and perseverance, heroism and self-support. Of course the teacher will have to proceed very tactfully and cautiously, for children are very quick to notice unnecessary inquisitiveness into their family affairs and will resent all help and sympathy in that direction as officiousness. The teacher should also take care that the boy does not become weak and sentimental, helpless and dependent, rather should he be taught the virtues of fortitude and patience, courage and self-reliance and to endeavour to rise above external circumstances.

The dullness and stupidity in several cases is also due to some physical defect or weakness. The proverb "a healthy mind in a

healthy body" is well-known. A boy who is not healthy cannot be expected to be bright and active in the class. A boy may also be dull and stupid on account of some defect of eyes and ears. A teacher once set a reading lesson to his class. On the next day when the class assembled he asked a boy whom he considered to be dull and stupid to read. The boy began and made mistakes. The teacher rebuked him and asked him to read carefully. Again the boy began, and again he stumbled and fell, and the teacher losing his temper enquired if he had done the lesson at home. The boy replied in the affirmative. "No, you haven't. Do not tell lies. You are a dull and lazy boy." The poor boy sat down with tears in his eyes, conscious all the while that he had done his best to master the lesson at home. Now this particular boy was short-sighted, and while reading, the words would be blurred before his vision and hence he made mistakes. Now if the teacher had been a little patient and sympathetic he would have found out the true reason of the boy's failure and remedied it accordingly. In any case he would not have fallen into the error of unnecessarily blaming the boy and thus discouraging him. A teacher had once a boy in his class whom he thought to be particularly dull and careless. Often-times the teacher thought that he had caught the boy napping and would rebuke him for his listlessness and call him a dull and careless fellow. Now the poor boy was deaf, and try as he might, he could not follow the proceedings of the class, and often came in for undeserved rebukes and blame. Now this attitude of the teacher only discourages the boy and makes him abandon what little effort he may be making towards self-improvement. The teacher also hardly realizes what incalculable harm is done by his thoughtless words when he calls a boy dull, stupid and lazy. The force of suggestion is great. Indeed the

importance of this factor in education is still hardly realized. When the teacher constantly calls a boy dull and stupid he forces this thought upon the boy's mind till he (the boy) sinks into a hopeless state of dejection and despair. Now in such a case a teacher should, set about in the proper way. He should persuade the parents to do something for the physical welfare of their child. He should, in cases where the parents are too indifferent or illiterate, interest a medical practitioner in the student and do something for him. He should also impress upon him the importance of personal cleanliness and cleanliness of surroundings and make him understand the blessings of health. In this connection the present physical examination of school boys is a mere farce, or huge humbug. It is only a salve which Government are trying to apply to their conscience for having neglected this important branch of education.

The question of the mental aptitude of a boy has also an important bearing on the subject. I had once a student in my class who would not do his lessons properly and looked dull and listless in the class and showed no sign of improvement in spite of repeated admonitions and exhortations. I had nearly despaired of him, when once accidentally I discovered him of an evening at a goldsmith's, engaged, not in conning his school lessons but in engraving a design upon a silver plate. And indeed what a transformation in the boy! The dull and expressionless look which his face wore in the class room had vanished; instead, there was a bright and happy light in his eyes and his cheeks were glowing with enthusiasm as he was engaged in his labour of love. I talked with him about his work and he entered into conversation with animation and vigour which appeared to be foreign to him. I then knew what the matter was with the boy, and persuaded his parents not to persist in sending

him for higher literary education but to apprentice him to an artist or to put him in an institution where he may feel in his element, and where his latent genius may find full play so that he may grow up to be a useful member of society. I at the same time encouraged him in his work and spoke with him about it, and at the same time explained to him that he should endeavour to acquire a working knowledge of the 'Three R's' which would help rather than hinder him in his favourite pursuit. The result was happy.

This is but one of many cases of boys whose natural inclination lies towards carpentry, mechanics, drawing, painting or music or other arts or crafts, and who consequently are indifferent towards their ordinary class lessons, and in whose case it would be folly to insist upon the usual school education. Unfortunately the choice of professions in India is very limited, the clerical profession absorbing a majority of the youths, and parents do not realize their responsibility in studying the bent of mind of their children and thus help them to select a profession for themselves for which they are naturally fitted. But still an advance can be made in this direction and several boys saved from drudgery in school for which they are not suited and failure and disappointment in life afterwards for mistaking their profession.

A teacher should remember when he is sorely tempted to neglect these 'dull' boys that amongst them he has several who although dull as boys may be successful in life. There have been several instances of "illustrious dunces"—dull boys but brilliant men. Newton when at school stood at the bottom of his class. The brilliant Sheridan showed so little capacity as a boy that he was presented to his tutor by his mother as an incorrigible dunce. A teacher should therefore endeavour to help such boys to

acquire habits of patience and perseverance industry and application which may stand them in good stead in life.

Speaking of the second class of incorrigibles, viz., those who lack in character or display bad habits the teacher's task becomes more delicate and difficult, but here too with sympathy and patience he will be able to accomplish much. Among the chief reasons for the incorrigibility of the above class of boys will be found heredity and family influence and the force of company. Heredity is a wide subject, but the fact that a child inherits evil propensities from his parents is recognized, and in such cases the teacher will require the co-operation of social reformers and others.

But in cases of ordinary perversity of mind, obstinacy, laziness, telling of lies and other bad habits he can do much. He should try to appeal to the higher nature of such a boy, to hold up high ideals to him and to exhort him to follow those. He should speak to him of the great men and women of his country and aspire emulation of them. He should at the same time learn something about his private life, his family and company, his pursuits and inclinations and favourite occupations and mould his policy accordingly. He should leave off his aloofness and be more in touch with the parents of the boy and enlist their sympathy and co-operation in his regeneration. But all this should be done tactfully as the boy will resent officiousness and at the least sign of it withdraw himself within himself.

The teacher should himself also by his actions and daily life set an example of the virtues which he extols, for, example is better than precept. "Example is one of the most potent of instructors although it teaches without a tongue," says Samuel Smiles in his book "Self-Help." He should also in the process of reforming such boys display faith

VOCATIONAL TRAINING.

and not mistrust in them, for suspicion begets deception. It is possible that in the beginning his trust may be abused, but in the long run it will be successful, and his boys will repeat what was said by Dr. Arnold's boys: "Oh it is a shame to tell Dr. Arnold a lie because he believes it." Dr. Arnold's policy may be slow and laborious but it is the only true policy and sure of its results.

Thus a teacher should in his own way, however humble, do something for these hopeless duffers, these incorrigibles who are often relegated to the back benches; and if he succeeds in saving the life of one boy, if he is able to rouse one boy from his mental stupor or moral degeneracy, if he is able to inspire high thoughts in him and hold up before him the high purpose of life, then irrespective of reports and examination results, he can have the satisfaction of knowing that he has acquitted himself creditably in his task and fulfilled the holy mission of his life.

T. J. BHOJWANI.

MATHEMATICAL PROBLEM PAPERS

FOR

INDIAN COLLEGES

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WHATEVER might be said of the "cultural aim" of Education, the "Bread and Butter aim" or the utilitarian aspect of it stands predominant and nobody can deny this. Education must fit up a man to earn his livelihood in a decent way. There is a great clamour that the present system of Secondary education is quite inadequate to make one earn an independent living. In order to understand where the fault of it lies, one has to examine what the aims of Secondary education are, and how far they are fulfilled by the present system. In other words we have to know whether the Secondary education aims at preparing young men for all professions or only for particular professions.

The present system of education is an offspring of Western innovation. English education was originally introduced in India by the ruling people in order to manufacture a supply of cheap clerical labour. But as time went on, English schools—I use the expression English schools in the sense of schools where more weight is attached to English, and English is the sole medium of instruction in all subjects such as our Secondary schools—began to increase in number. More and more people began to take to English education chiefly due to the fact that English became the Court language of India.

Now what is the aim of Secondary education in India? The Secondary schools supply the candidates for Colleges and Universities for higher study. They also supply candidates for the professional schools training men for some of the lower grades of such professions as the Medical, Engineering, Teaching, etc. The remaining candidates educated in our

Secondary schools have to take up independent employment. Of such professions we can mention only one and that is the clerical job in an office or firm. To no other are they equipped by the training given to them. But what percentage of the population can earn their livelihood by being clerks? A very small fractional percentage indeed! And the larger portion of the people are engaged in different walks of life for which our Secondary school gives no training. Then do our Secondary schools have any other, or can they have any other aims? The answer appears to be in the negative.

But in recent days it is suggested that our Secondary schools, in addition to supplying candidates for Universities, other professional schools and clerical posts, must aim at training young men "fit to earn their living by other independent professions" and with a view to achieve this ideal it is proposed to have 'Vocational education' given to pupils of the Secondary schools. The necessity for this has been recognised by the Government and they are trying to introduce this in all our schools. This has already been done in some schools or rather a beginning has been made and they are calling for proposals from other schools. The Local Boards are also trying to give effect to the scheme in the institutions under their management.

The idea of "Vocational Training" is something that is new to many teachers and they are probably quite ignorant of what they have to do in the matter. Probably some of the advocates of the scheme themselves are not sure of the aim and ideal of "Vocational Education." To some it means fitting up young men to earn an independent livelihood at the end of the course. Mr. W. Fyfe in

the course of a paper on "Vocational Education" read at the Publicity Board Office, Madras, says, "the method which I prefer as being most efficient, most economical is to apprentice the pupils in a commercial workshop or place of business, and to provide classes for their benefit in working hours in subjects likely to improve their value as producers." To others it is simply another name for "Manual Training." Mr. J. P. Thrumble, Adviser to Government on Vocational Education, writes in the *Notes on Vocational Education and Handicrafts* (Teachers' College, Saidapet, Bulletin No. 16) as follows: "It is not the aim of Vocational Education to teach a trade or supersede apprenticeship, but to amplify general education, training the brain, hand and eye concurrently, broadening the bases of activity and clearing the road from school life to industrial life." In the same book he further says: "When a boy reaches the stage where he is working for an examination, the passing of which will ensure him an appointment or some other advantages, there is not the same need for practical work." At any rate the present writer confesses that he is one who has not a quite clear idea of the aims of the scheme and he is also audacious enough to think that he is one of a large number of his type. Therefore in writing this, the writer does not arrogate to himself the superior position of explaining or elucidating the system, but merely recording his own views on the subject.

In the first place "Vocational Training" must be intended to train pupils to become independent artisans at the end of the course, capable of making an independent living by means of a technical training. They must become craftsmen at the end of the course. If this is not the idea of it, but is merely in-

tended to co-ordinate the eye-and-hand training and forms something which leads to industrial education, then it could very well drop its more presumptuous name of "Vocational Education" and take the more modest name of "Manual Training." About manual training in the sense in which I use the term—I use it to mean what is generally known as "hand-work"—intended to co-ordinate the work of the hand and the eye—I shall speak later on.

The several subjects suggested to be taught as vocational courses are carpentry, agriculture, weaving, metal work, pottery, etc. In the first place most children that study in our High schools are not likely to take to any of these crafts whatsoever at the end of their course. The artisans of India train people for their trades without our schools undertaking the same. And if in all our schools we introduce vocational training, I am not sure that children or rather parents of children would be willing to send their children to schools to be taught in the vocational subjects. India is a country where the professions are mostly determined by castes—carpenter born, carpenter trained is the rule. I do not thereby say that this rigidity should be allowed to continue. If it could be got over well and good. Hence the vocational training must be a matter of option left to the pupils or the parents of pupils.

Farther it is not known how many vocations a school can train for—probably one, two or three at best. Does it mean that all the pupils in a school are to take to these professions only or does it mean that only such pupils as like to get themselves trained in those vocations are to be given vocational education and the rest are to go without any

vocational education and be satisfied with the general education they receive?

Carpentry seems to be a favourite subject in the vocational training course and most schools are ready to adopt it as soon as a suggestion for the introduction of vocational education is put forth. Why? The reason is not far to seek. The Manual Training Section of the Teachers' College, Saidapet, is training a dozen or more of hands in this particular branch every year and in none others. But if carpentry is to be introduced in all our schools and all the boys take to carpentry or even a majority of them, we will then be flooding our villages and towns with carpenters and they will have no work to do. Another question that may be asked is whether all those that take carpentry in the schools are going to practise carpentry in their lives and make that their profession. If not, is not vocational training a waste? If carpentry and other allied crafts are introduced as optional subjects in our High schools just like chemistry or mathematics or history, I have nothing to complain about it and would also welcome it. Only a few would be taking to it and even though they do not take to it as a profession in their later days, it would not matter, for, that was not our aim in introducing those subjects. Therefore it is that I said that it could very well drop its misleading name of vocational training and be satisfied with a place in the list of optional subjects. Therefore it appears that the idea of vocational education in our Secondary schools, to equip our pupils to earn a livelihood at the end of their course by the practice of the profession for which they got themselves trained is a practical impossibility.

India is mainly an agricultural country and agriculture has therefore been rightly added to the list of vocational subjects. It is therefore necessary to say a word here

about that subject. The farmers of the villages who are engaged in agriculture have their sons always with them and the boys are watching their parents in their work and sometimes helping them also in their agricultural operations from their very young days. They are thus undergoing an apprenticeship in their occupation from their sixth or seventh year. Thus they just get to have a practical working knowledge of agriculture so as to enable them to carry on their profession satisfactorily. What matters in the profession of agriculture is more a practical skill and working knowledge, than a minute and detailed study of the theoretical aspect of it. Such being the case it is highly improbable that there will be any son of a farmer who intends to take to agriculture as a profession, going to our Secondary schools at all. We all know how very difficult it is to induce a farmer to send his son to the village Elementary school to learn the Three R's. On the other hand there will not be a single pupil in our High school classes, who is likely to take to agriculture as a profession.

In India at any rate each artisan trains his own men. Each artisan has his apprentices. A goldsmith has a number of boys working under him who eventually become experts in their own trade. This is the case with the carpenter, blacksmith and every other kind of artisan. No future artisan enters the portals of a Secondary school. When such is the case there is no use of complaining that the secondary education has not fitted persons for various vocations. Our education lays no claim whatsoever to such an endeavour. The aim of secondary education can only be that of supplying the material for colleges, professional schools, and clerical places and nothing else.

Granting for the sake of argument, that vocational training is possible in our schools, I come to discuss another point connected therewith, *viz.*, the amount of time to be spent for it. How much of the total time a boy attends school is to be devoted to vocational education? If it is a matter of a few periods a week, or even of one period a day, I think it is quite impossible for a boy to learn anything to make him a craftsman at the end of the course. I am of opinion that at least one half of the time should be devoted for the vocational subject if it should prove to be of any use.

Each vocation may be divided into two standards, a lower and a higher. The lower standard can be aimed at in the course of the first three years corresponding to our first three forms. The higher standard can be attained by a further course of three years corresponding to our High school forms. I shall take weaving as an illustration. The lower standard shall consist of weaving simple, plain patterns. The higher standard should aim at the production of complex patterns involving various designs, etc. It would take three years for a boy to attain the lower standard and perhaps three more years—two may do probably—to attain the higher standard, provided the pupil works three hours a day and five days in a week. This means half the school-time has to be devoted to the vocational subject, and the regular secular instruction to them should be given only in the remaining half of the day. Therefore the training they receive in the other school subjects would be different from that given to the other pupils not aiming at vocational training—there must be those that are preparing for the University courses, etc. These then would form a separate class alto-

gether. Why not call these vocational classes and have separate schools for them? The present Secondary schools also would exist side by side with these vocational schools.

But where then is the fault so loudly vociferated? The fault lies not in the system of secondary education—the system may be defective otherwise in its own way—but in the fact that our Secondary schools produce more men than are required for the consumption of colleges and other professions for which they are fit. The remedy for this lies therefore in other ways. There would be no useful result got from tagging vocational training classes to Secondary schools. The Government should come forward with schemes for starting special vocational schools at various centres in each District, suited to the various needs of the place. These institutions should aim at training pupils exclusively for particular vocations. Along with this, secular instruction may be given. The standard aimed at in these special schools in general education need not be so high as that of the Secondary schools. A knowledge of the three R's, of Indian History and Geography, of Civics and Hygiene is necessary. More attention should be paid to the Vernacular. These schools should be placed under experts in those subjects. This would avoid crowding in our Secondary schools. Many pupils who enter our Secondary schools for want of something that will suit them, would find a better channel in these institutions.

Further as the professional artisans of various trades may not be willing to send their children to these technical schools, but continue in the old habit of entertaining apprentices, the Government should popularise these institutions by awarding scholarships, etc., in the beginning. These institu-

tions would also afford facilities for people who are not born artisans to take to handicrafts as their profession.

As regards agriculture as a vocational subject even for such vocational schools, I am not very hopeful. There is only one goldsmith or carpenter or blacksmith to a village and in some there is not even this one. But every village has hundreds of agriculturists and we cannot start such schools for all of them. The old method has to continue, the farmer bringing up his children, who are to be the future cultivators in that profession. But the Government and the Local Boards should see that these children are given the rudiments of general education. For this facilities should be given to these children to attend the village schools without any hindrance to their professional activities. But such a general education must be made compulsory and along with the three R's, they should be made to know something of agriculture in its theoretical aspect.

Then are these subjects to be completely dropped from our Secondary schools and have they no place in them? They do have a place. They come under Manual training. Manual training in some of these subjects must be made compulsory in the Middle school forms. Some select subjects such as carpentry, weaving, pottery, clay-modelling, etc., must be introduced in all the schools. This shall not have the aim of training people for professions, but shall help general education. At the end of the three years it may also be possible to determine whether a boy has an aptitude for any particular handicraft and candidates for the vocational schools may be selected from these pupils who have shown a special aptitude for particular subjects, provided they are also willing to undergo training in vocational schools. The vocational schools can recruit raw hands from the professional classes and others willing to take to the particular trade and also from the middle schools. These latter may be given a start of one or two years to the extent to which they have already been trained. These subjects may also be included among the optional subjects in the High school classes. This has already been suggested.

M. S. SUBRAMANIA SASTRI.

UNIVERSITY REFORM—III. PROFESSIONAL STUDIES.

WE have seen some of the glaring defects of the Madras University. But not the less serious are those that are to be found in the curricula and methods of instruction in the professional colleges belonging to this University. It is a plain fact, as is naively exemplified by Western countries, that a country's weal depends much upon its commercial and industrial prosperity. In fact it is the professional skill, in whatever branch it may be, that contributes much to a nation's welfare. It is necessary therefore that due importance should be attached to the culture imparted to the students in professional schools and colleges.

LEGAL EDUCATION.

Law claims our primary attention. Public money is wasted and the present Law College is one form of it. The grandeur and symmetry of its structure, and the richness of its ornamentation, are the indices of the hollowness within. After one goes out of the College one's only remembrance perhaps is the mewing of a cat or the solemn sermon on the dignity of Roman Law and its irrefragable authority, the mutuum, the commodatum, and all that nonsense.

It is a matter for congratulation that the Government have come to a decision that there should be a thorough over-hauling of the Law College, and that there should be more efficient improvements made in its instruction. But besides these improvements we should see that the subjects that are unnecessary for practice should be taken away and those which are necessary but do not form part of the curricula should be included. Roman Law, the English Law of Contract, the English Law of Real Property, may be mentioned as instances of the

former class, and the Codes of Procedure, Stamp Act, Court Fees Act, etc., of the latter.

MEDICINE.

Perhaps it is the Medical College that should claim the best attention of the authorities, because, it is that which is intimately concerned with life, and because unfortunately the indigenous systems of medicine are put aside and the Anglican system is at present in vogue. A step has already been taken to inquire into the systems of Ayurvedic medicine and we hope that it is the first step towards instituting it as a separate course of instruction in the Medical College. Our indigenous systems are not the less efficacious, not the less suited to our climate than the imported systems of foreign medicine. And to the credit of our system we may mention that many of the diseases which have been found to be incurable by foreign drugs are cured by our own. In the courses of instruction in Ayurveda, special attention should be given to *Salya* or surgery and midwifery, *Salakya* or treatment of the diseases of the eyes, the ears, the throat, etc., *Kaya-chikitsa* or treatment of the diseases of the body, *Kanmarabhritiya* or treatment of the diseases of children as well as their nursing, and *Rasayana* or medicines for the prolongation of life. The defects that are apparent in the practice of Ayurveda at present should be remedied. Anatomy should be given proper attention, knowledge of pulse should be pursued as of old, enemata and catheterisation should be brought into use, ophthalmology, poisonous drugs, and systems of dietics should be properly studied, and medicinal plants learnt to be properly identified.

Some defects are noticeable in the curriculum adopted at present in the English system of medicine. The students who are

admitted to the Medical College are mostly those who have passed the Intermediate Examination with Group I or II as their optionals. The subjects of Physics and Chemistry that are taught during the first and second year courses contain many of the portions of the Intermediate Physics and Chemistry. To deal with the same portions again for two years is a waste of time and energy. Physics and Chemistry may be confined to the first year of the Medical College, and the subject of Physiology that is at present confined to a single year may be extended to two years. Physiology is an important subject for medicine and we are aggrieved to see the scanty attention that is paid to it at present.

More than all this there is a standing grievance for the Medical students for so many years—the need of a Hostel for the Medical College. The students have to go in the morning for practical work and again have to begin regular class work at 10 o'clock. It is very difficult for the students to go all the way from Triplicane or Royapetta to the Central Station. A hostel for the Medical students is an utmost and urgent necessity. It would have been more proper if the Government had thought about the Medical College Hostel even before the University Club at Broadway. A hostel for the Medical College, even as the Victoria Hostel to the Presidency College, will save time and energy, and will facilitate the work of the Medical students.

TEACHING.

The L. T. course that is at present considered to be the finishing touch and the crowning glory for an academicalian, serves no purpose but that of adding a suffix to the al-

ready hard-earned degree of a B.A. or an M.A. But as to its practical usefulness in the regular method of teaching, it has nothing to boast of. The L. T. course is a waste of public money, for when the instruction given there is not quite suited to the work of the classes, when it could not avail us anything in the methods of teaching, when the knowledge, if any, carried from the college is not put into practice, we are inclined to think that it is an unnecessary course alike to the students as well as the public, because it is their money that is drained. Curiously enough, the students have sometimes to meaninglessly cram certain things, as the Dalton plan for instance, while not knowing what it is. They study some English journals, read the theory without doing any practical work, just for the sake of answering question papers and then forget all about it. Surely it is not for that that the Teachers' College is established. If practical work could not be done in any system, why pretend to give a course of instruction in that subject. If the Dalton plan could not be taught because there is no adequate laboratory, why should it be included as a subject within the curriculum and why should questions be asked in that portion? This is just like the subject of Experimental Psychology that is set down as an optional for the Honours Classes in Philosophy.

DIFFICULTIES IN THE WAY OF THE WORKING OUT OF THE MADRAS UNIVERSITY ACT.

One of the serious defects of the Madras University is that the Government is given too firm a hold over the University to allow it any independent action that may at any time have a chance of coming into clash with the interests of the Government. The Governor-General's Visitation function has

been introduced into India more to make it accord with the constitution of other Universities than a reasoned necessity and desire to invest the Governor-General with any such authority. Moreover, the Governor is made the President of the Senate, a new phenomenon unknown to the Curzonian Act of 1904. Again the Chancellor's powers are too wide and cannot conduce to the proper and healthy development of the University. The English Universities are most of them self-contained and free from any interference by the Government.

Sir M. Sadler however thinks that the Government of India cannot dissociate itself from the University work, because the Government has the function of legislation, of co-ordination, of stimulating research work, and of assistance in recruitment. But we are inclined to think that if these are the reasons, they scarcely justify the necessity of Government control in University matters. If the Government have the function of legislation, they should not retard the progress of education in a particular locality where it has attained a pitch and has the necessary resources to constitute itself as a separate University. That means to say, Sir M. Sadler is against the idea of creation of many Universities. He is for a centralised University, but at the same time does not favourably entertain the idea of the springing-up of many Universities. Taking Madras for instance, while Madras proper is to be constituted into a localised University, and Trichinopoly or Madura is not allowed free scope to form a new University, then a particular place alone is favoured to the detriment of the mofussil which till that moment attached itself to the parent University. Sir M.

Sadler's plea of the Government's function of co-ordination so as to make the particular University accord with the Western Universities, and of their assistance in recruitment of professors from England cannot stand any very serious examination because these are not exclusively the functions of the Government and these need not weigh before us when we say that the University should be really independent in every way.

THE RESIDENTIAL SYSTEM.

The English system of residence is proposed to be introduced into India. In England every student should reside in a hostel. But owing to pressure and overcrowding the three-year period of residence is reduced to two years in some cases, and in other cases to only one. But the essential idea of English Universities is that every student should reside for all the three years in the hostel and they have been forced to reduce the period for want of space owing to the tremendous rush of applicants. What is proposed to be introduced in Madras is not this kind of residential system. The University does not propose to make residence an essential requisite for a student. How then is the proposed introduction of the residential system different from the hostel system that is had at present? If then the system of having some hostels attached to colleges is not much different from the proposed establishment of the residential system, why should we pretend to introduce any new element and style it with the grandiloquent name of "Residential System"?

A THEORETICAL DIFFICULTY.

The new University is a huge multiplication of bodies with no cohesion among them. The authorities of the University are the

Senate, the Syndicate, the Academic Council, the Faculties, the Boards of Studies and the Council of Affiliated Colleges. We shall expose a simple theoretical difficulty in the constitution of the Senate and the Academic Council. Ten members are elected by the Academic Council to the Senate, and five are elected by the Senate from its own body to the Academic Council. Leaving aside the uncertain number as regards the teaching staff of Cl. 15, the number of the Academic Council that is to be constituted first will be twenty-eight. Since the Senate will be constituted only after the Academic Council comes into existence the number of five allotted to those elected by the Senate for the Academical Council should be left out of account in the beginning. That is to say, the ten members that ought to be elected by thirty-three will at present be elected by twenty-eight. The representation therefore is not proper.

When everywhere there is a cry for proper representation and franchise, the headlong rush to bring the Academic Council into existence even before the Senate which is to contribute five to the Academical Coterie is an unwise step and a short-sighted beginning towards the creation of the authorities of the University.

S. SANKARANARAYANA.

THE PLACE OF GRAMMAR IN THE STUDY OF LANGUAGES.

KNOWLEDGE OF GRAMMAR SPRINGS FROM
KNOWLEDGE OF LANGUAGE AND NOT
VICE VERSA.

IN educational policy as well as in educational methods there often is noticeable a resemblance to the movement of the pendulum. There is frequently an oscillation from one extreme view point to the other. Fortunately, however, compared to similar oscillations in other phases of life such oscillations in the educational world occur at longer intervals. The reason lies in the fact that it takes about half a generation, that is the time occupied by a boy in passing from school to life, to test the results of a particular system. Some examples of such oscillations which have occurred or are in process of action, are the purely classical to the scientific studies, the literary to the technical studies, and lastly the grammatical to the linguistic study of a language.

Current education in India has a lag of from 20 years to half a century behind that in the rest of the world whose example she is trying to follow. So, it was only a dozen years ago that we passed from the formal and grammatical study of a language to the purely and rather hastily introduced 'Direct Method.' The reaction has now set in. The pendulum after reaching the extreme is now swinging back; and formal grammar is coming into its own. At this stage it appears worth while, at the risk of being called a reactionary to enter a plea against the cult of formal grammar-teaching.

The older methods of teaching languages were based upon the assumption that they formed a good basis for formal training or

mental discipline. The aim was to develop the reasoning powers. At best the object was to attain literary mastery of the language. The aims and methods were reflected in the partiality shown to dead languages, old authors, abstruse passages. Such aims and methods tended to make all language work hateful to children, and led to the bad association of language work with drudgery, to the separation of school language from that of everyday life, and to false canons of criticism of literature. That grammar is only a subsidiary to language proper, can be reasoned out as follows:—

1. Languages all began with the necessity for 'translation of experience,' for communication of ideas. The oldest language is the language of gesture. The progress thence is to speech, and then to writing. And till we come to writing, and its consequent set forms, there is no necessity for, or possibility of having formal grammar.

2. Language is progressive. The development of human knowledge and civilisation and the widening of human experience necessitates changes in and additions to the modes of expressing ideas. Hence a living language is essentially dynamic. It can no more be controlled by the rules of grammar than tides or waves can be controlled by logical argument. Generations of people use, alter, and shape a language. Grammar can never keep up with all these multifarious and cumulative factors. It can only provide a skeleton outline for the professional student who wants to study it for itself and not for its use.

3. A language can be learnt only "by talking it, not by talking about it, by reading it, not by reading about it." Grammar only treats about the structure of a language, and tells us how to distinguish the correct form from the wrong. The best way to distinguish

'the right' from 'the wrong' not only in language, but also in all life situations, is to form right habits; and habits are formed only by actual use of our powers and not from the knowledge of how to use them. A good grammarian who knows the rules may not always be a good speaker or writer. Conversely, a good writer or speaker may be a poor theorist in language. Most faults of expression made in or out of school arise not from ignorance of rules but from absence of correct habits of mental association and reproduction.

4. Grammatically correct language is generally pedantic. Living vital language may not agree with formal rules. Good language is what is spoken and written by the majority of average well educated people. Grammar is no key to this; on the other hand many rules of grammar run counter to actual use, e.g., ending sentences with prepositions, using such sentences as 'What have you got?' 'It is me,' 'under the circumstances,' etc.

5. Languages, especially from the teaching aspect, should be understood and handled from the *psychological rather than the logical* point of view. Language is the liveliest thing about man. As it has been pithily put, 'to learn language through grammar is like making love through logic.' Ask a child what part of his studies he dislikes most. Most probably the answer will be 'grammar,' next after that probably mathematics.

6. The final test of language and literature is the 'linguistic sense' and not grammar. To find if anything in literature is good, we do not appeal to grammar but we hear the passage, read it, and try to understand it. The best authors in literature are rarely those who have stuck to the shackles of formal rules. Shakespeare, Milton, and even Tennyson, Carlyle, Ruskin and even De Quincey

THAT IS NOT HISTORY.

HISTORY is an undefined and ambiguous subject. It is a fertile field for all kinds of heresies to flourish. It is the cockpit of opposing opinions and ideals. There seem to be as many conceptions of history as there are historians.

Nevertheless there are a few things common to nearly all of them which, a little reflection will tell us, are four fundamental misconceptions about history. These are (1) History is the story of supermen and supreme nations; (2) War is an important ingredient of history. Some would even say 'most important'; (3) Patriotism is a virtue, an adorable quality of the heart; (4) Ambition is one of the greatest forces working for the advancement of mankind.

Now these dogmatisms have, no doubt, the appearance of Euclidean axioms and some of us are so pre-occupied with their infallibility that to call their honesty in question is apt to be looked upon as irreverent besides being undiplomatic. However, the afore-cited code cannot stand even a merciful criticism. Let us pass them rapidly in review.

History, properly so-called, is not concerned with the glories of individuals or nations, with singing their praises or blaming their sins, for they, especially the former, are the ills that frail history is subject to. Your Alexander and Caesar, or your Charlemagne and Napoleon were so many godless scourges who broke into the temple of history in tantrums of iconoclastic zeal. They made no more history than the great influenza epidemic of 1918-1919 made men. The supreme nations of the world drunk with the wine of imperialism have ever been the dread of their weaker and helpless contemporaries. Common manhood has always been crushed under the heavy wheels of the iron-trucks of Empires. True history is the story of humanity, of

have committed atrocious penalties against grammar, and the critics who have sat in judgment over these may have been good grammarians but poor linguists.

7. The best language is that of Poetry, where the feelings are expressed without undue control and formal dressing. And Poetry has been and still is the greatest criminal to break the laws of grammar.

Grammar therefore is in no way a help to accuracy, to facility of acquisition of a language, to fluency, to expressiveness. It is only an everyday test formulating the rules of criticism of conventional language. It may help in appreciating the beauty of language *structure* if too much emphasis is not laid on its formal aspect. Descriptive and historical grammar may be useful to explain the curious changes which words and phrases have undergone with time. A knowledge of grammar and the *exceptions to its rules* (!) may help in self-criticism. But to insist on the teaching of grammar as a special phase of language learning is to insist on something which will lead only to waste of time. Rules of grammar can be learnt usefully only at a stage when sufficient material for testing their application has been gathered, i.e., when the vocabulary is tolerably mastered and the ability to compose has been attained. In the earliest stages of language learning, grammar should therefore occupy only a very subsidiary place.

N. R. RAMACHANDRAN.

ordinary, everyday, honest humanity and not of those who made the earth tremble under their tread.

The second proposition is still more provocative. The great militarist Moltke laid down the astounding law that "perpetual peace is a dream and it is not even a beautiful dream." He said: "War is an element in the order of the world ordained by God." The philosopher Nietzsche went one better than the martial field-marshal: "It is mere illusion and pretty sentiment," says he, "to expect much (even anything at all) from mankind if it forgets how to make war." Then he seriously and superciliously proceeds to exalt the eruption and the wonderful consequences that come in its wake.

But why throw a gibe at the poor Prussian in this day of his reckoning? After all he was only voicing forth what others were trying to keep secret. His crime was that he often strutted about pompously in open daylight on the crest of war-worship while his wiser brethren across the frontiers did much the same thing but only in the inner and unknown recesses of their consciousness. The Prussian is found guilty on a charge of frankness. If the Germans were too indiscreet in their broad advertisement of their bellicose convictions, their cunning contemporaries were too insincere in their professions of peace and far too diplomatic in their denouncements of war.

The truth is that in every one of us there is what is called the war instinct, the cutting-each-other's-throat instinct, that savage desire for the blood of our brethren which all the centuries of education and the civilising process have done little to efface. We are sham men at seventy for, like children, we thirst for cruel revenge and wanton destruction.

Nonetheless war is an anachronism [in a society which calls itself civilized. Nothing has so much retarded the elevation of man, the realisation of his destiny, than this frothy pestiferous stuff of war. The pages of history are besmeared with the blood of humanity bled and bleeding to death from the wounds of war. It has destroyed nations, buried civilisations and driven us back, time out of number, to our primal abode of the woods and yet we would shake hands with the relentless devastator and make friends with him. The word war is the most meaningful word in any language. Ninety per cent. of the limitless ocean of human sufferings, miseries and misfortunes is contained in that monosyllabic contrivance—war.

The third section of our code is on patriotism. This beautiful name is the lexicographer's euphemism for selfishness, greed and grab. Many noble souls have been caught in its fatal meshes. Many blood-curdling crimes have been committed in its fair name. A very large volume of unscrupulous misdeeds is dressed up in its allurements. Through the highways and byways of history the enticing witch of patriotism has trotted its baneful feet with murderous effects.

Indeed, patriotism is a vicious virtue, a stunted growth of a humanitarian sentiment, an amputated limb of a beautiful being and on account of its essentially fractional and unfulfilled nature is a tragical aberration of a beautiful might-have-been. It is a disheartening disappointment in the realm of high expectations. Patriotism must be no more than a wayside inn on the road to humanitarianism. But the galaxy of patriots is set in the sky of egotism and hate. The leaden love of country must develop into the golden love of humanity.

And now to ambition which is adored so much and so obsequiously in some quarters. "That young ambitious man" is a title of approbation given to any unscrupulous trampler on other's rights, of a self-seeking, time-serving egotist. The phrase well sums up our attitude towards this overpowering quality.

But ambition is the aneurism of the mind and differs from that of an artery only in respect of the fact that while the latter affects the owner of the artery alone, the former affects not only the owner but a host of others whose number depends on the size of his ambition. Verily is the ambitious man a possible suicide and a possible pestilence to society. The unholy doctrine of the survival of the fittest lends colour to ambition which, in fact, is its right-hand lieutenant. The theory of ambition, in short, seeks to establish the self-importance of man and the unimportance of God. In this age of pre-eminent capitalism and competition, both individual and national ambition are an excellent mill to bray the manhood of to-day!

The teaching of history is quite in conformity with the pernicious code to which the above paras are, perhaps, not an unworthy commentary. In the class-room it is the competitive idea that is instilled into the minds of the young ones. The vials of hate and egotism are poured into their ears. The glorification of the war-lords borders on their defecation and the children are forced to enjoy this unnatural ceremony. The heroes whom we admire and ask them to admire are, most of them, robbers on the highway of humanity and we birch them if they are chary of admiration.

Ninety per cent. of the history that is taught, is a white-washed account of wars.

We give, in fact, our pupils a daily plunge-bath in rivers of blood and show them over heaps of slain with a starkly complacent conscience. The pages of our epics, the stages of our theatres, our class-rooms, and platforms are brimming with the broil of war. The foundations of our fondness for this fatal intemperance are laid deep in the hard and unfathomable soil of time. The intellect is over-weighted with a heavy load of the martial spirit.

Peace Palaces and Washington Conferences cannot achieve the ideal of universal peace. The thing is an impossibility on the very face of it, for it is like attempting to stop the rains by impeding the flow of running waters. The disarmament of the nations is an unthinkable idea before the bristly war-enamoured will is disarmed. The way to the millennium of peace lies through the difficult passes of the mind. We will cease fighting only when we cease thinking of fights.

The busy world has little time to visit those pretty little kingdoms where the "petty" school-master is the undisputed wielder of royalty. But there it is that the seeds of many crops are sown. The European Outbreak of 1914 had undoubtedly its beginnings in German schools. The German school-master of the latter half of the nineteenth century, was, more than any one else, directly responsible for the indescribable calamity through which Europe has passed during the late war. The first step in the gigantic task of binding the world with the clauses of an enduring peace must be taken by the teacher of the young. He alone can take the first right step.

And here he has to follow a code of *Don'ts* with all the religiousness that he can com-

mand. Greed the great, Pride the pious, Cunning the conquerer, Mendacity the magnificent and all the members of this tribe of stentorian accents and earthquaking tread, all these self-invited and gluttonous guests at humanity's table must go. They had had their day. They deserve no reincarnation. We can no longer tolerate any kind of unheroic and pernicious hero-worship. These malignant personalities of history, these merciless mistletoes of mankind must be given their final resting places in the niches of man's balanced and final judgment. No more of reverence to those who have not earned it, no more of unreasoning adulation of petty putrid patriotisms, of ambitious schemers, relentless soldiers, of those who set up a howl about their "Magnified I's" in this beautiful Earth which Gods' children own.

Therefore, instead of wasting time in the suicidal task of giving a sharp edge to human megalomanias, we shall turn to the paths of peace, rest, good, goodwill and of benefactions, to one another that have done so much to mitigate the horrible effects of the doings of the above listed men. We shall turn to the Buddhas, Mahaviras and Asokas, to Confucius and Jesus, to priests, prophets and philanthropists, seers of truth and lovers of man

and lay bare before the little ones the glory of disinterested service, self-sacrifice, quiet work, peace, love and plenty. Let the din of war deafen their ears no more. No more the adulation of Empire-builders and Empire-breakers, of Earth-shakers, and Battle-makers, of Man-killers and Fame-hunters debase the mind of plastic childhood or inoculate impressionable youth with the infectious bacteria of war.

The story of India is fraught with the spirit of peace, love, renunciation and non-violence. In this pristine land, one's thoughts naturally turn to higher things than the loathsome subject of man's cruelty to man. This is the primeval land of peace-makers, philosophers, saints, seekers of salvation, saviours of suffering humanity, victors of worldly temptations, stern master-spirits who cared neither for fame nor for riches and of the most exalted of the salt of the earth. This glorious land of India is the destined land to bring the millennium to a longing, longing mankind. And if this beautiful treasure-house of peace and love is kept as a sealed box to growing generations, then woe and war to mankind for ever and ever!

N. K. VENKATESWARAN.

DEDUCTIVE LOGIC

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COMMERCIAL EDUCATION IN HIGH SCHOOLS.

THE ideals and methods of education in recent years have been the subject of much controversy and interest. Apart from the desire for something new, something to relieve one from a stale and too familiar environment, there has been a sweeping change due to the upheaval of the world in all its branches of activity. A citizen of a decade ago, shut up within the four corners of his room, would find himself a Rip Van Winkle, if he were to emerge into the brilliant atmosphere of the world of to-day. What with the host of brand-new and revolutionary ideas in all spheres, in Politics, Religion and Society, in Science, Philosophy and Art, one finds oneself quite at sea, as one fondly expects to find one's old and familiar surroundings. Education like every other branch of life and work has to change and it has changed beyond recognition. There have been few bloodless but enduring revolutions in History as that in the ideals and working of education. A clamour for a specialised knowledge in every field of life, a yearning for 'thoroughness' in the place of the crude and foud idea of a superfluous 'something of everything,' has completely overcome the minds of the modern educationists. From an extensive, the need is for a thoroughly intensive kind of education. It is in this need for a specialised kind of study that we feel the importance of commercial education in High Schools.

There are some subjects given more importance than they really deserve in the present S. S. L. C. curriculum, and some others that are denied even their due place and even discouraged if need be. To this latter class we can assign the Commercial subjects. It

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is the Group (C) in the S. S. L. C. syllabus that is the constructive or qualifying group for the student. Apart from questioning the claims of the subjects comprising that group, one would fain assert that the absence of such important and significant subjects as Book-Keeping, Commercial Correspondence, and Banking, as a qualifying group for College classes is highly deplorable. It so happens that a student who takes up these Commercial subjects as his optionals for the School Final Class, and passes his public examination in all the subjects, even with record marks, is denied eligibility for College classes, while another who even scrapes through with other subjects such as English History or Science as optionals is at once given a passport for College study. One fails to make out how it is that all other subjects but those of the Commercial Group are an 'open sesame' for the portals of the College. Of course this question entails a larger question, that of having a regular course of Commercial education in the College classes. A degree for Commerce on the lines of the degree at present obtaining in the University for Arts and Science has been the subject of many a pen and journal. But this initial reform in a High School need not be much emphasised when the same is clear and evident.

The aim of all modern education, as has been evidenced in the work of the Universities of America, Germany, England, and Japan, is to make it practical, useful and worthwhile. All the superfluity and gloss that was shrouding the art in previous years has been discarded. What is really constructive, what enables the student to do something for the world,—that is the fibre out of

which modern education is spun. There have been various institutions established in all parts of America and England to develop this branch of education. The annual output of graduates in Commerce in the Occidental Universities far outnumbers even the graduates in Law of the Madras University. Even computing the general value attached to Commercial Education, Madras falls far back. The wealth of a nation consists in its commercial prosperity.

It is therefore a glaring necessity that the angels that mould the educational system in this Presidency should open their eyes and give to this branch of education the value and significance that she has been enjoying in every other province of the world.

A few suggestions in this connexion may not sound out of place. Side by side with the subjects making up Group (C) such as Vernacular, History and Science, may be placed another collection of commercial subjects. To make it explicit, the subjects of Book-keeping, Commercial Correspondence, Elements of Banking, and a primary Study of Commercial History and Geography may be comprised into a group and be made an optional branch of Group (C). These subjects may be given the importance of the other subjects under the group. A student who passes in the Public Examination with Commercial subjects as his optionals should be declared eligible for College course. These subjects will be the nucleus for an advanced course at College, when Commercial education will take its place among the higher subjects of the University. Even at present a commercial student will not feel much out of comfort with the history classes of the Intermediate class in the College. The subjects of History and Logic are begun in the first college class. He will have thereby a double advantage. He will have been first initiated into the

essentials of commercial education and will have the benefit of a new subject at College. It is even advisable that the elements of commerce should be taught as a compulsory subject, by being included in Group (B) and allied to subjects such as Elementary Science and British Empire History. It would certainly be a valuable substitute for the subjects of Drawing and Geography that have been deleted from the S. S. L. C. curriculum in recent years.

Commercial education is practical and constructive. It is interesting and wholesome. It is useful to the busy man of the world and the punctilious business-man. Above all it is an education of the mind to understand the burning problems of the world, the problem of the sinews of life, that of bread and clothing, and ultimately that of the prosperity of the country.

It is therefore urged that a better treatment may be accorded to this department of education in the S. S. L. C. scheme, as it is only here that the foundations for all future constructive education are laid.

P. VENKATESAN.

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Reviews and Notices.

THE TEACHING OF ELEMENTARY GEOMETRY.
(OXFORD UNIVERSITY PRESS, 1923).

This is a booklet of 16 pages, being the Report of a Special Sub-Committee appointed by the Incorporated Association of Assistant-Masters in Secondary Schools (England), to examine the case for an agreed sequence of propositions in Geometry and to suggest the means for its adoption and also to make any other suggestions for the improvement of the teaching of Elementary Geometry.

The recommendations of the Committee are of very great value to every teacher of Geometry. Important among these is that some of the earlier theorems must be accepted as quasi-axiomatic, their truth being established by intuition and experiment, since the logical basis of their proofs is very difficult of apprehension. The Report also contains useful suggestions about the best modes of treating Loci, Areas and Tangents. The Committee emphasises that while Incommensurable Magnitudes should not be treated in elementary work, their existence should not be ignored and that at the proper stage the pupils' attention should be called to the fact that the proofs as given do not include all cases.

The suggested sequence of theorems and constructions is set out in the two parts of the Schedule. The Committee feels, very rightly, that it is neither desirable nor possible at present to have a stereotyped sequence.

The readers of the *Review* may refer to the Proceedings of the Elementary Mathematics Association and the Mathematics Section of the Madras Teachers' Guild, printed in the *Review* for April, 1923.

CHAMBERS' SEVEN-FIGURE LOGARITHMS OF NUMBERS UP TO 10000 : EDITED BY JAMES PRYDE, F.E.I.S. Price 2s. 6d.

Messrs. W. and R. Chambers, Limited, have done a great service to students and calculators in

general by bringing out this cheap edition of the most frequently used part of their bigger and more costly Tables. The get-up and printing of this edition is very good and one may venture to say even better than that of the bigger Tables. This edition is also more handy. As for the accuracy of the figures, nothing needs to be said since it is merely the reprint of what has stood the test of time for the last so many years.

"STUDIES IN TASAWWUF"—WITH A FOREWORD BY
NAWAB A. HYDARI HYDAR NAWAZ JUNG
BAHADUR, B.A., FINANCE MINISTER TO HIS
EXALTED HIGHNESS THE NIZAM—BY KHAN
SAHIB KHAJA KHAN SAHIB, B.A., RETIRED
INDIAN EDUCATIONIST. (THEOSOPHICAL PUBLISHING HOUSE, ADYAR). Price Rs. 2.

This is a collection of essays on Islamic Mysticism. The author, a retired Educationist of the Madras Presidency, hopes by its publication to fill a recognised gap in books on Islam. Although, of course, one would expect from the title of the work that the studies would be in the nature of arguments piled on one another, the author prefers chiefly to stick to exposition from cover to cover. He is not so much an advocate as a narrator; and in this respect to those who occasionally need a small hand-book of reference on Sufi words and phrases, this expository series of Essays will be of much use.

The get-up and printing is only passable. In spite of minor defects, it is a useful book, and we hope it will find favour with Moslems and Non-Moslems alike, for it touches upon the subject of *Tasawwuf* in a way that cannot but commend itself to the general reader.

EXPERIMENTAL AND PRACTICAL MENSURATION,
BY J. T. SLATER. (OXFORD UNIVERSITY PRESS).
BOOK I, 1s. 2d. BOOK II, 1s. 6d.

These are two books on Elementary Mensuration which must prove very useful to teachers as well as pupils of the lower forms in our schools.

Book I contains the first steps in Square and Cubic Measure, and Book II introduces the Angle,

Triangle and Parallels. There are interesting applications—Border and Picture-framing sums, Paving, Carpeting and Papering sums and simple problems in heights and distances such as finding the width of a river, the height of a wall or tree.

The author has succeeded in making the way to learn the subject pleasant by leading the pupil by means of simple experiments to discover results for himself. An important feature of the books is the training given to the hand and the eye in that the pupil has to do something in every problem. There is a wonderfully large amount of healthy out-door work included among the exercises.

The books are printed in bold type and neatly gotup and contain about 200 good figures.

“SOUTH INDIAN SHRINES,” BY MR. P. V. JAGADISA AYYAR, OF THE ARCHÆOLOGICAL DEPARTMENT. (PUBLISHED BY MESSRS. VEST AND CO.) Double Crown 4 vo. 638 pp. with 251 illustrations. Price Rs. 6 per copy.

South Indian Shrines is the title of a book dealing with the chief temples of the Madras Presidency, including the Native State of Mysore, in all the various aspects—descriptive, mythological and archaeological with numerous illustrations depicting the various parts of such buildings having special architectural beauties. The first edition appeared sometime at the end of 1920 and again in 1922, we have the next edition before us. This shows the popularity with which the work has been received by the public. The present revised edition is nearly treble in size, with over double the number of illustrations in the first issue. Another important feature is that, a summary of the epigraphs contained in these buildings, throwing much valuable information on the past history, customs, etc., of the people in those olden days, appears at the end of each chapter.

The author's preface covers 25 pages of the book wherein the ideals of Hindu religion, importance of temple worship, etc., are treated in

such a manner that even an atheist is sure to realise the value of implicitly believing in the existence of the Almighty. Besides dealing with the religious aspects, the sanitary and scientific value, attached to temple worship is handled therein. The remarks of European experts in architecture on their admiration of Indian sculpture are quoted and these must open the eye of Indians to preserve such buildings from decay and neglect, to which they are now subjected to by people, unaware as they are of their beauties.

That our Indian youths in schools and colleges should know the rudiments of our ecclesiastical buildings is a point which nobody dares to deny. To them this book will give plenty of intellectual food and as such the book is a valuable addition to the libraries of all educational institutions. The few lines from the pen of Lord Carmichael, who was Governor both in Madras as well as in Bengal, clearly show what intimate knowledge the author possesses over the literature of temple architecture. The opinions of the press and of other gentlemen appended to the book prove beyond doubt how both Indians and Europeans have appreciated the book. It is a pity the remarks of the *Times of India Illustrated Weekly* on the necessity of issuing a *de luxe* edition have been neglected and as this is the only means by which the illustrations of such valuable buildings could be shown well, we trust the idea would be taken up at least by the Publishers of the next edition.

Lastly we would like to point out the need for vernacular editions of this book in all the various languages prevalent in this Presidency to acquaint the women of the country as well as the non-English-knowing from getting an acquaintance with the importance of the Hindu religion and the need for the preservation of our temples. It is only the vernacular edition of such a work that is sure to elevate the people of our country from their poor knowledge of religion which they have at present. By the publication of such editions every Hindu house will be in a position to have the book for reference and guidance.

The Educational Review.

We are glad to find that efforts are being made to open a new chapter in the history of the University of Rangoon. Partly because of the indiscretions of the administration of Sir Reginald Craddock and partly because of the nature of the constitution and the onset of the Non-co-operation movement soon after the starting of the University, it has not made much progress. In fact, there has been even a certain amount of retrogression, the number of students in the University having gone down considerably. It is proposed to introduce a non-official measure into the Legislative Council which will have the effect of liberalising the constitution. It looks as if the University will come down from the Unitary and Residential type and become a combined Affiliating and Residential University. Educationists will probably regret such a consequence, but no province can have a University very much in advance of its public opinion and if a University will create only revulsion among the people concerned by a constitution which is not liked, the sooner it is transformed the better. Side by side with the proposed amendment of the constitution, a praiseworthy attempt is also being made to bring round the section of people who went out of sympathy with the University at the time of the Non-co-operation

agitation. By the holding of a special entrance examination, an opportunity is being furnished to the students who left their classes on the eve of the starting of the University to come back to the institution for their higher education. The administration of His Excellency Sir Harcourt Butler may be relied upon to apply the provisions of the Act in the manner most suited to educational advancement.

It was a thoughtful address which Sir P. S. Sivaswami Iyer delivered at the recent Convocation of the University of Mysore. During the few years it has been in existence the University has shown real promise and many of the misgivings entertained about the time of its inception have been set at rest.

Besides making a survey of some of the numerous educational problems now troubling the minds of educational reformers in India and elsewhere, he drew attention to the problems of social adjustment facing the educated Indian of to-day. With the altered circumstances of modern life, some of the old ideals are rapidly changing and it is becoming increasingly difficult to offer loyal allegiance to every one of the concepts to right conduct sanctioned by ancient India. The importance of this adjustment will be realised when one is aware of the social disruption caused by the differences of temperament and outlook among the members of the same family

sometimes caused by the introduction of the New Learning into the older surroundings. The outlook of the husband is often different from that of the wife and so also the outlook of the son from that of the father and much of domestic and social unhappiness could be averted from the kind of adjustment for which Sir P. S. Sivasawmi Iyer pleaded so effectively.

We are glad to read the report of the enthusiastic public meeting held the other day in Madras under the presidency of His Excellency Lord Willingdon, to consider steps for perpetuating the memory of Dr. William Miller. The requisition to the Sheriff was signed by people of all shades of opinion, a large number of the signatories being persons who were at no time students of the Madras Christian College. Enthusiastic references were made to the most prominent features of his work as an educationist, his moral influence on the students who came into contact with him and the abiding affection he had for them, even after their leaving college. He maintained a deep interest in their careers and the lapse of time did not mean any difference in the lively feelings of sympathy and affection he cherished for them. We trust the movement will receive generous response from the thousands of Dr. Miller's students

scattered all over the Presidency and the memorial will be a great success.

Prof. Ramsay Muir, of the University of Manchester, would seem to have indulged in some sweeping condemnation of Indian education in his recent address in Oxford in connection with the University Extension Summer School. The knowledge of the conditions in India acquired during his stay in India does not seem to have saved him from misunderstanding. He had hardly anything to say by way of compliment to the Indian educational system. In spite of all recent developments in Indian Educational methods he described Indian education as entirely 'literary' and said, 'the science colleges could not afford to maintain science laboratories or other equipment.' We are certainly conscious of the numerous failings in many Indian educational institutions, but we are sure Mr. Ramsay Muir was not doing adequate justice when he said that work in Indian colleges "consisted entirely of listening to lectures and taking down as much as they could, learning by heart. It was a mistaken and disastrous system. An intellectual proletariat was being created which was absorbing many European political ideas, but which was not being mentally equipped to apply them rightly to its country's practical benefit." Yet this expert is supposed

Indian Education.

to have acquired special knowledge of Indian conditions as a member of the Calcutta University Commission and he was about to be foisted on a leading Indian University as its full-timed, paid Vice-Chancellor!

Speaking before a large audience of teachers, the Earl of Birkenhead drew attention the other day to some problems connected with examinations which must set people thinking of the further reforms necessary for improving them as tests of efficiency and culture. He said that he could never forget the profound relief with which he shook the dust off the steps in Lincoln's Inn Hall with the knowledge that no one in any conceivable circumstances, could ever make him pass an examination again! Examinations, like any intellectual tests which may be devised must necessarily cause a certain amount of strain and anxiety to the student's mind, but we wonder if everything has been done to see that examinations will not be looked upon with the terror with which they are usually associated. Considerable improvement has been made in recent years, but the last word has not yet been said on the subject. It is fashionable on the part of inexperienced examiners to belittle the intellectual efforts of examinees and the noble Earl did well in emphasising the fact that after all the knowledge exhibited by examinees was by no means contemptible in normal circumstances. "The real truth was,"

he said, "that nobody could pass examinations except people who had been working for two or three years to pass them. It would be the most staggering performance ever known if the Archbishop of Canterbury could pass an examination in Theology. As for a Lord Chancellor, he could never make the bold claim that he could to-morrow pass the Final Examination for the Bar. As an 'examiner' he saluted the 'examinee.'" We wish all examiners realised the truth implied in these words. The encounter of the 'examinee' with the 'examiner' was compared to the interview of Red Riding Hood with the wolf and till it is softened to something more human, we are afraid that educationists cannot be in a position to congratulate themselves.

Reference was made in these columns sometime back to the new proposal in the Bombay University to concentrate post-graduate teaching under the auspices of the University. In view of the fact that provision had been made for a recurring annual expenditure of only ten thousand rupees, we expressed grave misgivings about the feasibility of the University being able to run any department of post-graduate teaching under its auspices. We are therefore not surprised that when Dr. Mann moved the adoption of the report of the Post-Graduate Committee, his proposition met with considerable opposition. Dr. Sisson of the Elphinstone College had grave doubts that the scheme would succeed. It would

The Bombay University.

restrict the activities of colleges which meant serious trouble. Then the scheme referred to Arts only and he did not know how it would be possible to carry on research work in medicine, commerce and agriculture in the University building. It was again restricted to Bombay only. He also thought that from the point of view of finance the scheme had been placed before them in a very light-hearted fashion. It seemed to him that the scheme was going to be a piece of showy and cheap window dressing at the expense of colleges. After some discussion Dr. Sisson's motion was agreed to by the Senate. We trust however that the scheme will soon be revived with the generous help of the rich millionaires of Bombay and the city will have a flourishing Teaching University of the modern type added to the amenities of its intellectual life.

In spite of ceasing to be Educational Minister, the Rt. Hon. Mr. Fisher on Education. Mr. Fisher continues to take an abiding interest in educational progress. He delivered a stimulating address the other day at the Cambridge Liberal Summer School on 'Educational Advancement.' After giving an account of the progress achieved in recent years he passed on to outline the reforms yet to be accomplished. While congratulating everybody concerned on the establishment of continuation schools, he thought there was considerable room for the improvement of Secondary Schools. "What, however is

of the most immediate importance is that the quality of our Secondary Education should be improved. A great deal of it is still on a very low level. Boys and girls going up to the Universities are often unable to translate with accuracy a simple piece of Latin or French. There is room for a good deal of valuable progress being effected here and there without any additional outlay of public money. The great friend he has always been of the teaching profession, he put in a strong plea for proper payment of teachers and due recognition of their status. It is a notorious fact that in very recent years, there has been a setback in educational advancement owing to financial retrenchment in England and Mr. Fisher very properly protested against it. "Pressure should be put on the Government to restore the grants to the Universities to their level of 1921-22 and to increase them. It is very difficult to get the treasury or the public to appreciate the productiveness of expenditure on the higher learning. A State expenditure of seven millions a year upon our Universities would amply repay the community and would not exceed the cost of a first-class battleship." He also put in a strong plea for the further support of adult education in the country the demand for which has been steadily on the increase.

It is undoubtedly desirable that young men at Universities should be spirited and enthusiastic and even a certain exhibition of excess of animal

spirits should be welcomed. But there is a limit even to these and we hope that Indian Universities will not take to the imitation of some of the University 'Rags' popular on occasions in the West. On the occasion of the recent installation of Rudyard Kipling as the Lord Rector of St. Andrews, the undergraduates seem to have indulged in a rag of the most boisterous kind. Reuter's telegram tells us: "The red-gowned students thronging the volunteer hall received Mr. Kipling with the famous war-cry 'Ygorra.' They sang wild barbaric songs, stripped some of their comrades of their boots and socks and flung them and tossed the barefooted victims in blankets, while blank pistol shots rang out." We suppose that all this would not be considered a particularly edifying spectacle in this country and we are not sorry that University 'Rags' have not set into fashion in India.

Some problems relating to University discipline and undergraduate life were referred to in brief by Dr. Farnell when he recently handed over charge of the Vice-Chancellorship of Oxford to Mr. Joseph Wells, Warden of Wadham College. In a speech he amusingly referred to young life at Oxford, for whose benefit he made bans which had made him notorious. He said that the women students hardly gave any trouble, for when they asked for new privileges and relaxations, it was easy to refuse. If they could only curb their passion for cafes between breakfast

and luncheon they would be an exemplary body. Young men naturally gave trouble and concern, yet his experience during the past three years had not lowered his high opinion of them. Two enemies to industry were indolence and distraction. It was impossible to accuse the young men of indolence, but as regards distraction, it must be reluctantly admitted that the modern city of Oxford was no longer a desirable place, he said, for a University such as the former rulers intended it to be, and for which certain powers were given to the Vice-Chancellor. It would be well if the Oxford public remembered that the University was the city's great asset and distinction and sympathised with its efforts to fulfil its functions.

Dr. Percy Nunn delivered the Presidential Address to the Educational Section of the British Association at its recent annual meeting in England. 'Fullness,'—fullness in quality rather than in quantity—was according to him the thing to be aimed at in education. We take the following extracts from his address:—

But, it might be objected, granted the soundness of the ideal as an ideal, the shortness of school life made it impracticable. It was true that a study to be of real value, must be carried far enough and followed long enough to make a definite and lasting impression. It was also true that some studies can hardly produce their proper effects at all until a certain level of maturity had been reached. For example, there was much of vital moment in science which evoked no response in a pupil before the age of adolescence. But what was to be deduced from those admissions? Surely the conclusion, which the public mind was slowly accepting, that so long as children left school for good at fourteen some of

the best fruits of education would be unattainable and the security of the others precarious. Though in a sense the adolescent retravelled a psychological route which he had already traversed in childhood, he was, of course, capable of vastly deeper and wider vision and experience. The case for universal education beyond the age of fourteen depended ultimately upon the importance of shaping his new capabilities in conformity with the finer traditions of civilised life. Public opinion, regretting the generous gesture of 1918, had not at the moment accepted the larger view of the mission of education; but as the nation learned to care more for the quality of its common manhood and womanhood and understood more clearly the conditions upon which that quality depended the forward movement, now unhappily arrested, would certainly be resumed. For that better time they must prepare and build.

We were told that before the era of industrialism the great mass of our people enjoyed a culture which, though simple, was sincere, and at least kept them in touch with the springs of beauty. What truth there was in the picture he did not know, but it was certain that with what was called the industrial revolution the conditions that made it credible largely disappeared. Torn from the traditions of the old rural life and domestic industry and herded into towns where in the fight for mere existence they lost their hold on all that gave grace to the former life, and where the ancient institutions which might have helped them to build up a worthy new one were themselves submerged in the rising tide of featureless and monotonous industrial activity, the folk who now constituted the bulk of our population were cut off effectually from "sweetness and light." That was the situation when the task of public education was taken seriously in hand, and that, notwithstanding a great amelioration in details, was for far too many the situation to-day. There were some who thought that the only remedy was to cry halt to the modern movement and return deliberately to mediævalism. That was a counsel of despair. Instead of indulging in idle dreams it would be more profitable, assuming the unalterable conditions of modern life, to consider how the rest may so be modified as to place the true dignity and grace of life within the reach of all who are qualified to achieve them. That could be done only by a system of education which brought the things of enduring and universal worth to the doors of the common people. And unless it was done, unless the natural hunger of the people for knowledge and beauty is wisely stimulated and widely satisfied, no material prosperity could in the end save the social body from irretrievable degradation and disaster.

MADRAS UNIVERSITY : NEW SENATE.

The counting of the Registered Graduates' votes for the election of 30 members to the new Senate was completed.

The following is the full list :—

Mr. K. Bhashyam.
Mr. R. V. Krishnan.
Mr. Alladi Krishnaswami Iyer.
Mr. K. V. Krishnaswamy Iyer.
Dr. A. Lakshmanaswami Mudaliar.
Dr. John Mathai.
Mr. S. Muthiah Mudaliar.
Mr. G. A. Natesan.
Mr. V. Ramadoss.
Mr. K. V. Rangaswami Iyengar.
Mr. S. Satyamurti.
Mr. B. Sitaramarao.
Mr. P. V. Seshu Iyer.
Mr. B. Satyanarayanarao.
Mr. P. Venkataramana Rau Naidu.
Mrs. Radha Bai.
Mr. K. C. Desikachari.
Mr. A. Madhavaiya.
Mr. G. Venkata Ranga Rao.
Mr. L. A. Govindaraghava Iyer.
Mr. Salla Guruswami Chetty.
Mr. M. Ramachandra Rao.
Mr. Sambamoorthy.
Mr. K. B. Ramanathan.
Mr. C. V. Chandrasekar.
Mr. S. S. Suryanarayana.
Mr. P. T. Srinivasa Iyengar.
Mr. A. Chakravathy.
Mr. K. Ramanatha Shenoy.
Dr. M. Subramaniya Iyer.

Of these, sixteen are lawyers, only eight educationists, and two are members of the medical profession and some officials.

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THE TEACHING OF ENGLISH PROSE.*

SELECTION OF THE PASSAGE.

THE passage selected should be complete in itself and awaken curiosity in the mind of the pupil which may prompt him to read the book from which the passage is taken. It should contain no trivial matter and should correspond with the intellectual development of the pupil. The picture in the passage should be realistic and introduce personal incidents and have a human interest.

PREPARATION.

Pupils should read the passage at home and refer to their dictionaries for the meaning and pronunciation of words new to them. This is necessary to enable the pupils to understand the meaning and contents of the

extract as a whole. In using the dictionary, attention should also be paid to accent and the part of speech of the given word. The teacher should question on the meanings of words and the pronunciation of anomalous words before he begins the lesson. This will ensure proper preparation and intelligent reading.

READING ALOUD.

As the critical study of a passage is ruined by bad reading, call upon the best readers to read in turn in order that the passage might not be mangled. If good readers are absent, you do the model reading. The first purpose of reading aloud in class is as an aid to the appreciation of literature. The exercise helps this by its appeal to the ear as well as to the intellect. The ability to read aloud is a source of pleasure to the scholar. Let me tell you that reading aloud is different from acting. Reading aloud is intended to con-

* An Address delivered by M. R. Ry, M. Subramanyam, B.A., L.T., at a Conference of the Staff of the Town High School, Guntur.

vey the language and some idea of the sense of the author; it is largely impersonal. "The purpose of the actor is to assume for himself the voice, gestures and attributes of the character impersonated and to identify himself so thoroughly with the part, that his audience are beguiled into the belief that the actual person represented is before them." Reading aloud should leave the hearer free to apply his own particular shades of meaning to the words uttered; acting should impress upon the audience the performer's idea of the exact sense of every passage. This first purpose of reading aloud, viz., to aid the appreciation of a passage by the listener applies to an audience either of children or of adults. The second purpose is more directly a school aim, that the readers, by practice, and the audience, through listening attentively and critically, shall be trained in the correct use of the speaking voice, in order that they may learn to speak musically and enunciate clearly.

The following points should receive special attention in reading aloud. The organs of speech—especially the lips and teeth—should be properly used and drilling in vowel and consonantal sounds resorted to whenever necessary. Breath should be taken in the natural pauses occurring in the passage, independently of the pauses indicated by the punctuation marks. Read slowly, read audibly, articulate each sound properly, pronounce each word correctly, be distinct but not loud, sustain your voice, attend to accented syllables, emphatic words, and sentence accent, control your voice and inflect it to suit the characters introduced in the narrative, have complete command over your breath, let your eye be ahead of the voice,

especially when a page has to be turned; read naturally and avoid an artificial tone, let there be agreeable delivery and let your words come from your heart. Please take a personal interest in the narrative and exhibit your lively sympathy with the author.

In this connection, I have to offer to you my remarks on the posture and position of the reader. Because one of the secondary aims of reading aloud is to promote confidence in the pupil, the reader should generally be in front of the class, facing it. The reader should stand still without any nervous movements. He should stand without shuffling the chain of his watch, the button of his coat, the edge of his garment or the cap on his head. He should not bend on his desk but throw the whole weight of his body evenly on both feet. His head should be erect and shoulders back.

After your model reading, let two or three good readers read the passage. Children with defects of speech or of articulation should not be permitted to spoil the beauty of a passage by imperfect rendering which they cannot help; these special cases should receive special attention in lessons on voice production. When pupils read, get the faults detected by other pupils and correct. The correction may be done when the reading is completed. The teacher should not interrupt the progress of the narrative by insisting on the correction of points of detail then and there. Unless the verbal mistakes which the children make have the effect of substantially altering the author's meaning, they may be disregarded. General errors like wrong accents and wrong values of vowel and consonant sounds may be explained with the help of the black board.

ANALYSIS OF THOUGHTS.

Before the model reading is begun, the teacher should assure himself through questioning that his pupils understand where the new lesson commences and its place in the progress of the narrative. Then you divide the passage into sections, and ask the pupils to read the first section silently. Then the book may be closed and the chief topic in the section elicited from pupils. An important word in the passage or a small sentence with an important word in it may indicate the chief topic. This may be written on the left half of the black board—the right half being reserved for explanations, illustrations, meanings of words and phrases, and grammatical peculiarities. The books may then be opened and the thoughts in the section analysed. The logical connection of the thoughts in the section should be brought home to the minds of pupils. This can only be done by intelligent questioning. The first duty of a teacher, therefore, is to learn to put intelligent questions. With some practice and guidance I have no doubt that teachers will become experts in this art. (Some typical questions are given in the Appendix.)

AIM OF LANGUAGE TEACHING.

While teaching the English lesson, the teacher should constantly have before his mind's eye the aim of language teaching and how he is endeavouring to have his aim realised. The vocabulary of your pupils should be improved and a taste for English literature should be created. These are the chief aims of an English lesson. The success of your lesson is in proportion to the success achieved by you in realising these aims. If your lesson has not enriched the vocabulary of your pupils and if no taste for the author's

books is developed in pupils' minds, you stand condemned, your lesson is a failure and you have wasted some moments of the precious time entrusted to you for proper use.

Kindly remember, therefore, that you should materially enlarge and strengthen your pupils' store of apt and forcible words and enable them to acquire ease and confidence in using them. For words are the scholar's tools just as a chisel is a sculptor's, and paints and brushes those of an artist.

One great help to the acquisition of an extended knowledge of words and their exact meaning and use is not only to read but to stop at, and mark, learn, and think over any strange, uncommon, or difficult words and phrases. One of England's clearest and most perfect writers, Mr. John Ruskin, wisely and forcibly says about the valuable and desirable habit of stopping to examine, weigh and understand unfamiliar words:—"I tell you earnestly that you must get into the habit of looking intensely and seriously at words and assuring yourself of their meaning, syllable by syllable, nay, letter by letter. You might read all the books in the vast British Museum if you could live long enough, and remain as utterly 'illiterate' uneducated person; but if you have read ten pages of a good book letter by letter, that is to say, with real care you are for ever, in some measure, an educated person."

Like poetry and song, reading and writing are twin sisters and each may help the other. For every new word that we thoroughly comprehend and can apply in writing, is a new tool of the thinking faculty and will do much to make our oral or spoken language more careful, pleasing and effective and enlarge our circle of ideas.

Those who would make their fellows share their thoughts and feelings must be able to use the right word in the right way when communicating their ideas and experiences, either by pen or voice.

"If you were asked what kind of dress you preferred to wear, you would show your correct taste by saying 'Fitting or suitable to your person and position, and neatly and carefully put on, not gaudy, extravagant or slovenly.' Similarly, our use of language, whether spoken or written, should not betray impropriety, vulgarity, carelessness or ignorance but should be neat and tasteful, correct and expressive."

"If we find literature dull, if we neither take any interest in it naturally nor have learnt to do so, the dullness is in ourselves, not in the literature; and it is regrettable dullness, because it means that the best and wisest, the wittiest, the most humorous, the most moving, the most delicate and beautiful and tender thoughts on human life leave us cold. For great literature is nothing but these thoughts expressed in the most perfect way. If we are human beings we can hardly help having an interest in these thoughts. If literature has failed to touch us, it is because we have thought of it as lifeless print upon the page, and not realised that it is human beings speaking to us, not about dead facts, but about the things that it most concerns us to know—the mystery of human life and character, the motives and interests of people in the world, the laughter and tears of human comedy and tragedy. Even when it seems to be dealing with the remote past, as in history or in old poetry, its interest is a living interest still; it is the interest of seeing that human nature is the same in all

ages, and the deeper interest of recognizing in antique tales and beliefs and actions the things that have helped to make us what we are, the things that are the very stuff and tissue of the bodies and minds we have inherited from immemorial ancestors."

THE SIGNIFICANCE OF NEW WORDS, PHRASES, AND IDIOMS.

The proper significance of each word should be thoroughly understood by your pupils. Be not content to convey a general notion of the meaning to your pupils; for the understanding of the narrative is not the chief aim of a detailed study lesson. As the proper significance of words can be correctly understood only when those words are correctly used by pupils, I request you to see that your pupils are able to use all the new words occurring in the text in sentences of their own. The teacher of English has a very great responsibility on his shoulders. Strictly speaking, no synonyms exist in the English language; even when words have the same meaning, they are distinguished in use. Without careful preparation, therefore, the English teacher would be ill-advised to handle a lesson in English to a senior class. The significance of each new phrase and each new idiom should be similarly explained and illustrated. The usefulness of idioms cannot be too strongly emphasized.

THE SIGNIFICANCE OF ADJECTIVES AND ADVERBS.

Then examine carefully all the adjectives and adverbs. No great writer uses any adjective or adverb when it is not wanted and when he does employ the adjective or adverb, it is fresh, vivid, apt, and significant. Unless the force of each epithet is made clear to our pupils no distinct mental picture can be

formed. Coupled with the adjectives, what do the nouns signify? Coupled with the adverbs, what do the verbs signify? These questions the pupils should be able to answer. When the mental pictures become clearer and clearer as the significance of epithets is understood, the pleasure which pupils feel will be indescribable. The pleasure has only to be felt. (*Vide* Extract from Macaulay's Essay on Lord Byron for the appropriate use of English Epithets—Exercise 41—Exercises: Part 2.—J. H. FOWLER.)

ETYMOLOGY OF WORDS.

To understand the correct meaning of words it will sometimes be advantageous to refer to their etymology. Take these two examples:—

"(i) Thither let us tend

From off the tossing of these fiery waves
There rest (if any rest can harbour there)
And reassembling our *afflicted* powers
consult.....

'Afflicted' from the Latin verb which means 'to strike to the ground' is peculiarly well applied to the angels.

(ii) But wherefore let us then our faithful
[friends

Lie thus *astonished*?

'Astonished' from the Anglo-Saxon root meaning 'to stun completely' is also well applied to the angels."

Words there are that have histories of their own and which pupils would not be interested in learning the derivations of words like bayonet, muslin, champagne, quinine, rival, dunce, calculation, pecuniary, etc.?

The English teacher will derive much assistance from "Words and their derivations" by Chamber and Kerr. The pupils

may be taught some Latin and Greek roots with the important prefixes and suffixes. How the different prefixes bring about a change in the significance of a word will have to be explained.

THE ORDER OF WORDS AND CLAUSES.

The order of words and clauses has next to be studied, for, on these, depend the clearness and the beauty of writing. How words are arranged in a certain order and how a change in the arrangement brings about a change in thought should be brought home to the pupils' minds. The special care with which words like only, however, etc., the correlatives like not only, but also; Both...and; either...or, etc., and the phrases like at least, at all events, at any rate, etc., are used should be made the subject of talk. The purpose with which the usual order is reversed should also be discussed.

BEAUTY OF THE THOUGHT AND BEAUTY OF THE LANGUAGE.

The subject-matter in each section should be thoroughly understood by each pupil and to this end a great deal of varied and searching questioning will be necessary.

The importance of the pictures in the text should be understood and references made to them whenever necessary. Ample use should also be made of the newspaper sketches and drawings illustrative of the subject-matter under explanation.

Let the pupil feel the beauty of the thought and the beauty of the language with which it is clothed. Questions should be put upon points of detail and upon the characters and incidents in the passage read. The interplay of character with character will form a valuable lesson in the influence exerted by human beings upon each other, through such emo-

tions and passions as are within the grasp of children. Debates with pupils upon the subject of each section are useful for establishing the outline of the narrative and the logical development of the story. Extracts may be read from books dealing with a similar subject and the children with very little assistance readily find ground for comparison or debate.

GRAMMAR.

In all intelligent teaching of subject-matter, grammar plays an important part. Grammar is not to be regarded as a mental exercise in an abstract subject, but as a practical aid to English teaching. In other words, it is to be studied with regard to the functions performed by the parts of speech and the various kinds of sentences and clauses. What is likely to be of practical use to the child in connection with the English scheme is outlined in the suggestions of the Board of Education, London. "A child should know the functions of the different parts of speech and the rules on which the construction of a sentence is based, if he is to express his own meaning correctly and to ascertain with accuracy the meaning of what has been written by others. Without being burdened by formal definitions, or perplexed by difficult exceptions, he may properly become familiar with such elementary terms as, for example, subject, object, singular, plural, active, passive, auxiliary, etc. These cannot unduly burden the child's mind and their use tends to economy of time and lucidity of explanation."

The meaning of a sentence cannot be clearly understood until the relationship of one word with another and of one clause with another is intelligently learnt. The nouns which adjective clauses qualify, the verbs that adverbial clauses modify, the nouns to which other words or clauses are in apposition, the nouns for which the pronouns stand, the clauses or phrases that stand for the

pronoun 'it,' the ellipses that are understood in the sentence, the nouns to which relative clauses are related and the functions of the connecting words, all these must be learnt by the pupils, if the mental pictures formed in their minds should be clear and distinct.

The importance of the transformation of sentences cannot be too strongly emphasized in this connection. Suffice it to say that all the aids to correct sentence-building should be copiously resorted to with a view to see that the exact thoughts of the author are clearly comprehended by the pupils.

Figures of speech should be rendered into plain language and all allusions need explanation.

STRUCTURE OF THE PARAGRAPH.

Section after section should be treated as explained above and the connection between one paragraph and the next should be clearly emphasized. The sentences may be studied with reference to length, form, and cadence, and their structure examined. The unity of the paragraph may be tested by compressing it into a simple sentence. The thoughts in the different paragraphs should be analysed and the spirit of the author understood. "The pupils should also recognise the beauties of expression and feel the grandeur of the language and the richness of the imagery."

BIOGRAPHY.

Having enabled the pupils to enjoy the beauties of the author's expression and his style, it behoves the English teacher to take his pupils into the life of the author and refer them to his other works and bring home to their minds his ennobling thoughts and his excellences.

RECITATION.

Let me also refer to one important point which is not commonly attended to in many of

the schools. When the pupils' minds are awakened to a sense of appreciation of the thoughts in the text it should be the duty of the teacher to select the best passages and see that they are got by heart by the pupils. Recitation should not be relegated to the domain of poetry alone. Noble thoughts and choice expressions should be chosen for recitation whether they occur in prose or in poetry.

QUALIFICATIONS OF THE TEACHER OF ENGLISH.

To teach English prose in the above explained manner the teacher must have an inherent love of and affinity for good literature. He should be a learner. He should be an enthusiast. He should have studied English grammar and the etymology of words. He should have learnt the principles of voice production. His voice should have been trained for good reading and good speaking. He should have practised himself in graphic description and vivid narration. His accent should be pure and he should be able to illustrate every difficult point in the lesson by a sketch on the black board. He should know his children so that his teaching may not fall on deaf ears. More than these, the teacher should have an individuality. He must not know human nature only from having seen it in a mirror. "He must be a man of the world, catholic in his sympathies, broad in his views, and unprejudiced in his appreciation. He must possess some measure of that spiritual insight which makes a man conscious of an undying spirit in every manifestation of nature and reveals to him something of the relation between things mortal and things eternal. He must be ardent and enthusiastic with a firmly grounded belief in the importance of his subject add a clear vision of literature working as a great force

in the world in harmony with all those forces which make for purity and righteousness."

REALISATION OF THE AIM.

If the English teacher should adopt the methods outlined above in the teaching of English prose, his pupils would soon acquire the rudiments of a taste for what is best in English literature and would find in the books that they may read a source of inspiration and an unfailing instrument of pleasure and profit. "Every one of his pupils will be able to say with Gibbon—'A taste for books is the pleasure and glory of my life.... I would not exchange it for the wealth of the Indies.'"

APPENDIX.

All stood amazed, until an old woman, tottering out from among the crowd, put her hand to her brow, and, peering under it into his face for a moment, exclaimed: "Sure enough, it is Rip Van Winkle—it is himself! Welcome home again old neighbour! Why, where have you been these twenty long years?"

(Rip Van Winkle returned to his village after many long years and recognized his daughter and caught her in his arms. The people who had assembled to see this strange old man stood amazed.)

A FEW TYPICAL QUESTIONS ON THE PASSAGE

Indicate the chief topic in this para. To whom does 'all' refer? What is meant by 'amazement'? What was the reason for their amazement? When did the amazement cease? Why did it cease? What is meant by 'tottering'? Why did the woman totter? What is the force of the adverb 'out'? Whence did the old woman totter out? What difference does it make if the phrase had been 'tottering out from the crowd'? What significance is added by the preposition 'among'?

What was the old woman's exclamation? How did the woman settle in her mind that the strange figure was Rip Van Winkle? Whose face did she peer into? How did she peer into his face? 'Peered under it'—to what word does 'it' refer? What does the phrase 'peer into' mean? What is the distinction between 'peer into' and 'look at'? What was the result of her peering into his face? How long did she peer into his face? 'It is Rip Van Winkle'—to what does 'it' refer? Explain 'it is himself.' What is the difference between 'it is he' and 'it is himself'? What is the force of 'enough' in 'sure enough'? Use 'sure enough' in a sentence of your own. 'Welcome home, again, old neighbour'. What kind of sentence is this? What feeling does it express? Why was Rip an old neighbour? Change the sentence into the assertive form. What words go to form 'welcome'? What is the significance of the word 'again'? What is the significance of 'why'? How long was Rip absent from his village? Why were those years described as 'long years'?

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POEMS BY INDIAN WOMEN.*

THE Greeks always accounted Sappho among their greatest poets; and Socrates resorted to Aspasia frequently for instruction in wisdom. The women of India in all ages have been occupying their lofty and legitimate place in the daily life of the people; and frequently we have instances displaying the opportunities and occasions of the Indian woman's compassionate service, her intellectual triumphs and her saintly renunciations. Mrs. Sarojini Naidu in her *Soul of India* would say that "her agile and brilliant mind had access to the most intricate sciences and occult philosophies. Not seldom in her capacity as queen, regnant or regent, was she called upon to prove the subtlety and sagacity, the breadth and daring of her statecraft."

Mrs. Macnicol has done a very real and valuable service to the womanhood of our land by this collection of poems from its most eminent women poets in translation. The galaxy of women-poets extend from the broad days of the Rig-Veda when Visvavara Aitreyi, the singer of the hymn addressed to Agni (Mandala V. Sukta 28) and Ghosha, the Brahnavadini, sang a hymn included in the X Mandala, down to the talented sisters Toru and Aru Dutt, Mrs. Sarojini and younger poets of the present day. Ghosha's hymn is addressed to the Aswins, the celebrated divine physicians of Vedic theology. Mrs. Rhys Davids, the eminent scholar wife of a great Pali scholar, has given us a translation of *Theri-Gatha*, a collection of poems by early Buddhist nuns, under the title of *Psalms of the Sisters* of whom one may recall with pride the names of Vasitthi, Ubbiri and Mettika, all of whom sang with intense devotion on the abstruse topics of sorrow and release.

* Edited by Margaret Macnicol.—The Heritage of India Series. (Association Press, Calcutta). Pp. 98.

According to the editor, it is the intellectual character of these poems that strikes the European mind. Mediæval women-poets are numerous and varied. Persons of the Bhakti cult sang songs of ecstasy and devotion to the beloved God; of these we have Andal singing in Tamil, Mukta Bai and Jana Bai giving the praises of Vithoba in Marathi, in a quiet and meditative manner, the Radha-Krishna lyrics both in Gujarati and in the Braj dialect (Western Hindi) of the well-known Rajput princess Mira Bai, the lofty but unimpassioned, strains of the Kashmiri Sivayogini, Laleshwari, who might have been largely influenced by her contemporary Sayyid Ali Hamadani. "Her verses have no trace of passionate devotion to any special shrine or idol, nothing of the passion of Mira, or Jana or Andal, yet they do speak of a friend able to help and of a search after union with God, such as we find in singers of the Bhakti school."

The songs of Rupmati, the beloved wife of Baz Bahadur of Malwa, who sang in Hindi, of Zeb-un-Nissa, the talented daughter of Aurangzeb, who wrote Sufi songs under the pen-name of Zeb and other poetesses in Urdu and Persian, have largely enriched our literature. Bengali poetesses from the fifteenth century onward have been treated in selections—from Madhavi, the follower of Chaitanya down to Mrs. Sarojabala and Hemantabala Dutt. Samples are also given of the sayings and writings of two queens, Sultana Razziya and the Empress Nurjahan; while we have a solitary example of a courtesan poet, Shirin of Lucknow, who wrote both in Urdu and in Persian in very good style. There are specimens of poetry of those who wrote in English like Mrs. Sarojini, Ellen

Goreh and the Dutt sisters. Mrs. Sarojini while writing in English seeks to fill her verse with the atmosphere of India. Both she and the Datts were very precocious in their genius and fortunately we have the former still with us.

The book is a real treasure to the library of every Indian who is proud of the women-writers of the land. One hundred and ten selections have been included of poets who wrote in as many as 14 languages (Malayalam and Kanarese also having specimens). The translations of these pieces, done by different hands, are necessarily uneven in places, but maintain a fairly high level of tone and diction. There is a beautiful coloured frontispiece of Rupmati and Baz Bahadur taken from an original painting preserved in the Indian Museum, Calcutta.

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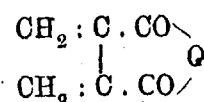
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PHOTOTROPISM IN ORGANIC AND INORGANIC COMPOUNDS

BY PROF. Y. VENKATARAMAIAH,
Research Laboratories, H. H. The Maharajah's
College, Vizianagaram.

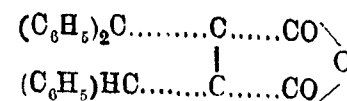
THE term "Phototropism" has been applied for the first time in 1899 by William Marckwald to reversible isomeric changes in the solid substances produced by light and accompanied by change of color in the dark or by heat. One of the earliest examples of this remarkable color change is the one found in the organic compound, namely, anhydrous chloride of quino-quinoline, synthesised by W. Marckwald himself. This substance changes its color on exposure to direct sun-light from yellow to an intense green and returns to its original color immediately at 90°C. or in the dark at the ordinary temperature in a few days. The announcement of Marckwald of this special kind of reversible photo-chemical transformation in organic compounds did create such a stir, indeed, in the chemical world that, ere long, bands of eminent workers began to search for new substances in the untrodden fields of organic chemistry. Prominent among these may be mentioned the names of Stobbe and Nowak in Germany, Padoa and Grazziani in Italy, and Senior and Shepherd in England.

Stobbe pursued his studies in a new class of organic compounds known as the fulgides almost all of which exhibited phototropism. The fulgides are the anhydrides of butadiene dicarboxylic acid



in which one or more of the four hydrogen atoms have been substituted by aromatic radicals. In order that the substance might exhibit

phototropism, it is essential that there should not be a complete replacement of the hydrogen atoms. One of the most interesting examples of phototropism is furnished by his triphenyl fulgide



Triphenyl fulgide is orange-red in color but on exposure to light changes to brown; placed in the dark it returns again to its original color. Stobbe has followed these color changes in fulgides with the aid of a spectrograph by exposing the substances, smeared over glass surfaces to different parts of the spectrum. Of greater importance and interest is his work on the constitution of these phototropic substances which we shall have occasion to refer to later.

The Italian workers Padoa, Grazziani and their collaborators confined their activities to a study of the aromatic hydrazones and osazones obtained by the condensation of aldehydes and diketones respectively with phenyl-hydrazine. Chloro, bromo and other substituted compounds of the condensing reagents have been used with varying degrees of success. Certain condensation products exhibited phototropism; others did not. Attempts were made with nine classes of aldehydes, benzyl, salicyl, vanillyl, cinnamyl, cuminy, piperonal, furfural, p-tolyl, and anisal, and substituted phenyl-hydrazines as well as the naphthyls. These scientists claim that their compound β -piperil-O-tolyl-osazone is most phototropic.

In England, again, Senior and Shepherd and partly Rosalind Clarke, of the University of Galway, busied themselves with a study of arylidene amines and arylamides

acids, some of which turned out to be phototropic. The former have been prepared by the condensation of aromatic aldehydes with arylamines either directly or in alcoholic solution. Salicylidene-m-toluedene deserves mention as being the most easily prepared as also the first attempt of the authors in their search for phototropic substances.

Phototropism in solution received very little attention. Foresti of Italy who was the first to show that di-9-9-hydroxy-phenanthryl-10 amine in solution, is sensitive to light in the same manner as benzaldehyde-phenylhydrazine in the solid state. A second notable example is furnished by chloroform solutions of naphthylamino-camphor and its related compounds, isolated by Bava Kartar Singh of Cuttack, India.

Inorganic phototropism has not been studied much, probably because of the less fruitful fields of research it offered. No doubt Josi, Rodriguez Mourelo announced the phototropism of several samples of calcium sulphite he examined as early as 1914, but few details seem to have been worked out by him. Gopal Singh of Lucknow, India, noticed for the first time the phototropism of cuprous chloride and bromide in acid solution.

The work of Y. Venkataramaiah, Bh. S. V. Raghava Rao and their friends, begun only last December, marks a deviation from the work of previous authors in the subject. They have been concentrating their attention on that peculiar type of compounds known as organo-metallic compounds which serve as a connecting link between the two great branches of chemistry, organic and inorganic. At present, work is proceeding on mercury and its compounds. Various compounds in which the two valencies of mercury are satis-

fied by two different groups or radicals as XHg CNS and XHg_3S_2 , where X is a halogen or a radical like HS or NH_2 , have been prepared and studied. The phototropism of at least a dozen of them has been recognised. Most of the compounds of mercury as yet isolated in the Research Laboratories, H. H. the Maharajah's College, Vizianagaram, are very sensitive to light radiation. Some are affected by direct sunlight in about 1/60 of a second.

In a paper contributed to Chem-Zeig in 1921, Hans Stobbe, whose work in phototropism is admittedly superior to that of any other author reviews all former work and gives the number of 66 hydrazones and osazones, 15 anils, 19 fulgides and 24 fulgide derivatives as phototropic in addition to a few miscellaneous compounds as the anhydrous chloride of quino-quinoline and the β -tetrachloro- α -keto-naphthalene of Marckwald and the di-mercuric-di-sulpho-di-iodide of P. C. Ray, trimercuric di-sulpho di-iodide of M. V. Dey and five di-aryl-amino-stilbene-di-sulphonic acids of Stobbe and Mallison. Later work adds to this number a few sulphites and sulphides of calcium and barium, which have been very imperfectly studied by Mourelo and a dozen compounds of mercury. The two compounds cuprous chloride and bromide may also be added to this number of phototropic substances, so that in all, of the hundreds of thousands of chemical compounds, about a hundred and fifty are phototropic.

No proper explanation of the phenomenon of phototropism is forthcoming. Various suggestions have been made from time to time but with little success. Strangely, these explanations do not hold in all cases in the very class of compounds in which the author sought one.

A kind of intramolecular change, as in the case of ethyl aceto-acetate which exists in two isomers, the enolic and ketonic forms in dynamic equilibrium, has been supposed in the case of phototropy as well. It has been suggested that light waves of a particular wave length accelerated the change in one direction and thus disturbed the equilibrium, while others acted in the reverse way. On this hypothesis the phototropy of phenyl hydrazones has been explained in which a labile hydrogen atom exchanges its place in the hydrazo linking to one in combination with the unsaturated carbon atom thus reducing the valencies of the two nitrogen atoms to three each. Thus: $\text{—C}_6\text{H}_5\text{CH:N:N.H.C}_6\text{H}_5$ benzaldehyde phenyl hydrazone is isomeric with $\text{C}_6\text{H}_5\text{CH}_2\text{N:N.C}_6\text{H}_5$.

But Stobbe's work on the same compound has shown that the change in color is an oxidation process which takes place slowly in the dark and is greatly accelerated by light. According to him benzaldehyde phenyl hydrazone is oxidized to dibenzylidene diphenyl hydro-tetrazone. A second was polymorphism, but the discovery by Senier, Shepherd and Clarke of two distinctly dimorphous arylidene amines which exhibited phototropy in either form, threw this to the background. Then sprang a third, which assumed the formation of stereo-isomers but with no better success than the former two. A fourth one was ushered in, which explained the changes in color by the formation of physical molecular aggregates of chemical polymerization. This Gallagher dismisses as quite untenable and proposes to study the question of intra-molecular change from the physical standpoint. None of these, we may say, accounts for in a satisfactory way the

exhibition of phototropy in certain substances and the absence of it in certain others belonging to the same class. The property of stearic hindrance has been requisitioned of late years to explain away these diversities in character of the same type of compounds—say hydrazones of the aldehydes, salicyl, vanillyl, piperonal, etc., but even this fails to give a comprehensive view of the phenomenon as it stands to-day.

Recent work conducted in the Research Laboratories, H. H. the Maharajah's College, Vizianagram, is believed to furnish evidence that phototropy is a general phenomenon, as phosphorescence is common to all compounds and that it is caused by impurities.

Again, it has been shown for the first time in these Laboratories that phototropic substances when excited by sun-light give out radiations that effect a photographic plate in the dark.

Before this narrative closes, a little might be said of the properties of phototropic substances in general. Every substance exhibiting phototropy has in all cases a well-defined transition temperature above which the substance resists the action of light. In certain cases prolonged exposure to the sun causes a fatigue. In all cases light rays of smaller wave length, more especially those in the ultra violet region of the spectrum have greater action than longer waves. It is also observed that the longest waves accelerate the reverse change. The heat of combustion, crystal structure and other physical properties of these substances undergo no change on exposure to light. But a fatigue in the photo-electric power has been observed. No particular rule in regard to the

colors of these substances holds. They vary very widely from the extreme violet to the far off red. On exposure to light most compounds turn black. Even here no hard and fast rule can be laid down. Certain substances turn red, like the benzaldehyde phenyl hydrazone, certain others like salicylidene-m-toluidene turn orange, quino-quinoline hydrochloride turns green, while anisaldehyde phenyl hydrazone changes to an intense violet.

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SRINIVASA VARADACHARI & Co., MADRAS.

GOVERNMENT CONTRIBUTION IN THE NEW PROVIDENT FUND SCHEME.

IN a recent number of this Review*, it was pointed out by *Arithmeticus* that the low percentage of interest allowed on the Provident Fund deposits works against teachers of long service. The Council of the Madras Teachers' Guild discussed this question at several of its meetings and suggested three alternative means for removing this difficulty. The first alternative suggested was to raise the percentage of interest allowed by the Savings Bank. The second was to make the Government contribution a graded one, varying with the number of years of service, instead of a fixed one, viz., one-third of the amount standing to the credit of the teacher at the time of retirement. The third alternative was to make the Government contribution take the shape of an annual grant to the school on the Provident Fund account—exactly as it obtains now in the case of schools having a Provident Fund of their own—and leave the investment, etc., of the fund in the hands of the respective managements.

Of these, the first alternative may be very difficult to be realised. In the first place, the control of the Post Office is not in the hands of the Local Government but in those of the Government of India. Secondly, it may not be practicable to raise the Savings Bank rate of interest for a particular class of deposits alone.

The third alternative is likely to lead to administrative difficulties and for other reasons, it may not be wise to leave the management of the funds in the hands of hundreds of managements. Further, such an arrangement would go against the very genius of the Government scheme.

* Vide "Educational Review," June 1923, pp. 411, etc.

Hence, the only practicable alternative seems to be the second one. I have given here certain figures which will facilitate the discussion of this alternative.

It is assumed that "the Fund shall be managed by means of the Post Office Savings Bank system. The subscriber's contribution together with that of the management shall be deposited in a Post Office Savings Bank."* For convenience of calculation, but without loss of generality, the annual contribution of the teacher is taken to be Rs. 66½ and that of the management Rs. 33½ so that their combined annual deposit is Rs. 100. The question to be decided is as follows. For administrative and other conveniences the amount is deposited in the Post Office Savings Bank. Here the amount grows only at 3 per cent. per annum. But, the teacher should be given the benefit of the market rate of interest. This is to be realised by the Government contributing such a percentage of the amount standing to the credit of the teacher in his Savings Bank Pass Book that the total amount received by the teacher will be exactly what he would get if the market rate of interest were allowed on his deposits and the Government contributed one-third of the amount that would have stood to his credit at such a rate of interest. This percentage, I have called "Equitable Percentage of Government Contribution" for convenience of reference.

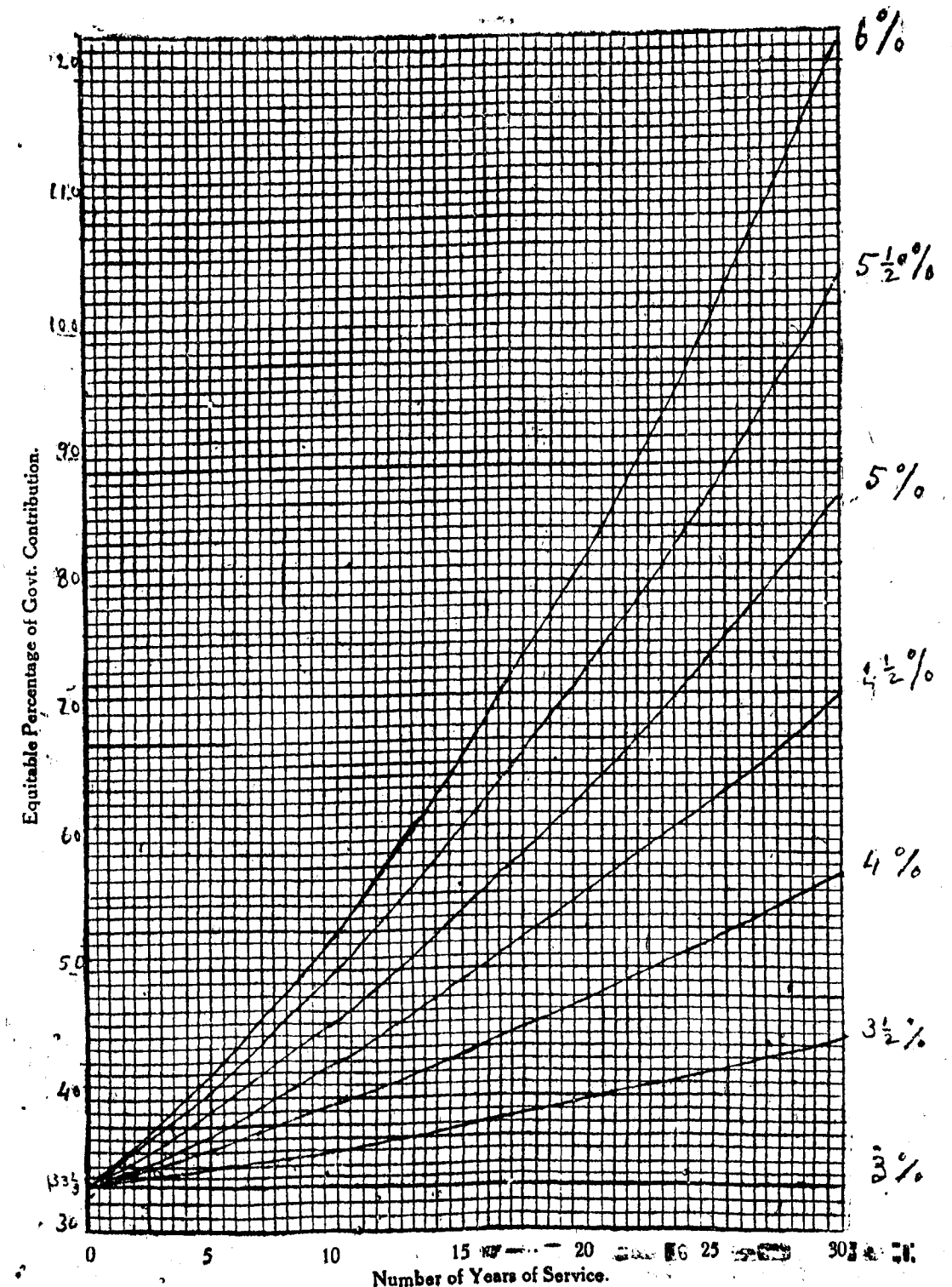
Now, this equitable percentage will vary with the number of years of service. It is given in the 5th column of the following table for the market rate of interest mentioned in the last column. The same is also illustrated graphically, in the accompanying figure. If the market rate of interest is the same as the Savings Bank rate, viz., 3 per cent., the equitable percentage will be a fixed one and the graph is a straight line parallel to the year-axis. But for higher rates of interest, the graphs are curves with different gradients, of course, the gradient increasing with the rate of interest. The curves bring out very prominently how sensitive the equitable percentage is even to such a slight variation as half a per cent. in the rate of interest.

* Cf. G. O. No. 140, 22nd January 1923, page 3, para 6, sub-para 1.

N	A in Rs.	B in Rs.	C = $\frac{1}{3}B$ in Rs.	$D = \frac{B-A}{A} \times 100$	Market Rate of Interest.
5	531	536	715	35%	3½%
10	1146	1173	1564	36%	
15	1860	1930	2573	38%	
20	2687	2828	3771	40%	
25	3646	3895	5193	42%	
30	4758	5162	6883	45%	
5	531	542	723	36%	4%
10	1146	1201	1601	40%	
15	1860	2002	2669	43%	
20	2687	2978	3971	48%	
25	3646	4165	5553	52%	
30	4758	5608	7477	57%	
5	531	547	729	37%	4½%
10	1146	1229	1639	43%	
15	1860	2078	2771	49%	
20	2687	3137	4183	56%	
25	3646	4467	5943	63%	
30	4758	6101	8135	71%	
5	531	553	737	39%	5%
10	1146	1258	1677	46%	
15	1860	2158	2877	55%	
20	2687	3307	4409	64%	
25	3646	4773	6364	74%	
30	4758	6644	8359	86%	
5	531	558	744	40%	5½%
10	1146	1288	1717	50%	
15	1860	2241	2988	61%	
20	2687	3487	4649	73%	
25	3646	5115	6320	87%	
30	4758	7244	9659	103%	
5	531	564	752	41%	6%
10	1146	1318	1757	53%	
15	1860	2328	3104	67%	
20	2687	3679	4905	82%	
25	3646	5486	7315	101%	
30	4758	7906	10541	121%	

N = Number of years of service at the time of retirement.
A = Amount of an annual contribution of Rs. 100 by teacher and management together, invested at 3% compound interest.
B = Amount of annual contribution of Rs. 100 by teacher and management together invested at the rate of interest indicated in the corresponding part of the last column.
C = The amount that must go to the teacher including one-third contribution by Government, the rate of interest being the one shown in the corresponding part of the last column.
D = The equitable percentage of Government contribution, i.e. The percentage on A, i.e., on the amount to the credit of the teacher in the Savings Bank Pass Book, that must be contributed by the Government, in order that the amount shown under C may go to the teacher.

S. R. RANGANATHAN.



RULE OF THREE.

IN most books on Arithmetic the chapter on 'Rule of Three' usually begins with a discussion of 'Ratio and Proportion,' and it is a common belief with teachers that 'Rule of Three' has direct connection with 'Ratio and Proportion.' Much time is therefore spent in pointing out the relations of the different terms of a proportion and the methods of finding out one of the four terms if the other three are given.

The elementary idea of a ratio is simple enough but that of a proportion is difficult for a boy of eight who has to learn 'Rule of Three,' and this discussion unnecessarily puzzles the youngster. This discussion is not quite inevitable; for 'Ratio and Proportion' have no connection with 'Rule of Three' which is really a particular case of 'Variation.'

We can illustrate this by a concrete example:—

The wages of men vary as their number. If the number of men be 5 the wages amount to Rs. 45. Find the wages if the number of men be seven.

Let M = men; W = wages.

$W \propto M$.

$\therefore W = k M$ (where k is a constant).

$45 = 5 k$ (given).

$W = 7 k$ (required.)

$\therefore \frac{45}{W} = \frac{5}{7}$ or $5 : 7 :: 45 : W$.

Our usual work in 'Rule of Three' begins from this step, hence the discussion on 'Ratio and Proportion'. This step however is not quite necessary. Thus—

$W = k M$ (see above).

$45 = 5 k \therefore k = 9$

Again $W = 7 k = 7 \times 9 = 63$.

Here there are no ratios and no proportion. It will be easily recognised that this is the 'Unitary method.' k is the wages of one man.

It will thus be seen that there are two methods of solving the sums usually given in the chapter on 'Rule of Three'. One is the old method of writing a proportion, the other is the 'Unitary method.' Of these two the latter has a direct connection with the mental operations done in the first and second standards in a Primary School and is therefore more logical and simpler. The first is empirical and abrupt and therefore more difficult. Now that 'Unitary method' is taught in all schools, it will be a good thing to drop this discussion of 'Ratio and Proportion' before solving examples given under 'Rule of Three.'

It may be argued however that the Unitary method is all right for a beginner but for an advanced student the rule of three form is more convenient as it simplifies calculation. It will be tiresome for him each time to calculate the value of a unit. A little consideration will show the hollowness of this argument. Let us take an example.

The Income-Tax on Rs. 2,500 is Rs. 65-1-8. Find the tax on an income of Rs. 9,000.

On Rs. 2,500 the tax is Rs. $\frac{3,125}{48}$

$\therefore$ On Re. 1 " Rs. $\frac{3,125}{48} \times \frac{1}{2,500}$
 $= \frac{5}{192}$

For Re. 1 the tax is Re. $\frac{5}{192}$

For Rs. 9,000 " Rs. $\frac{5}{192} \times \frac{9,000}{1}$
 $= \text{Rs. } 234-6-0.$

This is the full work by Unitary method but with a little practice it can be shortened thus—

For Rs. 2,500 the tax is Rs. $\frac{3,125}{48}$

" Re. 1 " Re. $\frac{3,125}{48} \times \frac{1}{2,500}$

Now for Re. 1 the tax is Re. $\frac{3,125}{48} \times \frac{1}{2,500}$

For Rs. 9,000 " Rs. $\frac{3,125}{48} \times \frac{1}{2,500} \times \frac{9,000}{1}$

Or still further thus—

On Rs. 2,500 the tax is Rs. $\frac{3,125}{48}$

On Rs. 9,000 " $\frac{3,125 \times 9,000}{48 \times 2,500}$
 $= \text{Rs. } 234-6-0.$

In this last form we have avoided the 'Ratio and Proportion' form and yet we have got the ease of calculation in the usual 'Rule of Three' method. At present in schools the study of 'Unitary method' stops

with the first stage; it should really be taken to the last stage which is only an abridged but a more convenient transformation of the first. It will then be unnecessary to teach the usual 'Rule of Three' method.

This form of work is adopted in most English schools and even in India it is gradually making its way. But curiously enough many eminent teachers do not appear to have realised the irrelevancy of the 'Ratio and Proportion' discussion, and it is still retained in text-books. The Primary teacher therefore treats 'Unitary method' as an additional chapter instead of treating it as a simpler alternative to 'Rule of Three' and the burden on the youngsters instead of being lessened is actually increased. I hope the above discussion will lead to the abandonment of the Rule of Three method, a reform urgently needed in Elementary Schools.

M. R. PARANJPE.

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FROM A RURAL SCHOOL-WINDOW

BY

Mr. K. R. R. SASTRY, M.A.,

Fellow of the Royal Economic Society (Lond.)

IV. PUPIL GOVERNMENT IN ELEMENTARY SCHOOLS.

NOT merely parental co-operation of the effective type but also the willing co-operation of those under instruction is necessary, if our elementary education is to be made interesting. Our marked shortcomings are likely to be set aright if the sympathetic chord of the young is touched upon.

HIGH AUTHORITY ON OUR SIDE.

We have very high authority for pupil government in Secondary Schools. Thomas Jefferson in Virginia, Thomas Hill in England, and Vittorino de Feltra in the Middle Ages preached "the doctrine of learning by doing and recommended that boys be allowed to share with the master in the administration of the school." *

The only question is whether the plea of pupil government in Elementary Schools is not too premature an idea to be of any use practically.

ANCIENT PRACTICE.

A leaf from the past is bound to shape aright our answer. It is a well-known practice in our pial-schools and *pāṭasālās* to have a monitor for each class. He is preferably older than the average pupil of the class, of excellent character, and one who has won the confidence of the teacher. He is entrusted with the routine valuations of sums in Arithmetic and also occasionally empowered to cane the mischievous pupil. In one word, the fairly tenable analogy to his position is

* From "The Craftsman,"—Sep. 1914.

supplied by the tutor in our colleges. The first pupil of our Ancient India is the precursor of the monitor in our times.

WHY NOT A GOOD BEGINNING?

All our hopes of the future depend on a sound understanding of the past. The monitor of our pial-schools indicates the manner in which the seeds of pupil government can be sown in our Elementary Schools. Very often our latter-day village school-masters take the monitor as one of their serviceable agents. Far be it from me to suggest directly or indirectly that pupils should not be of *legitimate* service to masters; but the responsibility of the teacher to educate the monitor ahead of the class should never be lost sight of.

THE SCHOOL-GARDEN AND THE MUSEUM.

Once the students are informed that they are the *owners* of the school property and that a representative committee of three to four from among them will be always consulted before disposing of or making additions to the school property, the school-garden and the museum will become worthy of their name. My experience with the condition of the school-gardens and museums in our Elementary Schools is very disappointing. If a quinquennial study of both of these items is made, the grand show prior to the inspection will appear in its true colours. Not merely are the same indiscriminate collections shown year after year to the incoming batches of officers; but at certain times, the property of a different institution is often displayed even as the upstarts go in for hired cloths from the washerman.

KNOWLEDGE OF SCOUTING.

Since privileges always imply responsibilities, Scout-training should be made obligatory on all boys from 7 to 12. That all Elementary School boys should become "Cubs" is no

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ON METHODS.

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too much to expect of them. This again implies that every Elementary School teacher who is turned out of the mills of training schools should finish Scout-training during the course itself.

DISCIPLINE MADE EASY.

The Elementary Schoolmaster will have no necessity to resort to rigorous punishment so long as he makes an example of the cheating or lying student in the presence of the whole school. The very idea is likely to act as a powerful deterrent.

THE IDEA TENABLE.

To me, the idea of pupil government in Elementary Schools sounds perfectly tenable. Those who have vision to look backward as well as ahead find themselves supported at every stage by ancient examples and modern survivals. There seems to be no more natural solution for the ill-kept gardens and the wretched stereotyped shows of unorganized collections which go under the garb of museums. Any amount of severity and pulpit orations is of no avail so far as the scribbling on the school walls and the spoiling of the school-compound are concerned. It is also good psychology to have the beginning of every virtue made at this period; and my pet idea of making the existing type of rural education interesting can get added strength through only such epoch-making devices. *There is no higher ideal than to treat the teacher as the elder brother to the artless infants.*

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ON METHODS.

"METHOD" is a word to conjure with in the Educational World. There is a method in everything; there is a method in madness too. But the methods of teaching are the methods *par excellence*. The fad for methods is greatest among teachers. So long as there is the relation of the "teacher" and the "taught" in our schools, so long will methods reign supreme. I do not know what would become of methods when our "teachers" are replaced by Dr. Montessori's "leaders."

Coming to our "Methods" the first thing that one has to remember is that it is only a means to the attainment of an end. Many do not realise this and think that the method is the be all and end all of teaching. The end or goal is lost sight of in the means. When once this is realised, then the truth of the statement that one man's method is another man's madness will be clearly seen. It is a familiar cant that no two doctors agree. But it is truer to say that no two teachers agree upon their methods.

Method in the first place depends upon the teacher. Two teachers teaching the same subject and to the same class will use two different methods. The personality of the teacher goes to a great extent in adding to the effectiveness of his method. Personality is a very comprehensive word. His dress and outward appearance, his inward nature and character, his superior knowledge—all go to make up the personality of the teacher. No two teachers can claim to possess the same personality and no two teachers can have the same method.

Method again depends upon the taught. We have to vary our methods to the varying capacities of the children that we teach. A particular subject may be taught to a lower class and to a higher class. But the methods adopted in the two cases will be different. Further two children of the same class may require two different methods to understand the same principle. But our methods are generally based upon the fact that in spite of the characteristic differences of different individuals, there is yet some factor which is common to all. If there is mere difference without the least identity, class-teaching or group-teaching would be quite impossible.

Lastly, methods also depend upon the subject. Different subjects have to be handled in different ways. You can merely narrate in some cases. In some cases you have recourse to experiments. The heuristic method is useful in still others. What is effective in one may not be effective in another.

M. S. SUBRAMANIA SASTRI.

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MODERN EDUCATION.

THESE are the days of reform, but nowhere is it so urgently needed as in the domain of education. The education which our boys receive at schools and colleges is not fruitful of good results, so there is a great cry for immediate reform and reorganisation of our present system of education.

Education, as I think, creates real men—men with intelligence, character and physique able to do the work of the nation to which they belong—and not “human animals of the male sex.” Now, let us dispassionately judge whether this object of education is being fulfilled in modern times. Do our schools and colleges make real men and women who are physically fit to play their part in the building of the Indian nation? The answer is almost in the negative. Then, what kind of commodity do they produce in their factory? They generally bring forth men who are physically diseased, intellectually dwarfed, and are deprived of their courage of thought. After finishing their school and college career they enter the real world where survival of the fittest is the only law that governs supreme. The stern realities of the world appear before them in all their nakedness, and at once dispel their wild dreams. As long as they are students, they build castles in the air. They think that they will easily secure employments after passing examinations, for, will they not be qualified candidates? But lo! What do they see when they come out of schools and colleges? Do they not see a legion of so-called candidates besiege the doors and windows of every office with applications and testimonials in their hands? When there occurs a single vacancy in any office, everyone

runs with break-neck speed to that office to submit his application first of all. They, then, rue their success in examinations and hail the idea in their mind “Had we met failure this year we would have been freed from anxiety for one year more.” Very few of them, no doubt, secure good jobs, but most of them “shrivel up into clerks, teachers, and lawyers and die young.”

Modern India possesses grand school and college buildings. She has elaborate rules, regulations and syllabuses for the management of her educational system. But all these paraphernalia do not yield the desired fruit, because the system is foreign. As an ‘orphaned’ baby cannot be properly brought up by its foster-mother, so a foreign system of education cannot properly educate our boys. The system which makes English boys socially efficient helps our boys to be clerks and Government officers. It teaches the former to produce, to discover, to invent and to live comfortably and cheerfully but it teaches the latter generally to copy, to beg, to borrow, and to live a dead-alive existence.

We shall hear a different story of our student community if we but go back to the history of Ancient India. The students of former times were far healthier and happier than our boys are now. They were not only socially efficient but were producers, traders, discoverers and inventors. Perhaps old Forest schools which Indian boys used to attend, were not blest with a code of rules and regulations for their guidance, and the system of education was not so evolved as to fit our boys for no other occupation than service. In those schools there was no artificial life. There teachers and students lived, learned and worked together as members of one family. Masters of those schools had “living traffic with their knowledge.” They did not load

their students’ minds with information only, but led them to find out truth. So in a Forest school each and every student found full scope for realisation of his student life, and this is the reason why an old Forest school of India was a temple of culture, service, and spirituality.

In my previous article I attempted to draw the attention of our educators to the supreme importance of language-teaching. All knowledge-subjects, I think, should be taught through the medium of our students’ mother-tongue. From my short experience as a teacher I am of opinion that History, Geography, Mathematics and Science should be taught through the medium of vernaculars in schools. How much time and energy will be saved if it is done in all provinces. Our boys attempt in vain to commit to memory the language (English) of History, Geography and Geometry books. They do not care to assimilate facts, but they only load their minds with a jumble of information which falls lid-like in the brain, thereby causing intellectual dyspepsia; because, is not the aim of our schools and colleges to make boys pass examinations so that they may be qualified candidates for employments? The most pathetic part of the tragedy is that our boys who take up Sanskrit or Persian as optional subjects, are required to translate Sanskrit or Persian pieces into English and not into their mother-tongue.

Will our leaders lay their heads together to solve this most difficult problem of our country in such a way as will help our boys, the citizens of to-morrow, to live comfortably and honourably and to play a useful part in the evolution of national life in India?

ANATH BANDRU CHAUDHURY.

A VISIT TO AUSTRALIAN UNIVERSITIES—II.

BY MUNIR-UL-TALIM MR. H. J. BHABHA, M. A.

(Continued from August 1923 issue.)

THE UNIVERSITY OF MELBOURNE.

Early in the morning on the 13th December, 1922, the *Naldora* dropped anchor in the harbour of Melbourne. As at Adelaide, a friend who was Secretary of the Colonial Institute came on board to drive us to the Melbourne University, where we were received by Dr. Earnest W. S. Keats, Professor of Geology and President of the Professorial Board, and Mr. Bainbridge, Registrar of the University. Sir John Henry Macfarland, Chancellor, kindly called later to meet us. My companions Sir Dorab Tata and Dr. Wadia excused themselves, as Sir Dorab was unwell and was too weak to go round the buildings. They left me to go with Professor W. S. Keats and Professor Scott to see the various laboratories and lecture-rooms of the Arts Faculty in the main building of the University. The building is of Gothic architecture with its cloister-like corridors and beautiful gardens in the quadrangle and open spaces. The main building is the central structure round which are arranged the residences of Professors, the Residential Colleges, namely Trinity, Ormond and Queen's and the Roman Catholic College, the Conservatoire of Music, the Schools of Engineering, Mining and Geology, the Medical Schools and the University Union. The famous Wilson Hall with its lofty Gothic ceiling and stained glass windows, on which are represented figures of Kings and Queens of England and of eminent statesmen, philosophers, poets and authors of all ages, is equal in beauty and grandeur to any similar building at Oxford or Cambridge. Its walls are covered with oil paintings of famous Chancellors, Vice-Chancellors and Professors of the University. It is used on ceremonial occasions and for examination purposes. The entire grounds of the University cover an area of 110 acres. Close to the Conservatoire of Music are residences for about 40 women students. In the denominational colleges there are only about 250 resident

students. All others, about five times that number, come for instruction from their homes in the town. In the middle of the grounds is the Oval and Cricket Pavilion. Every student eagerly joins in the games. There is no Director of Physical Education. The University Library is very large, but is at present inconveniently housed in several rooms. The need of a separate suitable building for the Library is greatly felt.

I visited the Ormond College which is a Presbyterian College. It has a magnificent common room and a large dining hall and a library. The residential rooms are well furnished and comfortable with sitting rooms attached. After going over all the grounds of the University, Dr. W. S. Keats took me to his house for lunch, where Sir Dorab Tata, Dr. Wadia and I had the pleasure of meeting Professor Sir Orme D. Masson, whom we had met before at Bangalore, and Sir James Barrett, K.B.E., a distinguished member of the University Council.

Melbourne is a beautiful town with magnificent streets and buildings and beautifully laid out gardens and boulevards. The Botanical Gardens cover a large area and are beautifully laid out. The principal streets outside the busy portion of the town are divided into four parts lengthwise with trees, shrubberies and lawns between for different kinds of traffic and pedestrians, and the drive to St. Kilda is one of the prettiest in the world.

Before I give some details of the constitution and work of the University I am tempted to digress in order to give a few facts of the history of the Education Department of Victoria of which the University is the crowning part. The first elementary school was opened in a low-roofed wooden building on the site of a sheep-farm in the little village of Melbourne on the Yarra-Yarra river in 1837. From the commencement the Governor of New South Wales was desirous of introducing into Port Philip District a system of education by which "children of different religious tenets may be instructed without distinction on the plan now adopted in Ireland." Within

the short period of ten years the cry was raised for higher education, and a proposal was made to establish a college in Melbourne in the forties, where English, Mathematics, Natural Philosophy, Natural History, the Ancient Classics and Modern Languages can be taught. The Melbourne Academy was founded in 1851. In 1844, Mr. Robert Lowe, afterwards Lord Sherbrooke, famous for introducing the "system of payment by results" into England was instrumental in forming a Select Committee of the Legislature which reported that out of 25,000 children in New South Wales 13,000 were receiving no education at all. This Committee condemned the system of the Denominational Board and advocated the creation of a National Board of Education, which was the first organisation in any part of the British Empire leading to secular, free and compulsory education for all children. In January 1848 the first General Education Board was appointed to attend to the needs of the National Schools of New South Wales.

In 1851 the Port Philip District was separated from New South Wales and became the Colony of Victoria. The same year was marked by the discovery of very rich gold fields within its borders. A large percentage of teachers were smitten with gold fever, and the cost of schools and salaries of teachers rose enormously. Schools were opened wherever there were colonies of gold diggers. In course of time when the surface diggings were exhausted, permanent towns arose over the gold fields for quartz mining, and the miners both successful and unsuccessful also gradually turned their attention to the cultivation of land. A settled life in towns led to the establishment of schools in large permanent buildings instead of the tents which once served as school houses. In 1862 the Denominational and National School Boards were abolished by the Common Schools Act, which established a Board of Education to give four hours' secular instruction daily in State-aided schools placed under local committees. In 1853 an Act was passed which provided for the foundation of the Melbourne University.

In 1866 a Royal Commission was appointed to

inquire into the state of public instruction under the Common Schools Act. This Commission reported that out of 170,000 children of educable age only 76,304 were at school, and recommended that a law be created to make elementary education compulsory, to exclude sectarian teaching but to sanction and encourage religious teaching, to appoint a Minister of Public Instruction, to admit teachers into the public service and to establish a training school for teachers. The inclusion of religious but non-sectarian teaching, however, created great difficulties. About this time public opinion was aroused in England to establish secular and compulsory education. Canon Kingsley in 1869 advocated in forcible language the establishment of secular compulsory education. "The only way of making parents understand that educating their children is an indefeasible duty, is for them to be taxed by the State itself and for the State to say, 'There is your money's worth in the school. We ask no more of you; but your children shall go to school or you shall go to gaol.'" At last in 1872 the Education Act was passed for Victoria to make education secular, compulsory and free, and to establish a department of education under a Minister of Public Instruction. The provisions of this Act were not found at the time in the educational law of any other part of the British Empire. Education was made compulsory for all children between the ages of six and fifteen years. For absence from school parents were fined five shillings for the first offence and twenty for each successive offence or in default imprisonment was inflicted for a term not exceeding seven days. Vast sums were spent on school buildings, school furniture and school gardens. Great improvements were made in the qualifications and salaries of teachers, the inspection branch was thoroughly reorganised, the pernicious Results System for gauging the work and remuneration of teachers was abolished, the course of instruction was revised, drawing, singing, manual training, kindergarten, drill, gymnastics, and needle-work and cookery were added to the primary curriculum.

In 1880 it was first proposed to graft technical training on the State school system. There were already three important schools in the Industrial Museum and the Mining Schools of Ballarat and Bendigo. A Working Men's College was opened in Melbourne in 1887. Schools of Science were opened all over the State. The grants for the maintenance of technical schools amounted for a few years together up to 30th June 1892 to a total of £120,135. At the end of 1900, Victoria had 18 technical schools, four of which afforded instruction in science, art, and trade subjects, five in art and science, two in art and trade, while five schools confined their attention to art and two to science only.

In 1899 a Royal Commission was appointed on technical education. Five Progress Reports and a Final Report were issued before August 1901. Two Progress Reports deal with primary education, and three with agricultural education. The fourth report on the state of agricultural education received encomiums from Sir Michael Sadler. The final report made recommendations on the re-organisation of the Education Department, continuation schools, industrial education, technical schools, technical art instruction, mining education, commercial education, a central college of domestic economy, the college of pharmacy, and the University mining school. The report insisted on the value of kindergarten methods and manual training in primary schools, the latter to be begun before the fourteenth year of age as a basis of all technical instruction. Experimental science was introduced with the State school system as the groundwork of agriculture, and in the rural schools the rudiments of agriculture and horticulture were taught and school gardens were established. The reports of the Commission on technical education clearly bring out the views that "Education should so develop the individual that he is best prepared for the work of life and for service to the community," and that "the right kind of education is society's greatest and gravest problem, for in the last analysis the school is society shaping itself to its future ends."

Continuation schools and high schools to bridge the gap between the elementary school and the University came into existence in 1901 to form the State system of secondary education. There are now 31 secondary schools in addition to the numerous higher elementary schools and junior technical schools, which provide some form of secondary instruction. "The first aim of secondary schools is to provide a good general education, mental, physical and moral, which shall fit the pupil to play his part as a citizen of modern democracy. The second is to give the training necessary for his future life-work and to enable him to make the right use of leisure." Special attention is devoted to manual training, agricultural science and economical subjects for boys, and to domestic arts and science for girls. In the agricultural high schools one-third of the time is given to farm and experimental work, one-third to agricultural science, manual work and drawing, and one-third to English History and subjects of general education.

The education budget includes the grants paid to the University and the important part taken by the University in education makes it of special interest to the department. Every year more and more students proceed to the University from the high schools and technical schools. In addition to the large number of students who take degrees in Arts, Science, Agriculture, Law, Medicine and Engineering, considerable numbers join the various schools at the University, of Education, Mining, Veterinary Surgery, Dentistry, Architecture, Commerce and Domestic Economy. These schools have been founded since 1900 and grant diplomas or licences. The Government grant to the University was raised from £9,000 in 1904 to £20,000 in 1921, which amounts to about one-third of the total expenditure on the University. Out of the total expenditure of £89,572 on the University in 1920, the Government grant was £29,800 inclusive of some special allotments. The University has greatly helped the advance of the Education Department which is admirably organised and has become a model to other parts of the Empire.

The University of Melbourne was established in 1853, consisting of a Council and a Senate. The

Council consists of twenty-three members of whom twenty are elected by the Senate and three, who are called additional members, are appointed by the Governor-in-Council. Of the three additional members one is a member of the Legislative Council and two are members of the Legislative Assembly. The Council elects two of its own members to be Chancellor and Vice-Chancellor annually or whenever a vacancy occurs. Every member of the Council holds office for five years. The Senate consists of all persons who have been or may hereafter be admitted to any degree of Master or Doctor in the University. The Senate elects one of its own members as Warden annually who presides as Chairman. In the Council the Chancellor or Vice-Chancellor presides. The Council has the entire management and superintendence over the affairs, concerns and property of the University, and can appoint and dismiss all professors, officers and servants. The Council has the full power to make and alter any statutes and regulations touching the discipline of the University, the Matriculation of students, the examinations for fellowships, scholarships, prizes, exhibitions, degrees or honours, and in general touching all other matters whatever regarding the University. But no new statute or regulation or alteration or repeal of an existing statute can come into force until it is approved by the Senate. The Senate may amend any statute or regulation submitted by the Council and may return the same so amended for the further consideration of the Council, but cannot originate any statute or regulation. The Council meets every month and can adjourn to any intermediate period. The Senate has two sessions in each year in June and October and may meet from day to day. The quorum of the Senate is twenty.

At the commencement there were only four professors of (1) Classics, (2) Mathematics, (3) Natural Science, and (4) Modern History and Literature, Political Economy and Logic. In 1855 there were only 16 under-graduates. Degrees in Law were instituted in 1860, in Medicine in 1862, Engineering in 1871, Science

in 1887, Music in 1890, Dental Surgery in 1907, Agricultural Science in 1908, Veterinary Science in 1909 and the diploma of education in 1903. There are at present eight Faculties of Arts, Science, Law, Medicine, Engineering, Dentistry, Agriculture and Veterinary Science.

There are besides the Faculties various Boards, the chief of which is the Professorial Board for the consideration of questions relating to the studies and discipline of the University. The Chancellor and Vice-Chancellor are *ex-officio* members and the Registrar acts as Secretary. The Professorial Board meets at least once a month, reports to the Council on any question submitted to it by the Council, considers any report submitted to it by any Faculty or the Schools Board, reports to the Council on all applications for the office of Lecturer, Demonstrator or Examiner. The Board prescribes all books and details of subjects for lectures or annual examinations. The President of the Professorial Board exercises a general superintendence over the educational affairs of the University and is the chief officer of the University in matters of discipline. When a student has been guilty of any misdemeanour or breach of discipline the Professorial Board may inflict such punishment as it thinks fit up to exclusion from the University. The President may fine a student up to twenty shillings for any one offence. Every professor or lecturer may fine a student for misconduct in his class or neglect of work up to twenty shillings. The President of the Professorial Board may require from any Professor, Lecturer or Examiner the explanation for any alleged neglect of duty, misconduct or inefficiency, and report to the Council any case of neglect of duty, misconduct or inefficiency.

There are at present twenty Professors of (1) Classical Philology, (2) Mathematics, (3) Geology and Mineralogy, (4) History, (5) Physiology, (6) English Language and Literature, (7) Pathology, (8) Natural Philosophy, (9) Engineering, (10) Chemistry, (11) Natural and Moral Philosophy, (12) Zoology, (13) Music, (14) Law, (15) Anatomy, (16) Botany and Plant Physiology, (17) Veterinary

Science, (18) Agriculture, (19) Economics and Sociology, (20) Education. Each Professor holds office for life or *quamdū se bene gesserit*, as long as he gives satisfaction or until his resignation or removal or dismissal by the Council. Five Professors of Music, Botany, Veterinary Pathology, Agriculture, and Education, are appointed only for five years each. The Council may censure, suspend or dismiss a professor by an absolute majority. The professors are appointed by a Committee of Appointments in England and a local committee of members of the Council acting together.

Besides the Professors there are four Associate Professors and 112 Lecturers, Demonstrators and Tutors. In the Faculty of Medicine there is a very large body of physicians, clinical lecturers and tutors in the recognised hospitals. In the Conservatoire of Music there are besides the Director, 52 other teachers.

The Schools Board is a Board of School Studies, School Inspections and School Examinations. It consists of 28 members with the Professor of Education as *ex-officio* Chairman and the Registrar as Secretary. The Schools Board prescribes annually all books and details of subjects for the two public examinations called the School Intermediate and the School Leaving Examinations which correspond to the Junior and Senior Cambridge Examinations. Every person not being less than sixteen years of age who has obtained the School Leaving Certificate is qualified to matriculate. Any secondary school in Victoria may apply to the Schools Board to be inspected by the Secondary School Inspectors.

The academical year of the University is divided into four terms. The first term lasts for twelve weeks, and the second and third terms for ten weeks each. The fourth term is called the Examination Term which lasts for four weeks at the end of the year. A course of lectures in each subject for a year extends over 26 weeks as a rule.

The Arts course extends over three years. There is no Intermediate Examination but instead there used to be annual examinations at the end of each year, which had to be passed before the next year's course was begun, those passing the last year's examination being entitled to a Pass or Honours Degree. In Arts and Law the division of the course into years has been recently abolished but the student is expected to pass in a certain number of subjects in a given order during his course, before he can obtain his degree, the examinations in subjects being held at the time of the annual examinations in December or of the supplemental examinations in March. In all other faculties the student has to pass the examinations at the end of each year of his course before he proceeds to the next year's course and the last examination if successfully passed entitles him to a degree.

The fees for the degree courses in Arts and Music are 12 guineas a year for three years, in Science £22 a year for four years, in Agriculture £21 a year for three years, in Law 12 guineas a year for two years, in Medicine £23 a year for five years, in Engineering and Veterinary Science £22 to £25 a year for four years. For Diploma and License courses in Agriculture, Mining, Metallurgy, Education, Architecture, and Veterinary Science the fees vary from £12-12 to £25 a year for two or three years. In addition to the fees for courses there are examination and certificate fees.

In 1915 the total number of students taking degree courses was 907 and the number of students taking single subjects was 203. In 1920 the number of those taking degree courses was 2,163, while the number of those taking single subjects remained the same: 203. Of the total number of 2,366 students in 1920, 576 were students of arts, 212 of science, 235 of law, 782 of medicine, 186 of engineering and the rest of other schools. There were 164 students in the Conservatorium of Music. In 1920-21 the following degrees were conferred:—Bachelor of Arts ordi-

nary 67, Honours 36, Bachelor of Science 31, of Laws 30, Medicine and Surgery 64, Civil Engineering 13, Mining Engineering 3, Electrical Engineering 2, Mechanical Engineering 2, Dental Science 16, Master of Arts 36, Master of Science 7, Doctor of Medicine 15, Diploma of Education 39. In the public school examinations there were 3,231 candidates for the School Intermediate of whom 1,126 or 34 per cent. passed, and 1,638 for the School Leaving of whom 716 or 43 per cent. passed.

The total number of Post-Graduate Research students, excluding members of the staff and the senior students doing some research work as part of their course was 14 in 1920, distributed as follows: Botany 2, Chemistry 3, Engineering 5, Natural Philosophy 1, Physiology 3.

During the year 1920-21 a large number of contributions to literature and science were published by members of the University staff and students working in the University laboratories. The enumeration of these contributions covers four closely printed pages of the Calendar.

For social intercourse and sports there are the University Union, the University Recreation Reserve with the buildings upon it, the University Sports Clubs approved by the Council, the University Club House. Every student is expected to belong to these and pay an annual fee ranging from ten shillings to a guinea to each. The affairs of the Union are managed by committees of students in the different departments, such as the Reading Room, the Billiard Room, the Midday Lunch, the Sports. But the final authority is the Union Committee of which the Vice-Chancellor and the President of the Professorial Board are *ex-officio* members. Other professors are also associated with the students on the Union Committee.

The University of Melbourne has been liberally endowed although its grants for future development have not been fully supplied. A few of the

generous gifts may be mentioned: the Hastie Bequest of £19,000, Sir Samuel Wilson's Bequest of £30,000 for the Wilson Hall, Mr. Francis Ormond's gift of £20,000 who also left £100,000 to Ormond College. Recently the Chamber of Manufacturers gave to the University £1,500 a year. The total of benefactions up to 1919 amounted to £193,067 or about 29 lakhs of rupees. An appeal was made by the University in 1920 for more funds for teaching. The result was that some £52,000 were subscribed of which £6,000 were for research.

The total ordinary income of the University for 1920 was £117,234 or seventeen lakhs and a half of rupees. Of this amount the Government grants amounted to £37,541 or 32 per cent., the Lecture fees to £40,231, the Examination, Degree and Certificate fees to £6,454, Public School Examination fees to £11,829, Music Examination fees to £2,292, Sports fees to £1,601, Club House fees to £1,587. The fees paid by the students altogether amounted to £64,494 or 50 per cent. of the whole cost. The State grants and the fees paid by students may well give food for reflection to all interested in the finances and growth of Indian Universities.

THE UNIVERSITY OF SIDNEY.

Sidney is one of the largest and most flourishing cities in the British Empire. It is the principal city of Australia with a population of over 5,00,000. Its climate though warmer than that of Melbourne is pleasant throughout the year, the mean temperature of summer being 70°F. and that of winter 53°F. The air is dry except in summer. It possesses one of the most beautiful harbours in the world, which is formed by an inlet of the Pacific Ocean seventeen miles long with its innumerable inland creeks and little picturesque bays surrounded by hills, the sides of which are covered with beautiful buildings, gardens and plantations. The harbour is full of shipping, and is crossed by numerous steam ferries that

leave the Circular Quay every few minutes. The famous beaches are crowded with thousands of bathers in the summer. The city is remarkable for its long streets, tall and handsome buildings built of stone, long streets of fashionable shops and rows of banks and mercantile firms, its hotels and restaurants. The Australian Museum, the Geological Museum, The Technological Museum, the National Art Gallery, the Free Public Library, the Sidney Hospital, the Churches, the Town Hall, the Botanical Gardens, the famous Zoological Garden are remarkable for their beauty and grandeur. The University buildings and grounds make a great addition to the beauty of the city. The city has numerous parks and drives in its vicinity.

During my short stay in Sidney by kind invitation of Mr. H. E. Barff, Warden and Registrar, I visited the Sidney University on the 19th December 1922. Mr. Barff after a lifetime devoted to the University has recently retired. He was honoured by His Majesty the King by a title in the New Year's Honours Gazette of this year. Professor M. W. MacCullum, M.A., LL.D., Professor of English Literature, was kind enough to show me round and give me interesting information on various subjects relating to the University.

The University occupies a beautiful plot of over 200 acres at some distance from the busy parts of the city but easily approached by the excellent system of tram lines. In the grounds are the main building, the great hall with a lofty roof seventy feet high and with walls covered with portraits of Chancellors, Vice-Chancellors and Professors, the Fisher Library with its seven stories built of steel and glass and a magnificent Reading Room large enough to accommodate more than 250 students at a time, the beautiful Medical School and separate buildings for Botany, Organic Chemistry, Inorganic Chemistry, Geology, Physics, Zoology, Engineering, Agriculture, Veterinary Science, the University Union, and the four colleges, viz., St. Paul's, St. Andrew's, and Wesley College, which are denominational colleges, and the non-sectarian Women's College. In the centre

of the grounds are the oval with its grand stands and the Tennis courts and Hockey-ground. In the denominational colleges the students receive instruction in the doctrine and discipline of their respective churches and teaching supplementary to the lectures of the University professors. The number of students in all the colleges together is hardly one-seventh or one-eighth of the total number. Most of the students reside with their parents or guardians in the town or in licensed boarding houses. The total number of students is about 3,000 of whom 700 are women.

The Training College for teachers is on the grounds of the University, but it is not a constituent college. It is maintained by the Education Department. The University Professor of Education is its Principal. Educational subjects form some of the optional subjects of the B.A. degree examination. The teachers of the Education Department pay no fees to the University. They take the B.A. degree in three years, and if they wish to take the diploma of education they devote an additional year to training subjects. They get practice in teaching in the neighbouring schools.

The State does not pay the University for the education of teachers. But it contributes £20,000 for the free education of 800 exhibitioners. The State provides one exhibition for every five hundred of the population. These exhibitions are allotted in order of merit on the results of the school leaving examinations. The exhibitioners pay no fees. The usual amount of fees for teaching is about £25 a year.

The University of Sidney was incorporated by an Act in 1850. By a Royal Charter in 1858 the same rank, style and precedence was granted to graduates of the Sidney University as are enjoyed by graduates of Universities within the United Kingdom. The constitution of the University is very simple. The University is declared to be a body politic and corporate, consisting of a Senate of 24 Fellows, four of whom are appointed by the Governor, one is elected by the Legislative Assembly, five by the teaching staff of the University, ten are elected by the graduates of the Uni-

versity of over 21 years of age and three are co-opted by the aforesaid Fellows. The members of the Senate hold office for five years, except that the Chairman of the Professorial Board and four other Fellows elected by each of the four Faculties of Arts, Law, Medicine and Science hold office for two years. The Chancellor and Vice-Chancellor are elected by the Senate out of their own body. The former holds office for three years, and the latter for one year. The quorum of the Senate is eight. The Senate has full power to appoint and dismiss all professors, tutors, officers and servants of the University. The Senate has the entire management of and superintendence over the affairs, concerns and property of the University. It makes bye-laws and regulations relating to (a) the discipline of the University, (b) examinations for and the granting of scholarships, degrees, certificates or honours, (c) the establishment and regulation of evening tutorial classes in science, economics, history and sociology, which are open to all students, whether matriculated or not, to whom diplomas are granted after at least one year of study of any one subject, and (d) all other matters whatsoever regarding the University. Such bye-laws and regulations, however, are submitted for the approval of the Governor. The Senate meets on the first Monday of every month and may adjourn from day to day. The University makes an annual report of its proceedings to the Governor, who is *ex-officio* visitor of the University.

There are no religious tests for the students and the University privileges are common to both sexes.

The University has a statutory annual endowment of £30,000 from the Government of New South Wales, and it also receives special Parliamentary grants for specific purposes like the Evening and Extension Lectures, Departments of Agriculture and Veterinary Science, of Botany, Organic Chemistry, Economics and Commerce, Mechanical Engineering, and also for Science

Research Scholarships, the Tutorial Classes and a Professorship of Architecture. Since 1912 the annual endowment of the State has been calculated at the rate of one pound for every fifteen persons in the State.

There are ten faculties in the University, viz., Arts, Law, Medicine, Science, Engineering, Dentistry, Veterinary Science, Agriculture, Economics and Architecture. In the Faculty of Arts alone there are 11 Professors, 2 Associate Professors and 19 Lecturers. In the Faculty of Science there are 7 Professors, 3 Associate Professors, and 33 Lecturers and Demonstrators. In other Faculties the teaching staff is on the same liberal scale.

The title of Professor is distinctive of those public teachers upon whom the Senate shall have conferred the title, and no person shall be recognised as professor without the express authority of the Senate. The Professors in the several Faculties with the Chancellor, Vice-Chancellor and the Warden form the Professorial Board. The Professorial Board superintends the discipline of all students. All members of the Professorial Board and public teachers are authorized to inflict a fine for breach of discipline not exceeding two pounds, provided that every public teacher who inflicts any such fine shall report the circumstance immediately to the Professorial Board. An appeal lies from the Professorial Board to the Senate which may confirm, vary or annul the decision.

The Proctorial Board is formed of the Warden, the Chairman of the Professorial Board and the Deans of four Faculties. It is charged with the duty of investigating breaches of discipline and the imposition of penalties in accordance with academic usage subject to the approval of the Professorial Board.

The course for the degree of B. A. extends over three years, that for the LL.B. degree extends over four years. The LL.B. degree is recognised as a qualification for admission to the Bar. The course for the M.B., B.S. degree extends over 4

period of five and two-thirds years. Diplomas in Public Health and Tropical Medicine are also granted. In the Faculty of Science the course for the B.Sc. Degree extends over three years. In the Faculty of Engineering degrees are given for Civil, Mechanical and Electrical Engineering and Mining and Metallurgy. The curriculum extends over four years at least.

Candidates for the degree of Bachelor of Arts must take ten qualifying courses of at least 90 lectures each with class or laboratory work. An examination is held upon completion of each course. Honours are awarded at graduation to those who are not of more than twelve terms standing from Matriculation and have obtained credit or distinction at the yearly examinations and gone through the prescribed course for honours.

The University grants a Degree of Bachelor of Science in Domestic Science (B.Sc. Dom.) to those ladies who pass in seven courses of Science including Physics, Chemistry, Physiology and Botany or Zoology, and a course of Public Health in addition to the course in Domestic Science at the Sidney Technical College, which includes Cookery, Household Management, Laundry Work and Home Sanitation.

Extension Lectures are delivered in Sidney and other places on application. Fourteen sets of Extension Lectures were delivered during the year 1921 on various subjects. Each course consists of six to ten lectures and concludes with an examination. The usual subjects for these lectures are English Literature, History, Political Economy, Logic and Mental Philosophy, Commercial Law, Science, etc. The lectures are open to all who are not members of the University on payment of a fee. The University Extension Board consists of not more than eighteen members of whom four are members of the Senate and four are members of the teaching staff.

Besides the University Extension Board there is a Committee called the "Joint Committee for Tutorial Classes" which undertakes the organisa-

tion, supervision and control of tutorial classes, and of such study circles as may be deemed advisable.

The general supervision of the financial affairs of the University is entrusted to a Finance Committee chosen annually consisting of the Chancellor, Vice-Chancellor, the Warden and Registrar, and five Fellows of the Senate. Four members form the quorum. The Finance Committee meets once a month or oftener.

The number of Matriculates who proceeded to higher studies in 1921 was 575 of whom 185 were women. In the Faculty of Arts there were 742 students of whom 364 were women, in the Faculty of Law there were 305 students, in the Faculty of Medicine there were 985 of whom 126 were women, in the Faculty of Engineering there were 219 students, in Dentistry 77, in Veterinary Science 16, in Agriculture 27, in Economics 133, the total number in all Faculties being 2,711. There were besides 326 students in the Diploma courses. The total number of students increased from 1,736 in 1917 to 3,275 in 1921.

The total number of degrees conferred during 1921 were: M.A. 14, B.A. 130, B. Ec. 17, LL.B. 21, M.D. 2, M.B. 88, Ch. M. 99, B. D. S. 5, D.Sc. 1, B.Sc. 39, B.E. 37, B.V.Sc. 1, B.Sc. (Agr.) 5, total 459. From the foundation of the University to 1921 there were only 18 Bachelors of Agriculture and 20 Bachelors of Veterinary Science.

The total amount of Lecture fees and cost of graduation is £81 for the B.A. degree, £27 for the Diploma course in education, £102 for the degree in Economics and Commerce, £46 for the Diploma in Commerce, £103 for the LL.B. degree, £235 for the M.B., B.S. degree, £105 for the B.Sc. degree, £167 to £181 for an Engineering Degree, £124 for the Degree in Agriculture or Veterinary Science.

The total amount of benefactions bestowed by private persons up to 1921 is £537,691 or Rs. 80,62,365. The chief benefactions are Edwin Dalton's £8,000 for scholarships, J. H. Challis bequest of property of the value of £276,000 to

be applied to the general purposes of the University, Thomas Fisher's gift of £30,000 for a library, P. N. Russell's gift of £100,000 for endowment of the School of Engineering, Alfred Dixon's gift of £7,050 for the purchase of the Aldridge Collection of Minerals, and J. F. Archibald's endowment of £7,135 for the promotion of Cancer Research. Another bequest of £25,000 for the general purposes of the University was notified in 1922. The total amount of the receipts from private foundations in 1921 was £14,508.

The ordinary receipts of the University in 1921 amounted to £159,517. The statutory endowment of the Government of New South Wales was £30,000; other annual Parliamentary grants amounted to £47,712. The Lecture fees amounted to £33,703, Matriculation and other fees to £8,027, the fees of Tutorial Classes and University Extension to £8,087. On the expenditure side Salaries absorbed £64,698, Examiner's fees £1,974, Scientific Apparatus £10,227, University Extension £376, and Tutorial Classes cost £6,307.

The list of official publications of the University and papers of scientific value or special academic interest prepared by University officers and scholars for the year 1921 covers ten closely printed pages of the Calendar.

There are a large number of Clubs at the University in which the Chancellor, Vice-Chancellor, and Professors take active interest. Although there are very few students in residence at the colleges, these clubs make the social life of the University an important means of refining the manners and improving the education of the students, besides making the social life of the students pleasant.

The Sidney University Union has a fine building given by Government. The annual fee paid by the students is £1. There are a beautiful common room, a games room, committee rooms, a dining room, and three or four shops on the ground-floor

of the building. In the middle of the day a cheap and wholesome lunch is provided at a small cost and in the evening dinners. The annual income of the Union is £11,000 inclusive of the profits of catering and shops and the fees. The Chancellor is Patron of the Union and there are two representatives of the Senate on the Board of Directors. But most of the members of the committees are students. There is a Finance Committee, a House Committee and a Debates Committee.

The Sidney University Women's Union is as great an intellectual and social centre for women, as the University Union is for men. It is located in 'Manning House' so called in memory of Sir William Manning, Chancellor, at whose suggestion the legislation was initiated which in 1882 admitted women to all the privileges enjoyed by men at the University. The 'Manning House' contains a dining room, reading room, common room committee rooms, and an assembly hall as well as other rooms for study and recreation. The open grounds provide accommodation for rest or study in the open air. The Union is under the control of a Board of Directors, two of whom are nominated by the Senate and eight are elected by the members. The subscription is £1 a year.

There are also an Undergraduates' Association for Men, another for Women, an Arts Society, a Medical Society, a Science Society in which lectures on Geology, Biology, Physics, Mathematics, Chemistry, etc., are given by prominent scientists, a University Club which has for its objects the promotion of social intercourse and good fellowship among the University men and the promotion of literary, scientific and artistic culture and research, Sports Unions for men and women, a Cricket Club, an Athletic Club, Hockey, Football and Rifle Clubs, and lastly Women's Social Service Society, which exists for the purpose of educating University women in altruistic duty as citizens and providing them with an opportunity of first-hand study of social and economic conditions.—From *The Mysore University Magazine*: September 1923.

THE FUTURE OF PRIMARY EDUCATION IN THE BOMBAY PRESIDENCY.

"Elementary education for the mass of the people means something more than a mere capacity to read and write. It means for them a keener enjoyment of life, and a more refined standard of living. It means the greater moral and economic efficiency of the individual. It means a higher level of intelligence for the whole community generally."—*G. K. Gokhale (1911).*

The question of compulsory and free primary education is now, in this country, the question of questions. The well-being of millions upon millions of children who are waiting to be brought under the humanising influence of education depends upon it. The increased efficiency of the individual, the higher general level of intelligence, the stiffening of the moral back-bone of large sections of the community, none of these things can come without such education".—*G.K. Gokhale (1910).*

Before venturing to outline the future of primary education it would not be amiss to cast a glance at its past and to measure approximately the extent of the field traversed. It is proposed in this article first to review briefly the progress made by the Bombay Presidency in the matter of primary education, to take stock of the present and then to discuss what under the circumstances should be its ultimate aim, and what line should be adopted for its speedy achievement.

It is but a truism to say that primary education, as the basis of mass education is essentially a Western idea. No doubt, primary education was in existence on a considerable scale in India before the middle of the last century which marks the beginning of our educational system, and it has been estimated by the Educational Commission of 1882 that about nine lacs of pupils were receiving instruction according to their own traditions in the indigenous schools uncontrolled by any State

agency. But till then there was hardly any conception of accepting mass education as a State duty, and the initiative in respect of primary education came mainly from private individual

The first beginning in this direction dates from the time of the famous Despatch of 1854 in which the Court of Directors observed :—

"Our attention should now be directed to a consideration of how useful and practical knowledge suited to every station of life should be best conveyed to the great mass of the people who are utterly incapable of obtaining any education, worth the name, by their own individual efforts, and we desire to see the active measures of Government more specially directed for the future to this object, for the attainment of which we are ready to sanction a considerable increase in expenditure."

Much progress, however, does not seem to have been made till 1882, when the Government of Lord Ripon appointed an Educational Commission under the chairmanship of Sir William Hunter, and one of the chief subjects referred for investigation to that Commission was how far the policy laid down in the Despatch of 1854 in regard to primary education had been carried out. It was ascertained after inquiry that besides the unrecognized schools, there were about 85,000 schools recognized by the Educational Department in the whole of India and about 25 lacs of pupils were receiving elementary education in these schools. The Commission, therefore, recommended among other things that it was desirable under the circumstances to direct strenuous efforts of the State in a still larger measure to the provision, extension and improvement of elementary education as a part of the educational system. It further recommended that an attempt be made to secure the fullest possible provision for an expansion of primary education by legislation suited to the circumstances of each province.

The last-named suggestion, it seems, attracted very little attention, and the educational system

went on its lethargic course till 1910 when the late Hon. Mr. Gokhale moved a resolution in the Imperial Council for appointing a mixed Commission of officials and non-officials to frame definite proposals for a beginning in the direction of making elementary education free and compulsory. Here it may be remarked that, despite several announcements made from time to time, the Government of India still regarded education more as a means of furnishing qualified servants of the lower grade needed for the administrative machinery than for turning out good, efficient and contented citizens. But in that year, the Government promised, after the discussion on the late Hon. Mr. Gokhale's resolution, to institute inquiries regarding the universalization of elementary education. The public also took up the matter seriously and kept it as a live issue by agitation in the press and on the platform. Encouraged by this, the late Hon. Mr. Gokhale introduced next year a Bill in the Imperial Council, designed to make a cautious beginning in the matter. But the Government had yet to learn to respect the public feeling as voiced by their accredited leaders, and the Bill foundered on the rock of financial considerations, with the result that the old state of things continued with the only addition of an expression of pious hope for the early expansion of mass education.

So far the history of the question was the same for all the provinces, as the problem was handled as an all-India one by the Imperial Government. But henceforth, public opinion did not allow the question to be slept over, and provincial efforts were begun on different lines as circumstances permitted. Coming to the Bombay Presidency, the next land-mark was the passing in 1918 of a permissive legislation, known by the name of its sponsor as the Patel Act. By this time the Government had, though most reluctantly, accepted the fact, which the history of elementary education throughout the world had established long ago—and for the establishment of which Mr. Gokhale

strove all his life here in India—that without a resort to compulsion no State could ensure a general diffusion of education among its people. And thanks to the assiduity and persistent efforts of Mr. V. J. Patel this principle was for the first time put on the statute-book. By this act, the Municipalities in this Presidency were, subject to their fulfilling several conditions, permitted to introduce compulsion in their elementary schools. But the Act was neither obligatory, nor did it impose any responsibility—financial or otherwise—upon the Government. The result was that it remained almost a dead letter, only six Municipalities having come forth to take the advantage of the provisions, one of which subsequently asked permission to withdraw from the position taken. This did not naturally satisfy public opinion. In the meanwhile, the new Government of India Act was passed which began a new epoch so far as educational matters were concerned. The Department of Education was transferred to the control of a Minister, appointed from amongst the elected members of the Legislative Council, and responsible to it, and provincial autonomy was obtained in matters educational. This created a new situation altogether, and the official argument that compulsion in the matter of elementary education was beyond the range of practical politics ceased to be dinned into the ears of public leaders. The leaders of public opinion pressed the matter once more in the Council, and the Minister according to their wishes appointed a representative committee under the able chairmanship of the late Sir Narayan Chandavarkar, which after going exhaustively into the whole question published within a short time a very valuable report. The Minister, the Hon. Dr. Paranjpye, lost no time (it must be said, to his credit, for the lethargy of the official routine is too well-known to require mention) and a Bill to provide for compulsory elementary education and to make better provision for the management and control of primary education in the Bombay Presidency was introduced.

ed at the October Session of the Legislative Council in 1922-23. The Bill got an enthusiastic reception at the hands of the Council and the public (though some thought its scope too limited) and it was pushed through the Select Committee, and was successfully piloted in a Special Session of the Council in December 1922, and was then passed into an Act to which the sanction of the Governor has been accorded. The work of making rules has not yet been completed and a good deal of spade-work will have to be done before the Act comes into operation. This is thus the present situation.

The distinguishing feature of the new Act which marks it out from all the previous Government measures and the provisions of the Patel Act is that it applies simultaneously to the Municipalities and Local Boards and makes it obligatory upon the local bodies if the Government desires to do so to frame a scheme for making elementary education compulsory within a definite period, although they are given the option to frame such a scheme of their own accord. Further, the Government have, by this enactment, undertaken a statutory liability to defray two-thirds of the total additional expenditure (recurring and non-recurring) needed for introducing compulsion in the case of Local Boards and half in the case of Municipalities. It need hardly be said that Government are to continue the existing grants. But the most important provision relates to the transfer of the control of the whole of primary education from the hands of Government to those of the local bodies such control including the power of altering the prescribed curricula to suit local conditions, subject to the general control of Government.

It is well-known that exemption from payment of fees follows as a corollary of compulsion. It has, therefore, become incumbent on Government to find out sufficient money to make up this loss and to fulfil this statutory obligation. The Hon. Minister and the Council had, at the

threshold of the new regime, to face abnormal circumstances, such as a deficit budget, heavy financial stringency and the urgent need for revision of the pay of the services. But they both met the situation bravely and squarely and the Hon. Dr. Paranjpye could commit the Government to a definite policy, the proof of which was simultaneously given by adopting measures to amend the District Local Boards Act in a suitable way, and by carrying through the Entertainment Act, which imposed a tax, the entire proceeds of which were to be ear-marked for the purpose of primary education. Despite his very strenuous efforts it does not appear probable on account of the multiplicity of the details to be worked that the Hon. Minister will be able to see the Act coming into operation before his official career closes. But it will redound to the credit of the Hon. Mr. Paranjpye that he could carry through this important measure, within such a short time, and could keep up the reputation of the Bombay Presidency as the first and the most advanced in the whole of India.

It is not intended here to represent that the Act is comprehensive and faultless. The throwing out of the Select Committee's recommendation to make a statutory provision for a grant of three-fourths of the total additional expenditure in the case of Local Boards and the refusal to consider the proposal for making a grant of two-thirds of the total additional expenditure in the case of Municipalities have rendered the actual working of the Act rather precarious. Besides, the Government have reserved an unnecessarily large share of the control in their hands and many points are left to rule-marking which properly should have found place in the body of the Act. The rule-making power is an infallible weapon in the hands of the bureaucracy for whittling down the provisions of any liberal measure that may not suit their purpose, and the Indian people have so sad an experience in the matter that they are prone to look upon any such power, in howsoever

benevolent hands it might be, with suspicion. It was to provide against this contingency that Rao Bahadur Kale, the member for Satara, had moved an amendment that the rules should not be made final before they were examined and passed by a Standing Committee of official and non-official members of the Legislative Council. And it is unfortunate that this amendment was ruled out of order. Government have, however, undertaken to publish for public criticism the rules before they are finally adopted, and it is expected that the Minister, who is the final authority in the sanction of rules being responsible to the Council, will be amenable to public opinion in the matter.

There is however no gainsaying that, despite these short-comings, the new Act is a distinct and a substantial step in advance, and will lead the Presidency a great way along the road of mass education. It is also expected that though the statutory liability of Government is limited, it will be always treated as a minimum which will in almost every case, be invariably exceeded.

Out of the various definitions of national education, the one most acceptable is that which defines it as a system of education controlled by the people and for the people, one which generates national self-respect and makes its recipients self-sufficient and honourable citizens of the motherland. Accepting this definition as the criterion, if we are to examine the present position of primary education, it will be found that under the new Act we have certainly almost reached our goal. For under it the control of this branch of education is transferred to the local bodies almost absolutely, subject to the general control of Government which, it is undisputed, ought to be there in theory. And by the simultaneous amendment of the Act relating to local bodies which had made them mostly popular, people are given a direct control over their primary education which is compulsorily to be imparted to the whole of the population committed to their charge. Although the curricula are still to be prescribed by the rules made by Government, local bodies are allowed latitude to alter them to

suit local needs, and nothing will prevent them from prescribing books and courses, which will generate in the minds of the pupils ideas of national honour and respect. Besides, the presiding authority of the rule-making body is to be the Minister, who is one of the members elected by the people and responsible to the Council, having a large majority of the people's representatives. The curriculum is, therefore, indirectly in the hands of the public. Provision is also made for laying down courses, vocational, and pre-vocational which will pave the way for making the people self-reliant and self-sufficient. With this aspect in view, Rao Bahadur Kale had in the Council suggested the amendment of the preamble on the lines of the English Educational Act of 1918, by which the following wording was sought to be inserted:—

"Whereas it is expedient to establish a national system of public education available for all persons by providing a scheme of progressive development and comprehensive organization leading up to widespread literacy throughout the Presidency of Bombay, etc."

The adoption of this phraseology, while representing the correct state of affairs, would have secured in the statutory enactment, the Government sanction to a system of national education, which would have been a distinct success for the public. But unfortunately the Council declined to avail itself of this opportunity of scoring a success the spirit of which is, nevertheless, embodied in the Act.

The future of primary education, which is in other words the nationalized system of mass-education, presents a brilliant view. But there lurk in the minds of some, a few misgivings about its utility in the task of nation-building due probably to the fact that they overlook the distinction between elementary and primary education. 'What benefit would accrue,' they ask, 'even if all the people in India learn just to read and write only to be forgot this when they go actual life.' The late Hon. Mr. Gokhale has given a complete reply to this question in his famous speech from which a few lines are quoted at the head of this article. What these objectors pro-

bably understood by primary education is really the elementary education which is sought to be made compulsory by the new Act. This will be apparent from the definition of 'elementary education' as embodied in this Act, and as proposed in the Hon. Mr. Gokhale's Bill of 1911. But the term primary education is more comprehensive. It means something more: and that something is higher education, which includes along with other subjects pre-vocational and vocational courses. The distinction between the elementary and primary education has been retained in the new Act and there is scope left in the primary education to include courses which would meet the objections of these persons. The future of primary education, therefore, depends largely upon defining its ultimate aim and scope, without outlining which no discussion about it would be complete.

Compulsion will necessarily lead the masses on to the completion of primary education, which perhaps will be a halting stage in the case of some. The compulsory period under the enactment is laid down from the ages of 6 to 11. Eleven is not an age at which even the poorest child will necessarily be an earning member of the family. It will have to pass some time in probation in any of the occupations which it has to take up in life. If we regulate the scope of primary education in future in such a way as to make the period of its study synchronize with this period of probation its completion will serve as a halting step for some, while for others it will be a ladder to climb up in academical or professional lines.

What then should be the aim of primary education in future? The reply to this query is not very simple. If primary education has been, as indicated above, virtually nationalized it should aim at producing self-reliant and honourable citizens with a felling of patriotism, self-respect and toleration. It should pave the way for the careers of those who can at best aspire to be middle-class contented citizens. In other words, the ultimate aim of primary education should be to provide a career for the lower-middle-class men, who at

present find it hard to get employment, and are growing into a discontented mass of literate citizens. Of course, it is not to be expected that mere primary education by itself can achieve this object. It can, at best, only pave the way for such careers, and can form a link which joins the necessary rudimentary literacy with the vocational career which the constituents of the lower-middle-class, including the class of skilled labour and artisans, are expected to follow. That is the proper function of primary education and our efforts must in future be directed towards so shaping it as to fulfil this function. The framer of the new Act has left sufficient margin, in its provisions, to cover this ground by making rules and otherwise, and it is for public leaders now to come forth and give the necessary lead.

The scope of primary education needs also to be widened. It is not expected that much improvement can be done in what is called the elementary or lower primary grade beyond giving to the pupils a kind of pre-vocational bias. But the curricula can be so arranged as to infuse in them a spirit of liberal religion, self-discipline, and a sense of national honour. The common ground being thus prepared, the course of upper primary education should be bifurcated; those who have aptitude for literary education should be allowed to follow a line which will lead to literary or academic courses, others should be given only little literary training just enough to enable them efficiently to follow the vocational and pre-vocational courses for which provision should be made side by side. Training in occupations which can be worked as cottage industries, and an elementary knowledge of agriculture and commerce should also be provided as part of the course of higher primary education. This cannot by itself give those under instruction vocational knowledge enough to pursue any avocation independently. Some further training will, of course, be necessary. It is only to be a substitute for the existing probationary period, which is at present merely wasted. This should then, it is suggested, be the scope of primary education in days to come. It will give the pupil an

opportunity of choosing for himself an occupation for which he has got natural aptitude, and will remove the root-cause of middle-class unemployment by easing the existing burden on clerical and literary branches of avocations.

This is then the outline of the future of primary education in this Presidency. As has been indicated above, if proper rules are framed this whole field can be comprised in the four corners of the present Act. Those who have at heart the cause of education and the well-being of the masses ought to strive hard to achieve this end. Already signs are evident of the Government and local bodies taking this matter seriously in hand, and several local bodies are reported to have contemplated schemes of making elementary education compulsory. While efforts in this direction are to be welcomed and highly appreciated, care must be taken to see that the enthusiasm does not subside at the mere attainment of the first stage. Persistent efforts are needed till we cover the programme chalked out above. If this happens, the next generation will enter upon its own special work with a strength which will be its own security of success. —N.G. JOSHI—in "The Social Service Quarterly," Bombay: Oct. 1923.

We are asked to publish the following:—

TRICHINOPOLY DISTRICT TEACHERS' GUILD.

(KATUPULUR MEETING.)

Under the auspices of the Zamindar's High School Teachers' Association, an ordinary meeting of the Trichinopoly District Teachers' Guild was conducted recently under the presidency of M.R.Ry. P.G. Sundramaiyer Avl., B.A., L.T., Vice-President of the Teachers' Guild. The gathering was representative of almost all schools in the district.

The Chairman welcomed the guests in a neat little speech. The Secretary read the minutes of the previous meeting which were passed. Then letters were read from Rev. Father Bertram, the District Educational Officer and M.R.Ry. M. C. Rajagopala Naidu wishing the meeting every success. Then Mr. S. K. Devasakamany, Headmaster, Bishop Heber High School, delivered a lecture on

'VOCATIONAL INSTRUCTION IN OUR SCHOOLS.'

In the course of his address the lecturer pointed out that there has been a wave of activity in the educational field, in the number of books published, in educational reform and in the outlook on education. The Secondary Education is not what it ought to be. There is a dead uniformity in our schools. The revolt is abroad against class teaching methods. There is a movement for introducing greater freedom in schools through the Dalton Plan. But new reforms mean greater expenditure, greater output of trained educated men, and unemployment of these trained men in the absence of openings for them. Three outstanding problems confront the reformer in education—the control of Secondary Education, the question of the adoption of the mother-tongue as the medium of instruction, and the widening of the courses of the study by the introduction of Vocational Instruction.

The Introduction of Vocational Training in our schools is the outcome of an attempt to differentiate between the literary and bread-winning sides of

education. A purely literary course, it has been found, trains boys only for quill-driving. If existing High Schools are to satisfy the needs of the country, then boys ought to be taught to do something. Knowing some handicraft would make boys self-reliant, which they are not at present. Faith in labour as a moral and disciplinary force which is non-existent at present ought to be inculcated, in order to make boys realise the dignity of labour and the need for respect for labour. The need of the country, its piteous need is that the country should be raised to a very high economic level. Thanks to the effort of Mahatma Gandhi, people are beginning to feel the uselessness of mainly literary education, and the value of handicrafts.

In the raising of the economic level of the country, we must look to Elementary Schools. In the Trichinopoly District alone there are about 1350 Elementary Schools, out of which only three or four give Vocational instruction. In order that vocational instruction in the Elementary Schools might thrive, the subjects taught must touch the practical life of the village in which the school is located. A specially qualified staff must be appointed, capable of inspiring the pupils. The industries should be related to the hereditary proclivities of the place. Thus, not the making of hats or rolling of cigarettes but manuring, single planting, sowing, tilling and other particulars, about the soil might be taught in these schools. If there are three or four occupations in the village, then a proper choice ought to be made. The apparatus must be easily procurable in the locality itself. Then again there ought to be a ready market for the output, if the manufactured articles are not to remain unsold so that boys might not get discouraged. There ought to be sufficient labour market to absorb the vocationally trained pupils. Then again there is the money difficulty which ought to be solved by the raising of funds through popular co-operation and Government support. These are some of the practical difficulties which ought to be overcome if vocational instruction is to be really effective.

In Secondary Schools manual training or the training of the hand and eye consisting of drawing

and wood-work ought to be taught in classes 1 to 5. An advanced form of manual training may be given in forms 1 to 2. In forms 3 and 4, a general sort of Vocational Training may be given for all the pupils alike in order to create a vocational bent. At this stage there ought to be bifurcation of boys that go for the University and the boys that go up to Technological Colleges. Under the present conditions, there are about 349 Secondary Schools in our Presidency. All these schools cannot suddenly blossom into vocational schools. This is because it means expenditure on additional room, additional teachers, and additional apparatus. As such, all schools cannot do so. But some of the big Secondary Schools in each district can try to add a vocational side to the existing literary side. Other schools might send up its vocationally-minded boys to these schools. In these schools the subjects taught should be related to the life of the people. Thus spinning, weaving, carding, silk rearing, tailoring, knitting, sewing, basket-weaving, shoe-making, rudiments of agriculture, etc., might be taught in these schools. Each such school might agree upon specialising in one or two subjects. Such an arrangement would be workable. Provided money is found, the doubts of sceptics are bound to vanish. It is for the Minister after the general election to consider and do the needful in the matter of the introduction of Vocational Instructions in our schools.

DISCUSSION.

The lecture over, a discussion began which was interesting. Mr. S. Sitarama Iyer (Katuputur) pleaded for the introduction of Vocational Instruction with proper safeguards, like Government support and protection for indigenous industries. He pointed out that a quarter century ago, Vocational Training was given in some schools but had failed. The artisan class again did not care to receive Vocational Training in schools for the purpose. This was due to the fact that the so-called special departments, were not giving really practical aid to the people. Mr. K. R. Krishnasawmi Iyer (Trichinopoly) pointed out that the lessons learnt from the failure of Vocational Training in the West, the training of the eye and

the hand to detriment of the brain and heart ought to stand us in good stead. He then urged that Vocational Training should be given not in schools but outside them. Teachers in schools must enable the boys to know their needs and the economic needs of the country. He was of an opinion that Vocational Training was not necessary in Elementary Schools and impossible in Secondary Schools. He advocated the starting of separate schools of arts in each district for giving Vocational Training. Mr. L. R. Natesa Iyer (Trichinopoly) pleaded for the introduction of Vocational Instructions in Schools as a solution for the urgent problem of the educated unemployed. He pointed out that sceptics about the value of Vocational Training made a mistake in bringing an analogy between surfeited Europe and India which was economically hungry. Mr. S. Chinna-sawmi Iyer (Katuputur) warned teachers that they should not be parties to the dislocation of Secondary School work which has been responsible for the failure of secondary education in the past. He pointed out that the main work of Secondary Schools ought to be the imparting of a sound literary training. He complained that this simple work had been confused every time a new change was suggested. The introduction of a Vocational side in the existing Secondary Schools could only increase the indefiniteness of secondary education. He therefore urged that distinct aims were necessary and that vocational instruction should be given in separate schools only. Mr. Madnagopala Dikshitar (Trichy) considered that Vocational Instruction could not be made an adjunct to existing High Schools. He was of opinion that Vocational Training in our schools to be effective was possible only after long apprenticeship under workmen in the localities where schools were located. Mr. Neelakanta Sarma (Lalgudy) was of opinion that the present curriculum of studies had been proved to be valueless to the boys in after life. As such, practical education as advocated by the lecturer was necessary. The Chairman in bringing the discussion to a close pointed out that there could be no two opinions about the need for the introduction of vocational training in our schools. He agreed with the lecturer that the diffi-

culties in the way of providing for a vocational side in existing High Schools were real and not imaginary. All the same, its introduction was not only necessary but also would be fruitful and productive of real good to the country. Vocational education was not divorced from mind training, though it placed emphasis on the training of the hand and eye.

In the light of the discussion the Guild adopted the following resolution:—

The Guild, while realising the manifold difficulties in the way of introducing Vocational Training in Secondary and Elementary Schools, is of opinion that all are agreed about the need for it in our schools in the changing conditions in India which favour the immediate introduction of Technical instruction without detriment to cultural education and suggests—

(1) That Vocational Classes may, as a first step, be started in one or two large High Schools and in higher grade Elementary Schools in each district to create a vocational bent in boys.

(2) That such vocational training in schools be given at the end of the present Fourth Form course after a district examination conducted with a view to make a division between boys going up to University and the boys going to Technological Colleges.

(3) That subjects useful in life be taught in Vocational Schools and that vocational work be related to the practical life of the people.

(4) That Technological Schools for each district be established by Government with the co-operation of local technical skill.

(5) And that industrial concerns be opened to absorb trained workers.

WORK OF DISTRICT SECONDARY EDUCATION BOARDS.

Mr. L.R. Natesa Iyer, B.A., L.T., representative of teachers of private schools on the Trichinopoly District Secondary Education Board, then read a paper on the work of such Boards in general. In the course of the paper he emphasised the need for the Board paying atten-

tion to the widening of the curriculum of studies by the introduction of vocational instruction; improving the condition of the ill-paid teacher by making his salary liberal and by bringing about the standardisation of his scale of salaries, and finding funds for educational reform by prevailing upon the Government to increase Budget allotments and grants and to make it set aside a portion of the super-tax for educational purposes.

After lunch, the meeting reassembled. Mr. K. S. Venkatarama Sastrigal (Katuputtur) spoke at length on the immediate need for the adoption of the vernacular or mother-tongue as the medium of instruction and examination. In the course of his speech in Tamil, the speaker pointed out that all were agreed on the principle but parents, authorities, teachers and boys did not care to make it compulsory. He dealt at length with the reasons for the adoption of the mother-tongue and pointed out also the deleterious consequences on national life by the non-adoption of the vernacular as the medium of instruction in schools. He then answered some objections, like absence of text-books, lack of vernacular expressions equivalent to technical expressions in English and the fear, on that account, that the proficiency in English of boys would be lowered. These difficulties, he said, were imaginary rather than real. Text-books could be written, the vocabulary could be created by usage and English teaching method might be improved by its being entrusted to men capable of handling it effectively. He then drew the attention of the meeting to the fact that the department was also willing to help the movement for the use of the vernacular in the teaching of non-language subjects. On the initiative of the Zamindar's High School, Katuputtur, the question was raised and the Government by its Circular had expressed its willingness to set papers in the vernacular of boys and receive answers in the same at the public examination. He urged on the attention of the Guild propaganda in this respect amongst teachers in the District and

in the Presidency with a view to bring about the desired consummation. Mr. S. T. Ramanuja Iyengar pointed out that the fault of not using the vernacular did not lie on any particular set of people. The angle of vision of all alike must change if the desired end was to succeed. It meant a revolution in school life and a desirable one too in the interests of larger national life. With reference to the circular of the department on the subject, he pointed out that if it was not given effect to, teachers would be laying themselves open to the charge of the department that concessions given had not been availed of. Then the following resolution was adopted on this subject:—

Resolved that the circular may be given effect to by all schools in the District and in the Presidency as early as possible.

RESOLUTIONS:

The following resolutions were passed:—

1. Resolved that *bona fide* teachers who desire to qualify themselves in higher general education may be permitted to appear for such examinations without the production of attendance certificates from educational institutions.
2. The Guild requests Government to incorporate the suggestions of the Madras District Teachers' Guild *re* Provident Fund for Teachers in non-pensionable service in the interests of justice and so as to keep the teachers contented.
3. The Guild begs to point out to Government that the election of three Headmasters to the Senate be not by Headmasters of Schools alone but by all teachers of Secondary Schools in future.
4. The Guild requests the authorities of schools to bring their leave rules for teachers in accordance with Government service rules.
5. The Guild calls upon the Sub-Committees of the Guild still at work to the framing of Syllabuses according to the needs of our district and the Sub-Committee on Glossary to submit their reports at an early date.

6. The Guild requests managers of schools and the District Board, Trichinopoly, to treat travelling allowance of teachers attending Guild meetings as legitimate school expenditure.

7. Resolved to sanction the expenditure on the printing of the Guild rules and annual report for 1922-23 as per bill of St. Joseph's Industrial Press, Cantonment, Trichinopoly.

8. The Guild supports the candidature of the following to the Senate of the Madras University and requests other Guilds to support the same. Messrs. P. T. Srinivasa Iyengar, S. K. Yegnanarayana Iyer, P. V. Seshu Iyer, K. B. Ramanatha Iyer, Doctor Mathai, P. Subramania Ayya, S. K. Devasikamani, P. A. Subramani Iyer, V. V. Parameswara Iyer and C. S. Rangasawmi Iyengar.

9. The Guild requests members of the teaching profession in the district as a first step in the starting of the Protection Fund, to register themselves in the unofficial register of teachers in the district to be opened from November 1923 containing particulars of pay, grade, years of service, salary and scale, employment and unemployment, address, age and qualification.

10. The Guild resolves to adopt, as a first step, the first proposal of the Committee of the Guild on the starting of a Co-operative School Supplies Depot and urges on the authorities of schools in the district to start small Co-operative School Supplies Societies as under:—

(a) The staff and the students to become members thereof.

(b) Payment of small membership fee returnable to the member when his connection with the Society ceases.

(c) The sum realised by 'b' to be the nucleus of the fund for the Society.

(d) Management of Societies shall be in the hands of a few elected members, elected at a meeting of the general body of members, to whom they shall be responsible; that this elected executive body frame rules for the conduct of its business and work the Society, by getting orders from the members beforehand and executing them, charging only a minimum fee as gain for the Society,

out of which a rebate proportionate to the amount of purchase shall be allowed to each member at the end of the year etc., ... that these suggestions be amplified and modified according to the requirements of each locality.

11. The Guild congratulates Mr. S. K. Devasikamani on his having been elected as the Vice-President of the Trichinopoly District Board; Messrs. L. R. Natesa Iyer and Nataraja Iyer on their election to the District Secondary Education Board; and Mr. S. Rangasawmi Iyengar on his elevation as Headmaster of the Board High School, Lalgudy; welcomes Mr. E. W. Ormerod, Principal of Bishop Heber College, Trichinopoly, and wishes the Rev. A. F. Gardiner's quick return from furlough.

12. The Guild views with regret the undue delay caused in the prescription and publication of text-books for A and C Group—Vernacular Non-detailed by the S.S.L.C. Board and requests the Board to avoid such delay in future.

13. The Guild requests the Government to provide for the representation of the Guild as such in the District Secondary Education Board and to extend representation to teachers in Secondary Schools managed by District Board and Municipalities also.

The proceedings were brought to a close at 7-30 p.m. The Chairman, in his concluding remarks, congratulated the meeting on the excellent work turned out in the course of the day and urged upon the teachers in the district to continue to take the same active interest so that the Trichinopoly District Teachers' Guild might indeed be the centre of all educational activities in the district. The Joint Secretaries, after the garlanding of the President, proposed thanks to the Lecturers, the Chairman and Visitors.

The meeting then terminated. The Zamindar's High School Teachers' Association of Katuputtur was *At Home* to the members of the Trichy District Teachers' Guild. At night, the staff of the Zamindar's High School and the local officers staged "Kalidasa's Sakuntala," translated by Mr. B. vanandam Pillai. The drama was a perfect success. Mr. S. K. Devasikamani complimented all the actors on their having acquitted themselves so successfully and hoped that such histrionic talent in an out of the way place like Katuputtur, would be encouraged and developed.

THE SOUTH ARCOT DISTRICT TEACHERS' GUILD.

The Third South Arcot District Secondary Teachers' Conference was held in the Board High School Hall, Tirukoilur, on Saturday the 27th ultimo, under the distinguished presidency of Professor K. Ramanujachariar, Retired Principal, National College, Trichinopoly. There was a good attendance in spite of inclement weather. Letter of cordial wishes was received from Mr. M. S. Sabhesan, Secretary, S. I. T. U.

Mr. M. Venkatarama Ayyar, Headmaster of Tirukoilur High School, welcomed the members in a neat little Tamil address. He made chief reference to the betterment of the teacher's pay and prospect, the remodelling of the S. S. L. C. system, the immediate introduction of Vocational instruction at least in Agriculture, Carpentry and Weaving with the help of indigenous craftsmen and the universal adoption of Vernacular as the medium of instruction.

The President, in the course of his illuminating address dwelt on the nobility of the teachers' profession, but said that it was generally held by all classes of people that anybody and everybody could become a schoolmaster: and that this career was chosen by persons only after discovering their failure in other walks of life. Whatever modicum of truth there was in such a statement in the past, it was not so in the present. In these days there were bands of energetic young men with distinguished and superior qualifications, who readily adopted the profession. It would be absurd to say that they had selected the teachers' profession as a last resort.

The chief cause for the lowering of the status of the teacher was his modesty and humility, sometimes bordering on the extreme, which induced him to take the back seat on every occasion and made him a *quasi*-recluse by his observing a policy of non-interference. But the most potent cause of the low estimate was to be found in his chronic

poverty to which he was a slave all through his life. Nothing could be done in this world to remedy this without organised effort. Concerted action was absolutely necessary and Conferences like the present were capable of producing the desired effect. Associations in villages and towns, Guilds in districts and provinces had a duty to fulfil. The one objection to these institutions was the want of sustained effort, closeness of co-operation and also, a want of determination to work on until the object was obtained. The stray meetings and occasional resolutions and speeches made on platforms were not enough to achieve the object in view. A network of executive committees ought to be formed to watch events that transpired in other parts of the world and take sustained action in order to produce the desired effect.

The *sine qua non* of the problems of the profession was the increase on its monetary side. There had been loud complaints all over the Presidency regarding the insufficiency of salary even after a great deal of agitation through meetings. It was therefore necessary to concentrate attention on the improvement of salaries of all classes of teachers.

The President also touched upon the usefulness of the Provident Fund scheme and said that the present rate of interest allowed by the Government on contributions by the teacher and the manager was not satisfactory and that they must see that the rate was increased to a reasonable amount. He also said that there should be started a Protection Fund so as to be helpful to individual teachers that might suffer owing to the idiosyncracies or prejudices of some managers of schools.

Further the President observed that the teacher should not keep quiet but try to improve his own knowledge. There ought to be libraries even in villages so that the teachers could use them to their advantage. He dwelt on the importance of Vocational Training, the Courts of

Honour, the Scout Movement and Vernacular as the medium of instruction.

Speaking on the District Educational Council, he said that as at present there had been felt considerable dissatisfaction everywhere at the work turned out by those bodies. As for the new Secondary Education Board, he said that it was a matter of the future. Of course there could have been some representation for the Guild on the Board and he hoped that the defect would be remedied.

In conclusion, he said that the teacher should not think that his business was over by simply attending meetings. The teacher occupied a unique position in the economy of public life. He had to lead an exemplary life, a model for pupils to copy. There could not be any dissociation in his life between precept and practice. He had to bear in mind that hundreds of pairs of eyes were watching him and that he had always to be abreast of times. His duty would never end so long as he was in this world. He had to develop his knowledge and should note that he carried the most sacred trust of carrying the torch of light and learning.

The following resolutions were passed at the Conference:—

1. That this Conference desires to place on record its sense of the inestimable loss sustained by Secondary Education by the death of the late Mr. A. Panchapakasa Ayyar, Headmaster of the Pennathur High School and President of the S. I. T. U.

2. (a) That this Conference begs to congratulate the Rev. Father Verdure, the Rev. Mr. Wolff, Mr. K. A. Nilakanta Sastry, Mr. T. S. Ramaswami Ayyar and Mr. M. P. Mariadoss, who have obtained seats in the Secondary Education Board and requests them to consult the Guild in all matters of importance coming before the Guild.

(b) That in view of the changes in the rules for election to the Board by which the staffs of schools under public management are also included in the list of teachers qualified to elect the teacher representatives to these Boards, this Conference requests the Government to allow one member to be now chosen to represent the staffs of schools under public management by increasing the number of such representatives to at least two.

3. That this Conference is of opinion that the question of the betterment of the pay and status of teachers should be the foremost consideration of the Government.

That this Conference begs to bring to the notice of the Minister for Education a communication from the late Hon'ble A. Subbarayalu Reddiar, about the grant of a seat in the District Educational Council for a representative of the Guild and requests the same may be kindly given effect to.

That this Conference reiterates its resolution regarding the period of training to be reduced to one year in the case of S. S. L. C. teachers.

That the rate of interest grantable on the contribution of the management and of the teachers be raised from 3 to 6½%.

That this Conference recommends to the Headmasters of High Schools in the district the formation of Courts of Honour, with a view to create the spirit of self-discipline and to promote the sense of honour and chivalry among the students.

That the Executive Council of the Guild with the kind co-operation of M. R. Ry. K. Ramanujachariar be requested to consider the Secondary Reorganisation Committee Report and make recommendations thereon to the Guild for consideration at its next meeting.

That in each educational institution or centre an Association be formed and that it be affiliated to the Guild in the district.

Mr. Kumaraswami Pillai of Tirukoilur next delivered a forceful and fluent address in Tamil exhorting the teachers to attend to the spiritual development of the pupils, to develop the study of Tamil and Sanskrit and to impart, though it be through the medium of English, a greater knowledge of Indian stories and events.

The Conference came to a close at 5 P. M. The learned President in his concluding remarks referred to two progressive features he was glad to notice in the present day teacher, *viz.*, his spirit to agitate not merely for his personal advancement but for the development of education in the country, and his broad outlook on life as evidenced in his interesting himself in extra-activities, educational or otherwise, beyond his mere class-work.

With a round of vote of thanks proposed to the President, the owner of the Hall and the Tirukoilur Teachers' Association who were *At Home* to the delegates, the proceedings terminated.

V. JAYARAMAN,
Secretary.

Reviews and Notices.

THE PROGRESS TO GEOGRAPHY, BY RICHARD WILSON—STAGE V.—BRITAIN AND EUROPE: AN EXPERIMENT IN RACIAL GEOGRAPHY, pp. 303. 4s. 6d.; STAGE VI.—BRITAIN AND THE MODERN WORLD. pp. 313. 4s. 6d. (MACMILLAN & Co., 1923.)

The first book is an attempt to explain how the pre-war frontiers between the various European states have not been so arbitrary and artificial as some had supposed and how the very existence of these frontiers had tended to bring about a blending of neighbouring races and time was rectifying the former mistakes of European statesmen. It shows how the end of the war did not bring about any settlement of the frontiers which may seem permanent. A nation or race is marked off from another simply and most effectively by its language but even the separation of the races by the test of language is not marked with a very definite line. The author maintains that Britain, in spite of her insularity, is the least insular of the nations of the world as can be easily proved by her history and by her national position at the present day. "The coming of the air-age dissipates once and for all the idea that any nation, no matter how powerful, can preserve an attitude of isolation towards its neighbours." The international frontier is in our day largely a matter of bargaining between statesmen; but race lines are still very strong, though it is very difficult to solve the problem of races and their territories. France has been always striving to make the Rhine her frontier; but the border provinces of Alsace and Lorraine present a racial problem which it is very difficult to solve. The eastern frontier of Germany has been rudely disturbed by the post-war arrangements. The return to Moscow as the Russian capital is typical of the general effect of the war upon the ramshackle empire of the Tsars, consequent upon the reconstitution of Poland and the formation of the Baltic States of Lithuania, Latvia, Esthonia and

Poland and the formation of confederate republics in Russia, Caucasasia, Ukraine and Siberia.

The independent Poland of to-day has got a difficult heritage of religious and social cleavages to build up. The creation of three states, Czechoslovakia, Austria and Hungary together with Jugo-Slavia and Roumania present great difficulties. The sheltered countries like those of Scandinavia, and the Iberian Peninsula and Switzerland have also their small racial problems, and even in these regions frontiers are a vexed question. The present frontiers are as bewildering an admixture and blending of races as the pre-war system. At the end of the first book good extracts like Emerson's 'The English Character,' Dicken's 'The Ascent of Mount Vesuvius,' Ruskin's 'The Angel of the Sea,' are given. Aerial views of numerous European cities and ports are given.

The second book which is the concluding volume of *The Progress to Geography* Series contains a general survey of the world with the basic ideas that the United Kingdom is the world-centre for British people and the British Empire is the natural expansion of the British Isles, and that Britain has got a prominent place among the world's great powers and commercial nations. The book is chiefly directed towards enlarging the pupil's British horizon, so that he is conscious of being a member of the Empire. The first two sections deal with studies in the home geography of Britain and the geography of the British Empire. But even here attention is constantly called to the fact that Britain is keenly interested in all that is going on in the modern world, as in the matter of getting her food supplies. Empire products and communications occupy a large space of the second section, with the trade between the Mother Country and the Dominions and the inter-colonial trade, while the trust character of the British people is very well brought out.

The third section deals with the great powers of the world and the chief characteristics of each of

them; with how the leading states have come to be extended in colonies and dominions and dependencies. The last section deals with the other chief trading spheres and traders—spheres like the Chinese Empire, Mexico and Central America, South America, etc. The ideal aimed at by the author is not the inculcation of a Prussian spirit of Empire and Imperial dominion; but the doctrine that the whole world is the province of the trader, whose ideal is the free port and the open highway, a safe sea and equality of commercial opportunity. "The unifying power of the various sections of the earth has been racial and governmental.....The region and the climate have made the race in past ages; but now the race is to a great extent independent of the boundaries of the region. And the ordinary citizen looks at the world as made up of governments, rather than of natural areas, bounded more or less, but chiefly less, by so-called physical and climatic barriers.

THE HOME OF MAN, PART II—EUROPE—BY W. C. BROWN AND P. H. JOHNSON: REVISED POST-WAR EDITION, BY W. C. BROWN. Pp. 265. (G. G. HARRAP & Co., LONDON). INDIAN AGENTS: P. T. I. BOOK DEPÔT, BANGALORE.

The aim of this series is to treat geography as a subject of study dependent chiefly on the students, reasoning powers; and hence every fact is explained; a large number of exercises has been inserted, from which progressive selections could be made; the number of diagrammatical maps included is large; and there are various useful tables in the appendix as to how land is used, the area and distribution of population, etc. The first chapter on the world in space and in seasons is rather difficult for beginners and the explanation of the Solar System may be postponed to a later stage. The structure of Europe as a peninsula in itself, containing a number of peninsulas is next described; and geology and climate follow. Post-war France is clearly described with the changes in her north-east boundaries; while the effect on Germany of the war is well brought out in appropriate places. The effect of the new independ-

ent Baltic States upon the northern peninsulas is noted. The new Central European States are treated fairly exhaustively as well as the States of Russia and the Balkans. The last chapter deals with the peoples of Europe, how they have been formed by causes historical and otherwise. The Great Powers, after Versailles, have attempted to delimit the various nations of Europe by just and equitable boundaries according to the principles of self-determination, accessibility to the sea and the freedom of the main waterways. The book is interesting and contains a great quantity of useful information.

WEAVING AND OTHER PLEASANT OCCUPATIONS, AS TRAINING FOR HAND AND EYE IN THE SCHOOL-ROOM, BY R. K. AND M. I. R. POLKINGHORNE. Pp. 223. (G. G. HARRAP AND Co., LONDON: 1923). INDIAN AGENTS: P. T. I. BOOK DEPÔT, BANGALORE.

This book is a plan giving easy occupations to encourage children to give up playing the part of mere spectators, and become workers, if only in a humble way—both for those children who are strong in mind and body and also for those whose hands are feeble and whose minds work slowly. Every child must have some occupation and must be allowed to succeed at something.

To work with tissue-paper and work it into surprising shapes must be easy and pleasant enough work for children, and the authors give us 45 different shapes and figures which can be worked out of tissue-paper and ribbons. Patterns also can be easily worked out by children on squared paper and many of them made suggestive of plaiting. Patterns may be worked with triangles, circles, pentagons, etc. It is also pleasant work planning borders for pictures which have no frames and for room decoration. Borders with wave-lines, zig-zag and double zig-zag lines can be easily designed by children. Pattern designing leads to the making of delightful tops showing the strange effects of colour-blending. Raffia, rushes, cane or rattan, all are good material for basketry—these can all be coloured—door-mats,

baskets, ropes, curtain loops, etc., can all be made.

The various processes of weaving are next explained and shown to be possible even for children. Spinning is more difficult for children than weaving and perhaps less practical in school. But they can be easily made to weave doll's cloths, etc. from card-board looms, from simple looms for bags, jerseys, hammocks, etc. Weaving coloured patterns in the loom itself, and inlaying or brocading with extra wefts are also possible, though difficult for children; and the whole operations may be beguiled by weaving songs, stories and games. Many of the games link'd with weaving are suitable for little children, like the well-known Maypole.

Basketry, coiled and sewn, is described next, especially Indian basketry, the Peruvian weave, the Laizy Sqaw stitch, Mariposa weave, the Samoan stitch, the Fuegian weave, etc. The shaping of baskets is a difficult task to learn, as also the providing of handles and covers. Basketry and the allied crafts occupy a good deal of space in the book. Children might also be taught to make doll's furniture with corks, pins, match-sticks and silk or fine twine. Simple bead-work, very interesting in itself, the making of pretty paper beads out of wall-paper, sewing and stitching with raffia, etc., clay-modelling, both in the round and in relief, and the modelling of acorns, sycamore-seeds, chestnut-burrs and other seeds—these form delightful work for children in connection with their lessons. Leaves and flowers may also be occasionally modelled; while figures from other plastic materials like paper-pulp, dough, plasticine and modelling-wax may also be made.

The illustrations in the book amount to nearly 500 in number and are very interesting to young and old alike. Altogether the book should be in the hands of every teacher of small children, especially girls.

FACTORY LABOUR IN INDIA, BY RAJANI KANTA DAS. (WALTER DE GRUYTER AND CO., BERLIN AND LEIPZIG, 1923). Pp. viii & 216.

This is a study in the rise, growth, conditions and problems of the factory workers in India made

by the author some years back and now published with various improvements and additions. In his opinion the poverty of India which is both absolute and relative, is due to the economic inefficiency of the people to make the most use of the resources of the country, and secondly to the lack of a fair system of distribution. He would urge as the first need of the country the modernisation of the industrial organisation which would at once increase the efficiency of the labourer and augment the national dividend. The object of the author in the present book is the description of the working and living conditions of the factory labourers and of labour legislation and organisation—more a comprehensive and critical survey of the subject matter than an attempt to indicate and offer remedies.

After describing the development of the factory system and the rise of factory labourers mainly recruited from the ryots class, the artisan castes and the village menials, and their occupational classification and geographical distribution, he goes on to note the development of factory discipline by which rural labourers accustomed to desultory and fitful work on the fields came to be gradually adapted to the intensive and continuous work of factories. The labourer usually wastes a great deal of time outside the factory; and serious charges are made against him that he is frequently absent and that he is marked by the premature termination of the engagement of his work. So it is necessary to engage a large percentage of extra workers every year. The author explains the causes of the frequent absence and turnover of the labourer.

Some points of doubt and dispute as to whether the mortality rate among factory workers is lower than that among general labourers, how far the factories are responsible for the high rate of death from phthisis and whether the provision of compensation for injuries made by the Act of 1922 is adequate—these are all discussed in the course of treatment. The lack of strong supervision is one of the great defects in our organisation. But it is consoling to read that India does not compare unfavourably with Japan which is her greatest

competitor in the East with reference to the standard of efficiency of the mill-labourer (p. 123). Various improvements should be effected in order to promote efficiency; and the various phases of the problem are clearly traced (pp. 128 to 130). The movement of nominal wages and the movement of real wages for the labourers are next discussed—the wages having risen along with the increase in prices in the period prior to the war, but not having risen correspondingly since then. The tests of the standard of living of the labouring classes are explained; since the main object of the study of labour is how to improve the moral and material condition of the workers.

The history of factory legislation in India is also traced, as well as the growth of labour organisation and trade unionism. The last chapter deals with the various problems of factory labour like unemployment, hours of work, health and safety, etc., and explains the background of such problems and their remedial measures and agencies of which philanthropic and welfare work, legislation and the development of the labour movement are the most important. We lay down the book with a grateful feeling of having benefited much from the wealth of useful information with which it is literally loaded to the brim.

HINDUSTANI WORKERS ON THE PACIFIC COAST, BY RAJANI KANTA DAS. (WALTER DE GRUYTER AND CO., BERLIN AND LEIPZIG, 1923). Pp. viii & 126.

The author was the special agent of the Bureau of Labour Statistics of the Department of Labour, U. S. A. Government, in 1921-22; and the book under review is based on the report then drawn up by him and presented to the Bureau. All the Indians settled on the West coast of America from Southern California to British Columbia were examined and their conditions personally investigated. Most of the Indian immigrants are rural labourers from the Punjab, while a few hail from Gujarat, Oudh and Bengal. The fundamental causes of the Hindustani influx into Canada, especially British Columbia, was economic, and specific

measures were adopted in Canada as early as 1908 to prohibit further immigration which dropped from 2623 in 1908 to 6 in 1909. In America, the activities of the Asiatic Exclusion League became prominent about 1910 and the final Immigration Act of 1917 excluded all people from the so-called barred zone except travellers, students and officials.

The geographical distribution of the Indians is next noted. While at first the settlers were mostly employed on railroad construction, gradually they went, at least many of them, into agriculture either as farm-operators or as farm-labourers. Only a few are employed in industries other than farming and saw-milling; and there are some who have business in real estate. They are kept aloof from the labour organisations of the country, but are willing to co-operate with them wherever possible. At present there is scarcely any under-bidding on the part of Indians. They preserve fairly good health and vigour, have great aptitude and adaptability, are punctual and steady in attendance and have powers of endurance. Their relative efficiency, as compared with Mexicans, Chinese, Japanese, Canadians and Americans is of a very high order. Their wages are higher than those of Chinese and Japanese and compare favourably with those of Americans and Canadians. Standard of living is a variable item with them, generally improving with an increase in their wages. Their social life, habits, virtues and vices are detailed, but call for no special comment. The one outstanding feature of their life in America is their business enterprise combined with their integrity. Thrift is a most notable virtue among them; and their culture, philanthropy and patriotism are all commendable. Due to race prejudice wholly there has scarcely been any attempt at the assimilation of the Hindustanis; but the fault is not on their side. They feel now more than ever the injustice of the social, political and industrial discriminations under which they have to live. The book is one which should be read by every Indian who is proud of the doings of his fellow-citizens abroad.

The Educational Review.

Persons who are anxious to have the vernaculars enforced as the media of instruction at the Matriculation and higher courses, in all places and in all circumstances, will receive some useful instruction from the proceedings of a recent meeting of the Senate of the Patna University. At certain centres attempts have been made, from time to time, to introduce the vernaculars as the media of examination, the option being allowed to a student to answer questions either in English, or in one of the recognised vernaculars of his province. An experiment of the kind was tried in Bombay some years back and soon abandoned, as very few students were willing to come forward to take advantage of the option. Similar things have been happening in connection with the University of Patna. In the year 1921, the Senate came to the decision that after a certain date : 1928—the vernaculars should be employed *compulsorily* as the media of instruction at the Matriculation examination, for the present an option being allowed to the students to answer questions either in their mother-tongue or in English. It is a matter of significance that not a single High School in all Bihar and Orissa has come forward, in spite of the lapse of two years and in spite of the impending prospect of the vernaculars being made compulsory media, to take advantage of

the option. The problem is further complicated in Bihar and Orissa as in many other provinces, by the prevalence of more than one vernacular: Hindi, Uriya, Urdu and Bengali, claiming the attention of the candidates appearing at the Matriculation Examination of the Patna University. At the last meeting of the Senate, the Education Minister explained the situation and Prof. Jadunath Sarkar moved a resolution to the effect postponing *sine die* the introduction of the change and it was carried by a large majority.

Himself a poet and a lover of learning, His Exalted Highness the Nizam of Hyderabad has been keenly alive to the needs of education and has proved a most generous and enthusiastic patron of the Osmania University. It is fitting therefore that the Osmania University should have honoured the Royal founder. On the 28th of the last month, the authorities of the University conferred on His Exalted Highness the honorary degree of *Sultan-ul-Uloom*. As the ruler of the State, he is probably above any titles which his subjects can confer upon him, but his love of learning made him graciously look upon the academic distinction as a great honour even for a ruler and he was invested with it on the occasion at a brilliant function. It is interesting to note that His Exalted Highness the Nizam composed a special poem in Persian for the occasion. Considerable headway has still to be made in the Nizam's Dominions in the matter of education,

and we hope that under the rule of His Exalted Highness, the State will see great progress in the direction.

Educationists will not be able to get the recognition they deserve until they come out of their usual seclusion and take an active part in public life. We would invite the attention of members of the educational profession in South India to a few interesting facts in connection with the present elections in the United Provinces of Agra and Oudh, where many educationists are standing for seats in the local Legislative Council and in the Assembly. The University seat is being contested by an educationist, Dr. Ganesh Prasad, M.B., D.Sc., the well-known mathematician, his rival also being a person of some educational experience, Pandit Iqbal Narain Gurtu, M.A., LL.B., formerly of the Central Hindu College. The Benares City Constituency is being contested by Prof. P. K. Telang of the Hindu University and what is very encouraging many of the Mahomedan seats are also being contested by educationists. Dr. Zeauddin Ahmad, D. Sc., of the Aligarh Muslim University, and Dr. Safaat Ahmad Khan of the Allahabad University, are both candidates for the Provincial Legislative Council from two different districts, while Dr. Hyder of the Aligarh Muslim University is a candidate for the Assembly. We wish success for all these educationist candidates and hope that their example will be followed by a number of educationists all over India.

The recent appointment of Sir Harcourt Butler to the Governorship of Burma will give a new impetus to the cause of education, his energy in the direction being well-known. But the Quinquennial Report of Public Instruction in Burma which has just been issued is not very encouraging. During the period (1917-1918 to 1921-1922), there were only 7179 public schools all over Burma attended by 345,665 pupils of whom 26,569 were in the lower primary stage of instruction, 53,638 in the upper primary stages, 21,503 in the middle, 2659 in the High and 5,515 in the Collegiate stages. The remaining 11,781 were in special schools. The previous quinquennial report had recorded an increase of over 3,000 public schools and of 123,089 pupils, while the present report actually records a decrease of 2,385 public schools and of 47,734 pupils. It is interesting to note that these figures include girls and that at every stage there has been increase of girls undergoing instruction in spite of the general decrease. The Non-co-operation movement and the Boycott of schools affected the progress of education adversely, but the departmental officers seem to think that the schools have improved in morale and discipline by the recent trials of strength with Non-co-operators. We do not know how far this testimony would coincide with the opinions of educationists who have had to deal with Non-co-operation in India, but we presume there is some measure of truth in it. There is now a widespread

conviction, supported by an effective demonstration that it is futile to think of boycotting educational institutions.

The growth of obscene literature in recent decades has been a matter of serious anxiety to educationists as

Obscene Literature.

it is becoming increasingly difficult to safeguard young people at school and college from contact with such publications. We are glad to note that the League of Nations has taken up this question, because without international co-operation, it is impossible to take any effective action in such matters. In September, a Conference was held on the subject in general, Sir Prabhasankar Pattani, the representative from India being the Vice-President of the body. An earlier Conference on this subject held in 1910 on the invitation of France ended in failure, but there seems to have been considerable unanimity this time among the representatives of the various nations, only the French, Swedish and Danish representatives making certain reservations in view of the legislative peculiarities in their respective countries. The convention arrived at as the result of these deliberations seems to be of the most comprehensive character, providing for the search of premises suspected to contain obscene literature and for their seizure and destruction. It also provides for the mutual exchange of information between countries in cases where obscene objects are produced in one country and sold in another. We hope that as the result of this convention, there will be

an appreciable reduction in the amount of obscene literature which is every day corrupting the morals of the youth all over the world.

While welcoming the attempts of the Nationalists in Burma to come back to the benefits of the Rangoon University after the thoughtless boycott of a few years back and while even sympathising with the attempts to make the constitution more liberal so as to placate public opinion in the matter, educationists will certainly oppose the attempts which are being made in certain quarters to interfere seriously with the academic spirit of the University. The Senate and the Council of the Rangoon University therefore had recently to meet and affirm certain fundamental educational principles in connection with University organisation which are sometimes apt to be lost sight of under the stress of popular encroachment. The bodies passed resolutions:—

- (1) Affirming their belief that the establishment of affiliated colleges would be both uneconomical and detrimental to the standards of University teaching and examining and that the system of affiliations having proved ineffective in India and elsewhere is condemned by an overwhelming weight of opinion among educationists; (2) considering it essential that the power of the Chancellor should remain unimpaired; (3) affirming that the proposals to give control of purely academic affairs, such as courses of study, appointment of examiners, publication of examination results, inspection of colleges and hostels, to a body in which educationists are in a minority is contrary

to good University practice and, further, is against the interests of the Province as tending to undermine confidence in the academic awards of the University; (4) welcoming any reasonable increase of representatives in the Council of organisations in the Province that are actively interested in higher education; and (5) stating that these are always open to consider representations from responsible quarters as to ways in which the University may be of service in new directions.

Some of these principles are of general application and should interest people even outside the circle of those concerned with the present agitation over the Rangoon University.

The correspondent of the *Literary Supplement of the London Times* responsible for the educational article on

Sir Asutosh Mukherjee.

India, week after week, is apparently no friend of Sir Asutosh Mukherjee's. In any case, he seems to be chagrined very much at the thought of the great influence Sir Asutosh wields in the councils of the University, particularly with regard to the Post-graduate department. It is well-known that he wields considerable influence on University affairs whoever is the Vice-Chancellor for the time being. Here is the picture of his power by one who is apparently not pleased with it:—

Whether or not the resumed Conference issues in agreement between the parties, it is a matter of the greatest moment to Bengal that the present anomalous constitutional position should be brought to an end. It is one of the most curious that could be imagined. So long as Sir Asutosh

Mookerjee is not the Vice-Chancellor, the holder of that office has nothing to do with the University teaching, the ambitious conduct of which, with scant regard to financial considerations, has been a subject of so much criticism. When the war was less than half-way through its course the Government of India was induced by the Senate, though with manifest misgiving, to sanction certain regulations which have the force of law; these placed the teaching department of the University in the hands of two Post-graduate Councils, one for Science and one for Arts, composed mainly of teachers. Of these Councils Sir Asutosh is the elected President and he also presides over nearly all the Boards of Studies.

The result is that while the Vice-Chancellor deals with school or under-graduate education, Sir Asutosh carries on the real work of the University as though he were still its *de jure* working head. In such circumstances any successor to him in the Vice-Chancellorship is in a position, to take an Indian historical parallel, comparable to that of the heads of the house of Shivaji while the Peishwas ruled at Poona. Sir Asutosh wields a dictatorship which, however much he may be inspired by zeal for the University, is inconsistent with the ardent declarations of his supporters in opposing the Draft Bills of the Bengal Government, that the University must be free at all costs. Sir Asutosh cannot be displaced from his position as the President of the Post-graduate Councils until the regulations are changed. The regulations cannot be changed unless the Senate moves and the resolutions of the Senate on the subject are accepted by Government. The Senate cannot be expected to move since it has been shaped so largely on the lines willed by its most dominant figure. Such is the knot into which the University is tied. The way out would seem to lie in the local Government and the University reaching the maxima of agreement that may be possible and then for the Government of India and its Legisla-

ture to decide the issues which may still remain between them. The prospect of satisfactory legislation in the Bengal Council cannot be regarded as very hopeful.

It is only necessary to correct the impression produced by this account. The secret of Sir Asutosh's power is his great devotion to the University and the energetic application of his superior talents to its cause. The Government, and even this jealous writer in the *London Times*, ought to know how incapable other nominees of Government have been in discharging their duties as Vice-Chancellors. Sir Lancelot Saunderson, Sir Nilratan Sarcar and Sir Devaprasad Sarvadhikari and now Mr. Bhupendranath Basu have been the favourites of Government and no wonder they have not been able to oust Sir Asutosh. And after all, why should it be done? The Government may rest assured that even if the task is accomplished by the legislative activities contemplated at present before the Council, it is the University that will be the loser.

We congratulate the Hon. Dr. Gangadhar Nath Jha, D. Litt., on his election to the Vice-Chancellorship of the University of Allahabad in succession to Sir de la Fosse. An eminent scholar of Sanskrit and an educationist of considerable experience, Dr. Jha commands the respect of all people in academic circles. In connection with the Allahabad University and the Benares Hindu University, he has had exclusive experience of Uni-

versity matters and we have no doubt he will prove very successful as the administrative head of the oldest University in the United Provinces. Simple and unostentatious, Dr. Jha is a fine gentleman in private life and is a very agreeable person to those who have any occasion to come into contact with him. Educationists have reason to feel particularly glad over the election as one class of politicians in the provinces, helped by their party organ, carried on at least in the early stages, a campaign against an educationist candidate being elected. We were told gravely that educationists are not good enough to be Vice-Chancellors and that they must always be politicians with a knowledge of 'public' affairs, as if an educationist by virtue of his scholarship and the routine of his life, was unfit to acquire any knowledge of public affairs and as if a knowledge of 'educational' affairs was not more important than a knowledge of 'public' affairs for the efficient discharge of a Vice-Chancellor's duties. Dr. Jha's election is an effective and triumphant vindication of the position we have always held in the matter.

In the course of his address at the recent Convocation of the Patna University, the new Hon. Vice-Chancellor, Mr. Sultan Ahmad, put in a strong plea for residential Universities and replied to the critics who are often fond of making out that unitary and residential Universities were not particularly suited to India. The question has a practical

bearing on the problems of education coming up before the authorities of the University, in view of the proposed scheme for converting the Patna University into a regular residential University, but the question is of general interest all over India in view of the conflict between the two types at more than one place. Mr. Sultan Ahmad had no hesitation however in thinking that the province needed a teaching and residential University as soon as possible. He thought that the usefulness of such a University was never doubted. Real education ought to result in men being physically fit, morally sound and intellectually learned and the present-day examining University could not even pretend to achieve those objects of education. They should create an agency which would be, if not better, at least a substitute for home to control and guide their moral and physical instincts. That agency was the residential and the teaching University where inter-collegiate social intercourse, physical competition and affectionate guidance of teachers and tutors would all contribute to the development of the students' finer instincts and thus help him to be a man, an honest citizen and scholar."

* That the moral influence of the teacher should go a long way in the reformation of social life was recently brought out in a striking manner in connection with Lady Astor's Bill which has just been passed by the Parliament in England prohibiting the supply

on licensed premises of intoxicating liquors to persons under eighteen. It will interest members of the teaching profession to know that the Bill which Lady Astor introduced in the House was drawn up by teachers. Addressing an audience of teachers the other day, Lady Astor thanked them profoundly for having drawn up the Bill. "It was the Teachers' Bill," she said "and that was what gave it its power because if the teachers did not know what was good for adolescence no one knew." We wish this fact was always realised by the public and we wish also that the members of the teaching profession deserved in every instance, the high praise implied in these words.

Presiding over the distribution of prizes to labourers studying Education of the Workman in Trade Union Schools in Birmingham the other day, Mr. Neville Chamberlain put in a strong plea for the education of the workman and generally for the extension of educational facilities of the highest kind for the masses. Very little has been done in the direction yet in India and it is good to keep the ideal in mind. It will be noted that the scheme in Birmingham provides for the close association of the University with the education of the worker:—

He supposed that in Utopia, the theoretically perfect world, every man and woman would have a University education, but that was not possible in this workaday world. The fact that it was the privilege of a fortunate minority had led to the view, sometimes expressed that the University

was the rich man's institution, and that money devoted to it was so much taken from the education of the poor. He understood the feeling that prompted this view; but a broader outlook would have shown those who made this criticism that even for those who did not themselves have the benefit of a University training there was the benefit arising from the fact that future leaders and managers of industry were technically equipped so as to be able to compete successfully with foreign nations and thus preserve our trade and find employment for our own people.

There was, however, a certain under-current of truth in the criticism, and it was felt that a University was not fulfilling completely its true functions in the life of the community unless it did something more direct for the mass of the people, and it was this feeling which prompted him and others to see whether it was possible to make the people feel they had not merely an indirect but a direct interest in its progress and development.

In consultation with the leaders of Trade Unions and other organisations the idea was evolved of instituting a sort of partnership between the University and the Trade Unions in which the University should provide the teaching and the Trade Unions nominate the students, and, where necessary, compensate them for their loss of time.

This plan differed from that of the Workers' Education Union. The new scheme was not for evening classes, but provided for those in the industrial ranks who could not afford the time to take a complete course and yet wished to enlarge their minds to grasp, at any rate, the fundamental laws which governed the natural world, to trace the development of our state of society, to learn something of the history of the country that gave them birth and of its relations with other countries, to acquire some knowledge of literature which had so profoundly interested the thoughts and actions of men and women in the past, and in training the mind for clear and concise expression.

It was felt that it might be possible to offer to a limited number of those who had the keenness and the enthusiasm to desire such an opportunity some instruction of this general character, supplemented, perhaps, by instruction in economics and commercial history without taking them away from the occupations in which they were engaged.

This was the origin and foundation of the classes, and he was fully satisfied that those who had been able to follow out the course to its completion had obtained something of real value to themselves, something which had made their lives fuller and more interesting, and he ventured to prophesy that the movement would not stop in Birmingham, but would spread throughout the country.

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**ELECTRICAL STRUCTURE OF
MATTER—A SUMMARY.**

THIS is the subject of the Presidential Address delivered by Prof. Sir Ernest Rutherford before the British Association for the Advancement of Science in Liverpool on September 12th, 1923. On the desire that our schoolmasters may be enlightened on the recent advances regarding the structure of matter, it is proposed to give below a short summary of it.

Rontgen discovered X-rays in 1895 and Becquerel announced the discovery of radioactivity of the element Uranium in 1896. No one would have anticipated how far these two fundamental discoveries could influence our conception of matter and extend our knowledge regarding the nature of electricity.

In order to view the extensive territory conquered by science in the interval of 28

years, it is desirable to summarise the state of knowledge of the constitution of matter at the beginning of this epoch. Chemical combination was explained by Dalton on the philosophic basis of his atomic theory and there was then no need for any detailed knowledge of atomic dimensions. It was sufficient to assume that atoms acted as single, indivisible units and to know the relative masses of the atoms of different elements. Later still, the prominent properties of gases were explained on the supposition that the atoms were minute, perfectly elastic spheres, and Lord Kelvin obtained, by a variety of methods, very rough estimates of the absolute dimensions and mass of the atoms. But all these only went to show that an atom is a very small unit and an enormous number of them will be required to produce any tangible effect in any kind of measurement.

Now Mendeljeef brought out his well-known table showing the periodic variations of the

properties of elements and Faraday enunciated his laws of electrolysis. The philosophically-minded followers of Dalton believed from the former that atoms should be somewhat similarly constructed, probably of the same or similar material. They began to worry themselves about the constitution of the atom and thought that this problem was closely connected with the nature of electricity.

While ideas were thus very vague, Sir J. J. Thomson suggested that the atom must be of an electrical structure held together by electric forces, which accounted in a way for the variation of physical and chemical properties of the elements, exemplified in the periodic law.

In the meantime, it was shown that the atoms of radio-active matter were undergoing spontaneous transformation and the α , β and γ rays emitted are the consequence of these atomic explosions which involve gigantic energy. The α particle was later proved to be a charged helium atom and this disclosed the importance of helium as one of the units in the structure of the radio-active atoms and probably in that of atoms of all ordinary elements too. Moreover, α particles have been used as projectiles to explore the interior of the atom whose nuclear structure has been exhibited thereby. It provides us with a method of artificially disintegrating light atoms and ascertaining the actual structure of the nucleus itself.

The study of radio-activity has further enabled us to detect the effect of a single atom. Each α particle, as Sir Wm. Crookes showed, produces a flash of light visible in a dark room as it falls on a zinc sulphide screen. The α particle can also be detected photographically or electrically. C. I. R. Wilson

has devised a method for observing the track through a gas not only of an α particle but of any type of radiation producing ions along its path. This method depends on the fact that if a gas saturated with moisture is suddenly cooled, each of the ions produced by the radiation becomes the nucleus of a visible drop of water. These water drops are clearly visible and can be recorded photographically.

By these methods and by many more new ones, the mass of the individual atom and the number in any given quantity of matter have been fixed with some accuracy. The atomic idea of matter has been more confidently established but the one method capable of the greatest accuracy depends on the atomic nature of electricity. The works of Townsend, Johnstone, Stoney and Millikan have since given most convincing proof of the correctness of the electronic theory and measured the fundamental unit of charge with an accuracy of about one in a thousand.

If the atom is an electrical structure, it can only contain an integral number of charged units and since it is ordinarily neutral, the number of units of positive charge must equal the number of negative units. But the difficulty arises as to the exact part played by these positive and negative units. We know that the electron has a negative charge while the charged hydrogen atom has a positive unit. But the mass of the electron is only $\frac{1}{1840}$ th of that of the hydrogen atom. So a diligent search was made if there is a positive electron and all attempts have till now failed to detect it. The atoms therefore are unsymmetrical structures with regard to the positive and negative units contained in them and it should be so, as matter could not exist otherwise. There is the strongest evidence that the atoms of

matter are built up of these two electrical units, *viz.*, the electron and the hydrogen nucleus or proton as it is usually called. These two fundamental and indivisible units constitute probably our universe.

This was the state of our knowledge by 1900, but little real progress followed until the part played by the positive charges was made clear. The deviation of α particles when they passed through the atoms of matter was examined and it was found that in colliding with a single atom, the laws of dynamics ordinarily apply. Remembering the great kinetic energy of the α particle, its deflection through a large angle in a single atomic encounter shows clearly that very intense deflecting forces exist inside the atom. The reaction between the two particles occurs through the intermediary of powerful electric fields which of the required magnitude could be obtained only if the main charge of the atom were concentrated in a minute nucleus. The conception of the nuclear atom arose herefrom and the heart of the atom is supposed to consist of a minute but massive nucleus, carrying a positive charge of electricity and surrounded at a distance by the requisite number of electrons to form a neutral atom. The exact value of the nuclear charge as numerically equal to about half the atomic weight in terms of hydrogen was obtained from the work of Lane, Sir William Bragg, W. L. Bragg, and Moseley on the scattering of α particles and X-rays. Moseley's work on X-ray spectra not only fixes the number of electrons in all the atoms but shows conclusively that the properties of an atom are determined not by its atomic weight but by its nuclear charge.

Once the salient features of the structure of atoms have been fixed and the number of

electrons known, the further study of atomic structure falls naturally into two great divisions: one, the arrangement of the outer electrons which control the main physical and chemical properties of an element, and the other, the structure of the nucleus on which the mass and radio-activity of the atom depends. On the nuclear theory, the hydrogen atom is regarded as consisting of a singly-charged positive nucleus with only one attendant electron. But Niels Bohr thought that if this simple constitution was assumed it is impossible to account for the complicated optical spectrum. To satisfy this, he applied to the atom the essential ideas of Planck's Quantum Theory.

On Planck's theory, radiation is emitted in quanta or definite units in which the energy E of a radiation is equal to $h\nu$, where ν is the frequency of the radiation and h a universal constant. The magnitude of this quantum of radiation is not fixed but varies according to frequency.

In applying this quantum theory to the structure of the hydrogen atom, Bohr supposed that the single electron could move in a number of stable orbits, attracted by the force of the nucleus and without loss of energy by radiation. He also assumed that radiation was only emitted when the electron for some reason was transferred from one stable orbit to another of lower energy. On these assumptions, it is possible to account for the series relation between the bright lines of the hydrogen spectrum and to explain the fine structure of the spectral lines and the very complicated changes observed when the radiating atoms are exposed in a strong magnetic or electric field. By his novel theory of the origin of spectra, Bohr has thrown a flood

of light on the relations and origin of their spectra—both X-ray and optical—and he has applied it to determine the distribution of the electrons round the nucleus of the atom.

We may now try to visualise the conception of the atom we have so far reached by illustrating with Uranium, the heaviest atom known. At the centre of the atom is a minute nucleus surrounded by a swirling group of 92 electrons [as the atomic number of Uranium is 92] all in motion in definite orbits, some circular, others elliptical and occupying a volume very large compared with that of the nucleus. The motion of the electrons is not confined to a definite region of the atom but the electrons of one group may penetrate deeply into the region mainly occupied by another group. The maximum speed of any electron depends on the closeness of the approach to the nucleus but the outermost electron travels with a minimum speed of more than 1000 kilometres per second whilst the innermost will have an average speed of more than 150,000 kilometres per second or half the velocity of light. The electronic system is thus extraordinarily complex.

This theory of outer atomic structure, whether accurate or not, is a great advance. It explains very satisfactorily some of the most characteristic features of the periodic law—particularly the appearance in the family of elements of groups of consecutive elements with similar chemical properties such as the 8th group elements and the unique group of rare earths. Bohr's theory, besides correlating a multitude of isolated facts known about the atom, predicted with such great confidence the chemical properties of the missing element whose atomic number

is 72, that it gave the necessary incentive for its recent discovery.

The inner structure of the atom, i.e., the nucleus part, is, however, more difficult to be probed into. We have fewer methods of attack to throw light on its constitution—yet, we know its resultant charge fixed by Moseley's law and its mass which is very nearly equal to the mass of the whole atom, since the mass of the planetary electrons is negligibly small. The study of radio-active bodies has also provided us with very valuable information on the nuclear structure, for α and β particles are expelled from it while the very penetrating γ rays represent modes of vibration of the electrons contained in its structure. Further in the Uranium atom, eight α particles are emitted and six electrons, finally giving helium. It seems clear that the nucleus of a heavy atom is built up of helium nuclei. Very probably, ordinary stable atoms are also similarly constituted. There is no indication that the lightest hydrogen nucleus is released during radio-active transformations. But Dr. Chadwick and Prof. Rutherford have observed that hydrogen nuclei are released from boron, nitrogen, fluorine—in fact all elements of odd atomic number—when those atoms are bombarded by swift α particles. But these hydrogen nuclei are liberated in all directions and it is quite possible that they exist only as satellites probably in motion round a central core.

Experiments performed with α rays to disintegrate artificially atoms of various elements suggest that the hydrogen nucleus or proton must be one of the fundamental units building up a nucleus while the helium nucleus is a secondary building unit composed of a very close union of four protons and two electrons.

This nuclear theory of the atom explains very satisfactorily the relation between isotopic elements—that is, elements chemically alike but with slightly varying atomic weights—since the chemical properties of an element are controlled by its nuclear charge and little influenced by its mass, isotopes must have the same nuclear charge but be of different nuclear mass. In the last few years, making use of these facts Aston has considerably expanded our knowledge of isotopes.

A word may be said with reference to the energy relation involved in the disintegration of atomic nuclei. The total evolution of energy during the complete disintegration of one gramme of radium is many millions of times greater than in the complete combustion of an equal weight of coal and if we were able to hasten the radio-active processes in Uranium and Thorium so that the whole cycle of their disintegration could be confined to a few days instead of over thousands of millions of years, these elements will provide convenient sources of energy on a large scale to be of practical importance. Unfortunately, the most powerful laboratory agencies have failed to effect it.

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The peculiar vitality of our ancient local administration, especially of the communal life of the village, which attained its fullest fruition under the great Cholas and continued undisturbed down to the sixteenth century, is one marked feature of South Indian life; it does not need elaborate mention here, as it has been generally threshed out in many other places both by the author and by others. The overseas expansion of South Indian culture and commerce to the islands of the Archipelago and the Indo-Chinese Peninsula is a scarcely less important,

* *Some Contributions of South India to Indian Culture*—Calcutta University Readership Lectures—Calcutta University, 1923. pp. xxxviii, 11 & 429.

though generally less appreciated, contribution. Western evidence of classical writers, supported by the testimony of the Tamil Sangham Literature, describes the active commerce between the Indian Peninsula and the Western lands about the beginning of the Christian era; while there are not wanting antiquarians who would ascribe an Indian origin to the early Sumerian civilisation. While the Malabar Coast got into touch with the Western world, we have direct knowledge of the Tamils not merely knowing the islands of the Eastern shore of the Bay of Bengal but also of regular commercial voyages and even settlements of people. The chief Eastern ports of Pahar and Tondi imported aromatic aloe, silk, sandal, fragrant articles and camphor. Two varieties of aloe are mentioned as *takkili* (product of Takkola identified by the author with the famous port on the Malay Peninsula near the mouth of the Takopa) and *kidaravan* (the product of Kidāram associated with one of the titles of Rajendra Chola and equated with the Sanskrit *Katāha*.) This latter place was presumably "the island or group of islands dominated by Sumatra, the *Sāvakam* of the Tamils, the *Yavadvipa* of Sanskrit and the *Sabadia* of Ptolemy." (p. 346). The so-called Yūpa Inscriptions of a king Malavarman found in East Borneo now edited by Dr. Vogel and ascribed to the middle of the 4th century A. D. indicate that in that early period there were colonies of Brahmins apparently from South India so far East as Borneo. The learned author would say that if the Tamil name *Sāvakam* ascribed to Sumatra, was due to Tamil, its capital, the *Argyre* of Ptolemy is really the *Uragapura* or *Nagapura* and may have been named so after *Madura* which was known

to the Classical Tamils as *Alavāy* (Sansk. *Hāḷāya*) and to Kalidasa as *Uragapura*. Sumatra was the *Prathama Yava*, and the other island Java was so called by the immigrants from the original Java. Elsewhere and in this book as well, the author explains how the Northern and maritime expeditions of the Chola, Rajendra Gangaikonda, were directed against a combination of the families of Orissa and Sri-Bhoja (in Sumatra) both belonging to the *Sri Sailendra Vamsa*. "The several embassies referred to in the record of the Chinese Trade Superintendent, Chau-Jū-Kua and the one in particular of date A. D. 1033 from a *Lo-Cha-Into-Li-Chulo*, is from *Sri Rajendra Deva Chola*, i.e., *Rajendra the Gangaikonda*, had probably the same object in view" (p. 384). Chola overseas dominance was given up after the time of Kulottunga; and the gradual establishment of Arab trade in the Archipelago and its conversion to Islam were responsible for the cessation of Hindu maritime enterprise in the East. But Eastern commerce however did not cease entirely. The famous charter to overseas traders granted by the Kakatiya King Ganapati and engraved on the *Motupalli Pillar*; and the mention in *Srinatha's Harivilasam* of *Avachi Tippaya Setti* of Nellore supplying the *Vijayanagara* and other sovereigns of his time with Ceylon elephants, silks from China and other commodities show that the decline of Hindu trade was very slow and gradual. The cultural development of the Archipelago, first Brahminic and later Buddhist, which gave rise to splendid monuments in Java, Cambodia, etc., was unmistakably South Indian in inspiration. The South Indian colonies were not mere trading settlements alone, but actual settlers influencing the land and its culture. In the develop-

ment of commerce, South Indian Hindus played thus a very prominent part. "At one time it looked, as though it had succeeded in establishing a Greater India; but the want of sustained enterprise in this particular combined with efficient rivalries stopped them short as soon as it was well on the way to its full development." (p. 390).

The most notable development of South Indian culture was the evolution of Brahminic orthodoxy almost in its pure *Vaidic* form. According to tradition Agastya brought Aryan culture into the Tamil land; and along with Agastya came presumably the Northern culture especially associated with the Brahmin. We have also got in literature plenty of evidence to indicate the very high position assigned to the Brahmin from the earliest times. The tradition of Agastya's migration to the South and of the cultural progress associated with him is of long standing and much older than the time of the writing of *Manimekhalai* wherein it is clearly mentioned. The inference therefore is that the earliest Brahminism such as was prevalent in the Tamil country must have been pre-Buddhistic in character and the performance of sacrifices was one of the essential functions of the Brahmin. If we proceed on the basis of the chronology of the Sangham works given by the author that it is pre-Pallava in age, the earliest Tamil Brahminism as known from the works was pre-Buddhistic in origin and had for one of its specific objects an exhibition of the heretical character of Buddhism and Jainism and "this body of literature exhibits the existence of these religions side by side with Brahminism having attained to a certain amount of organisation for effective controversy." (p. 56).

The learned author's special theme is the demonstration that Brahminism having found a home of protection and refuge in South India when it was hard pressed in the North, pursued its even path, though occasionally molested and obstructed, and that the Tamil country, as in later periods, was a special refuge to Aryan culture whenever it was hard pressed in the North. We see even in early Tamil works a certain amount of development in the *Agamic* worship of the *Vaishnava Pancharatrins* and the *Saiva Agama* must have had a parallel development. Such developments in South India obviously had intimate connection with the North and "apparently took form with the rise of the Sungas to power in Northern India....which seems to have put a new heart into the Southerners of the orthodox creed and given them the occasion to organise themselves for any possible struggle against their rivals." It is made clear in several places that Ceylon which was predominantly Buddhist and very often hostile to the Tamils of the mainland, was so hostile not only from political motives but also on grounds of religious antipathy. Thus the original Brahminism of the Vedic character came to the South from the North and readily established its superiority over the indigenous religions; it was dominated by ritual and sacrifice which were the special monopoly and field of the Brahmin with whom also learning got to be fully associated, as well as teaching. Later, as Brahminism had to fight against or live side by side with Buddhism and Jainism, it had to improve itself under new stimuli which probably also came from the North. This reformation, if the word may be used here, mainly consisted of a degree of modification towards subordinating the

purely ritualistic part of the Brahminic religion by a very strong infusion of the devotional element in it. This development of *Bhakti* in South India was not confined to Brahminism alone; it affected Buddhism in the northern part of Ceylon and was a peculiar feature of the heterodox *Vetulya* followers (of the Abhayagiri Vihara). "It would seem therefore as though the school of *Bhakti* and the *Vetulya* heresy of Buddhism alike were the developments of Brahminism and Buddhism respectively as a result of the same or similar influences." (p. 106).

The cult of *Bhakti* as it grew up in our land, consisted in its undeveloped form merely in the exhibition of unalloyed affection for God by some form of service and can be traced even in the earliest books of Tamil literature. The works of Saiva *Bhaktas* and Vaishnava *Alvars* soon grew in quantity and were thrown into forms peculiar to the expressions of feelings evoked. These poems, etc., were in course of time set to music and were adapted to dancing. Especially the Saiva devotional works were developed to a remarkable extent in this manner and were put into final form about the 10th century. This special development of *Bhakti* literature is a peculiar feature of the Tamil country, having been produced there earliest, though the *Abhangas* of the Maratha saints of later times, the musical sayings of Kabir and the *Sankirtan* of Chaitanya showed similar features. Another feature of the *Bhakti* cult is the emergence of the saving priest or preceptor essential to the attainment of salvation. It is to the institution of preceptors that we must ultimately trace the development of the various sects of Saivism and Vaishnavism.

We also read in the book of such little known and generally less understood topics as the age and work of the Nayanmars, the Sastras of the Saivas, the origin and development of Vira Saivism. We read of the most important parts of the *Sastraic* section of Saiva canonical literature like Meykanda Deva's *Sivagnanabodham* and Arulnandi Sivacharya's *Sivagnana Siddhiyar*. These two writers together with Umapathi Sivacharya and Maraignana Sambandar constitute for the Saivites the four *Sanatana Kuravar* (succession of pontiffs) as contrasted with the four *Samaya Kuravar* (Appar, Sambandar, Sundarar and Manikkavachagar). The five divisions of Saivism outside the circle of orthodox acceptance which occasionally rose to influence, like *Pasupatam* and *Kalamukham* which flourished under Mahendra Varman Pallava, and *Vamam*, *Bhairavam* and *Mahavratam* are mentioned; the creating causes of the Vira Saiva movement are traced next; and we know how the movement was originally of two sections, one of which may be described as conservative and essentially a Brahmin movement basing its teachings in great part on Vedic philosophy and known as the *Aradhya*; while the other, known as the *Lingayat* is more extreme founded by Basava and now flourishing in the Canarese country. The *Lingayats* flourished greatly especially under the early Vijayanagara kings.

"Saivism, like Vaishnavism, in the South, began during the historical period not as a systematised religion or creed, but merely as the convictions of individual men who could give expression to their own convictions in felicitous language full of overflowing emotion. The early part of *Bhakti* literature is in a sense emotional, resting upon faith and

appealing to the hearts of those who came under its influence. With the great Cholas there came a free infusion from the North of Brahminism chiefly from Bengal... These influxes of Northern Brahmins gave a stimulus to the systematisation of the teachings of the votaries of Siva; and that is the period to which we have to ascribe at any rate the so-called *Sastraic* literature of the Saivas." (pp. 259 & 260).

The great temples and shrines began to rise into prominence under the Pallavas and flourished to an astonishing degree under the Cholas and later were active centres for the propagation of the teachings of both Saivism and Vaishnavism against declining Buddhism and Jainism. It was the need for controversy against these rival religions that imparted a highly controversial tone to the literature of these religions.

The last historical gift of South Indian Hinduism was made by the Vijayanagara kings whose whole energy was directed, as is pointed out, to "the preservation of the Hindu independence of South India, with all the multiplicity of its religions, Hindu and Jain, perhaps even to a very slight extent Buddhist, and providing for the further development of these on peaceful lines, a home in the country south of the river Krishna." In this great work of preservation and regeneration of Hinduism a number of remarkable personalities played a prominent part; Madhava Vidyaranya and Sayana, Madhava Mantrin, Vedanta Desika and others like the *Tatachariyas*. The *Bhakti* creed developed in South India went over to the North where, in a few places, its literature passed in its sensual features, beyond the bounds imposed on it by the canons of Tamil literature—an evil result attendant on the transplantation of a creed. A genuine school of *Bhakti* was thus the most glorious contribution of the South to Indian culture; and in

addition South India could claim to be, outside the land of Aryavarta, the region where Vedic Brahminism could be found to-day in the form which is the product of actual evolution from the Brahminism of the Vedic age.

The administrative excellence of South Indian political institutions has been described in full detail by the author here and elsewhere. But it remains to point out that the land has given its own share of political theory to Indian political literature. In places in the *Tolkappiyam* and in one of the three sections of the famous *Kural* political ideas are elaborately treated. Some of these point to a strong diffusion of Aryan ideas; and their full treatment is out of place in a short review like the present. Political maxims enunciated in books formed a marked feature of literature; and King Krishna Deva Raya embodies a number of these in the fourth canto of his book *Amuktamalyada* which forms very interesting reading, the more so from the fact that many of them should have been attempted to be practically applied by the great sovereign himself. We find among these that Brahmins were and might be entrusted with military and civil offices provided they were versed in *Raja-niti*; that temple management should be carefully kept apart from the other departments of the administration; and that the maintenance of cavalry and elephantry should be a purely royal prerogative not to be shared in by nobles and governors.

We can go on enumerating other contributions of South India, equally or scarcely less valuable; but it is time that we close the review. And we cannot do better than close with the wish that we had more of such information from such erudite and capable hands as those of our author.

C. S. SRINIVASACHARI.

THE EARTHQUAKE IN JAPAN

By CHARLES NORDMANN.

(Revue des deux mondes : Oct 15, 1923).

FROM time to time the nursing earth is also homicidal, and agitated by a kind of frenzy she begins to shake as if the rapid marches to the grave which we call living required to be further accelerated. Then the earth destroys in a few minutes and engulfs those puny human beings who at any rate are destined a little later to be dissolved into funeral moulds.

The seismic catastrophe which has just devastated Japan and which excited the pity of the whole of mankind is one of the most serious that has ever been recorded. If the early newspaper reports exaggerated the number of lives lost, more exact information does not reveal less extent of the disaster. The exact number of victims is not still known and undoubtedly will never be known. But we can estimate that about 110,000 persons were killed in Tokio, 30,000 in Yokohama, 10,000 in Kamakura, 10,000 in the Miura Peninsula, nearly 1,000 at Odawara and Atami, and 5,000 in the Bosa Peninsula which makes a total of about 166,000, undoubtedly exceeded in fact. At Yokohama about 70,000 houses were destroyed and only about a hundred remained intact. At Yokosuka out of about 12,000 houses only 150 escaped destruction. In Tokio about 93 per cent. of the habitations have fallen or are partly destroyed. It is a curious thing that in Tokio many of the buildings with several floors show fissures at the height of the third floor and are much less injured at the upper or the lower floors. Here is evidently a phenomenon of similar resonance to those which I recently described in this journal about tides and which binds the period of

certain seismic waves to the length of the balancing rods which form the walls of the houses and which are set in motion by these waves.

The fire in Tokio destroyed a great part of the Imperial University and chiefly 700,000 volumes of its library.

At the beginning of the phenomenon the shock was relatively mild at Yokohama and nearly similar to those which are very usually felt in Japan. Then, suddenly arose a turning movement, one of those whirling displacements of the earth, long since catalogued by Italian seismology which almost instantaneously flung down all houses.

It is now proved that several of the items of news telegraphed from the beginning of the disaster were erroneous. There was no eruption in the Oshima Islands and this once more proves the absolute independence of earthquakes and volcanic phenomena. Further it is inaccurate that one of the Izo Islands was engulfed.

I pass over the scenes of desolation which accompanied the earthquake, the ruins and miseries that followed in its train. It is not for me to comment upon these things as I am the galley-slave of the technical matters and of that cold objectivism with which the scientist must mask his thoughts. And then I remember the shrewd advice given to me formerly in connection with a certain journey with which I had to entertain my readers. "Above all look at things from the scientific standpoint and do not send us sunsets."

Leaving aside therefore the purely human and anthropocentric aspect of this geological tragedy I should like to examine rapidly what we have learnt from it from the mechanical and physical standpoint.

Since November 9, 1854, the Japanese Empire has not suffered any earthquake, not even that of 1891, which can be compared in intensity and destructive power to the one which occurred on the 1st September last sometime about noon. Semi-destructive earthquakes or earthquakes capable of blowing down the chimneys are not rare in the regions of Tokio and Yokohama. Among the most important of recent times those of the 22nd February 1880, the 20th June 1894, the 8th December 1921, the 26th April 1922 are noted. The first of these earthquakes is noteworthy because it led to the foundation of the Japanese Seismological Society by Prof. Milne. Since then, adapting herself with the ardent quickness which she has shown in assimilating all aspects of our Western civilisation Japan really placed herself at the head of the seismological science. Her stations are the greatest in number and best equipped; her scientists, at the head of which ought to be named Prof. Omori, have made Japan a country of which it can be affirmed to-day that she is the most advanced in this branch of science. It is quite natural when we bear in mind that of all countries, civilized or uncivilized, Japan is the one where earthquakes are most frequent. By hundreds, mild earthquakes are registered in Japan every year. As regards widely destructive earthquakes they are far more frequent in Japan than elsewhere. More than 100 of these are counted from the seventeenth century till to-day.

This sad privilege of the Empire of the Rising Sun which has moreover its counterpart in the luxuriant fertility of an admirable soil proceeds from the fact (which I have already explained elsewhere) that Japan happens to be placed along one of the lines of dislo-

cation of the terrestrial marquetry called the great geosynclinals of the secondary epochs and that mark the zones where the terrestrial shell offers a strong denivelation.

As regards the cause of the earthquake in sinisterly-privileged spots Pliny has already said about them, "where the earth quakes it will quake"; as regards the mechanism producing the earthquake its nature is not as yet very well determined.

However it is not exaggerating to say that our ideas about this subject are more sane than those of our ancestors. For a long time they attributed earthquakes to ghosts agitated in their underground abode or more simply to the infernal gods. It was quite serviceable to suppose quite simply that the earth shakes every time Atlas, fatigued or feeling a bit stiff in the back changed from one shoulder to another the terraqueous globe of which he is the living support.

Mythology and musing (which is sometimes identical) give place slightly to physics with Thales of Milet and afterwards Aristotle. According to Thales the earth floats like a ship on the ocean and consequently the movement of the latter can cause the earth to shake. He supported this theory upon the fact that earthquakes often cause the gushing of new springs. There was less absurdity that one could believe in this childish theory. In short it is nearly allied to the modern theory according to which the terrestrial shell, resting upon igneous mass in fusion with the interior of the globe, sometimes sinks upon the latter snapping at the joints when this igneous mass yields and escapes under it through the effect of cooling.

With Pythagoras, if he really is responsible for the theory attributed to him by

Claude Elien, we once more fall back upon empty dreams as he connects earthquakes with subterranean meetings of ghosts. The celebrated geometrician thus showed, a fact often demonstrated, that one can be a good mathematician and a poor observer of physical things.

The seismic theory which dominated the whole of antiquity and middle ages and a good part of modern times is that of Aristotle. It attributes earthquakes to the subterranean winds which the dampness of the soil causes under the influence of evaporation by the action of the subterranean fires. The "earth winds" thus produced shake the soil as soon as their movement is opposed by an obstacle. This strange explanation, this pneumatic theory, if I may so call it, of seismes persisted for 2000 years in spite of its absurdity and the obvious objections which it raised. Such was the authority of the master.

At last, in the nineteenth century geographical discoveries proved the parallelism, the close relation existing between the distribution of volcanoes and earthquakes. Soon it became natural to attribute these latter to volcanic energy. Such was the view which prevailed during the last century and until about 20 years ago. One can judge about it from what was written in 1889 by Prof. Milne who by his invention of seismographs deserves to be considered as the father of modern seismology. "Although it is easy to discuss the relations existing between earthquakes and several other phenomena we ought to conclude that the chief cause of the former is endogenous to our earth and that the exogenous phenomena such as the attractions of the sun and the moon and the barometric

fluctuations can only enter in a slight manner in the production of these phenomena, their greatest effect can only be to cause a slight preponderance in the number of earthquakes in certain seasons. The majority of earthquakes are due to explosive efforts of the volcanic beds. Most of these explosions take place below the sea and are probably due to the penetration of water across the fissures at the bottom and as far as the incandescent rocks situated beneath. A very small number of earthquakes has their origin in real volcanoes. Some of them are produced by the sudden rupture of the rocky beds or by the formation of fissures."

This volcanic theory is now generally given up and it is no longer acknowledged that it gives the chief cause, not even an important cause, of earthquakes although it is valuable in certain cases.

Nowadays earthquakes are generally attributed to a tectonic origin. This change in the point of view was especially brought about by the works of M. Montessus de Ballore who died a few weeks ago and the celebrated Austrian geologist Suess. Both of them showed the close relation existing between the lines of weak resistance of the terrestrial shell and the distribution of seismic beds. M. Montessus de Ballore attacked the problem upon an extensive scale by means of data extending over the whole earth. Suess limited and particularised his researches by confining them to certain regions of Austria, Calabria, etc. The most striking of the demonstrations of the exactness of the tectonic theory was adduced from the displacement of the soil along the lines of dislocation during the earthquakes in Mino, Oswari, Assam, and California. Among modern

scientists who have made more deep study and brought to its extreme limit this demonstration we must give prominent place to the Englishman Davidson and the Japanese Omori. The tectonic origin of earthquakes can to-day be taken as firmly established... until some decades hence another theory, for the time being still more sure, can be substituted for it.

That the earthquakes are produced along the line of dislocation of the terrestrial shell can hardly be doubted. Moreover it is the general effect of the first causes of these local dislocations. Between the scientists who are seeking the main causes in barometric variations and further still in the lunar-solar attraction and those who, with their eyes obstinately lowered, refuse to see them elsewhere than under their feet, in the physico-chemical vicissitudes of the igneous core of the earth reconciliation is hardly established.

From all this I should be tempted in spite of everything to conclude that at any rate we have made some progress since the childish explanations of mythology, and several folklores. But I wonder whether in concluding thus I do not err through temerity and immodesty of the modern man, too bold contemplator of the *laudator temporis acti*.

This is what I read in a review dealing with psychic science. It is dated August 1923. This is what it says in the year of grace 1923: "Why does the earth shake? The earth, a living and organised being, is working ceaselessly for her evolution without pre-occupying herself with the parasites who live on her. Proud and petulant MAN believes himself to be the master of the world and is realising himself on this powerful being who is ever active."

"The formidable organisation of the Earth escapes the notice of MAN who does not dream for a moment to moor her frail covering at the points where is carried out the prodigious work of this enormous force which is the Earth in motion."

"And when the industrious Earth has carried out a part of her heavy labour she revolts against men's inertia and their babble and plainly shows her disgust."

I have reproduced this suggestive quotation without any change, not even the capital letters with which he deigns to honour this puny creature man. If even the earth shakes it is because she is disgusted with man. It remains to be explained why she is disgusted with Japan more than any other country. No doubt the explanation is not very easy.

And this proves that we must never through fallacious and superficial comparisons treat with contempt the ideas which our ancestors had a few centuries ago upon the nature of things.

But let us return to the earthquakes of the 1st of September last. It took place on the western coast of Japan where the littoral is on the border of the great depths of the Pacific Ocean and precisely corresponds to one of the lines of dislocation of the shell. If one goes back to the seismic map of Japan published by Davidson one further observes and in accordance with what has just been said that the frequency of the earthquakes or the less abundance of the epicenters is much more in the middle of the eastern side of Japan (where precisely Tokio and Yokohama are situated) than in the western side bordered by the Sea of Japan.

We already mentioned that the earthquake of the 1st of September took place about noon

in Japan. Taking into consideration the difference in longitude, Europe was at that moment still plunged into night.

The Institute of the Physics of the Globe of the Paris University under the direction of Prof. Charles Maurain has in the vicinity of Paris a well-equipped Seismological Observatory at Parc Saint-Maur. There they had immediately, even before the telegram brought the news, the idea that a very violent earthquake had taken place by means of the curves supplied by the seismological recorders at Parc Saint-Maur which note in an automatic and continuous manner the shaking of the earth.

The theory shows that when a violent mechanical disturbance takes place near the surface of the earth and in her shell three kinds of waves, emanating from the centre of disturbance, must result from it: (1) longitudinal waves (analogous to sonorous waves), (2) transversal waves, a little less rapid in their movement of propagation than the previous, (3) and lastly, besides these two kinds of waves which are spread from one point of the earth to another, for example, from Japan to Paris, across the thickness of the globe there is a third kind of waves, still slower than the two previous and which are spread following the curve of the earth to the surface of the latter.

In fact the seismographs record, in the case of a distant earthquake three kinds of vibrations which do not reach them at the same time and which are acknowledged (experience being for once almost in harmony with theory) to be considered as the types of waves foreseen by the latter.

What are the velocities of propagation of these waves? Experience shows that at least in small distances the quickest waves have a velocity of about 7 kilometres a second, the waves of the second kind of about 4 kilometres

a second, and those of the last kind of about 3.8 kilometres a second. But these velocities are not constant at any rate for the first two kinds and when the earthquake is distant the velocity is found to be greater. This can be understood. As the waves emanating from a given seismic centre pass through the thickness of the earth as far as more and more distant points from this centre they pass through greater and greater depths of the terrestrial beds. But the earth is not homogeneous. The density and elasticity of her beds varies as we proceed further and further from the surface. The velocity of the propagation of the waves passing through a medium depends upon these data. Thus it follows that the average velocity of the seismic waves, having passed through the thickness of the globe, is not the same, according to whether they come from a greater or less distance. One would be tempted to calculate the same theoretically in each case. But the calculation would be very uncertain as we do not possess accurate information about the physical properties of the matter at different depths below the earth.

Deliberately giving up the gorgeous theoretical conjectures, seismologists have preferred to rest upon less grandiose but more solid basis. They have noted on their seismographs in each case the interval of time separating the arrival of the preliminary waves from those of the principal waves in a given earthquake. And with the help of numerous results obtained in this way in a great number of cases they were able to form detailed tables from which knowing the number of seconds separating the registration of two kinds of waves in a given Observatory is inferred immediately with sufficiently great accuracy the distance at which the said Observatory happens to be from the seismic centre in question.

Thus on the 1st of September last the seismographs of the Observatory at Parc Saint-Maur registered the arrival of the preliminary waves at 3 hours 11 minutes 23 seconds, the arrival of the secondary waves at 3 hours 22 minutes 1 second, and the arrival of the third set of waves which are not only the slowest but the longest at 3 hours 42 minutes.

These times are given in terms of Greenwich time, that is to say, in winter time and not the legal time from the 1st of September (summer time) as was published in the press through mistake. The seismologists have kept the habit (I do not know whether good or bad because to avoid the ambiguities of one side other confusions are created) to state throughout the year their results in terms of Greenwich time.

Be that as it may it follows from the preceding figures that 10 minutes and 38 seconds passed between the arrival of the preliminary waves and those of the secondary waves at the Observatory of Parc Saint-Maur. It was immediately concluded from this by means of the available tables (those of Zöepfritz) in this particular case that the seismic centre was about 9560 kilometres from Parc Saint-Maur which exactly corresponds to the region of Tokio-Yokohama.

This method enables us only to know chiefly the distance of the centre in question. Sticking to these data the station only knows that this centre is on a circle of a calculated radius drawn around this station. But the data obtained in another station and *a fortiori* in two enable by the bisection of the corresponding circles with the first to know exactly not only the distance but the exact position on the map of the required seismic centre.

There is besides a clever method pointed formerly by the eminent Russian seismologist, Prince Galitzine, to infer from the data of

a single station both the distance and direction (that is to say the exact position of the seismic centre.)

Galitzine noted and proved that the first disturbance registered by the instruments, the first wave, the frontal wave reaching them, is exactly directed according to the seismic radius joining the observation station to the seismic centre. In other words, this initial wave is spread in the plane determined by the station, the seismic centre, and the centre of the earth. There are in the station some seismographs giving north-south components of the received disturbance and others giving east-west components of the same. The values of these components for the initial wave immediately fix the direction of this plane, that is to say, the direction of the great terrestrial circle on which, on one side or the other, at a calculated distance, is the centre of disturbance. Which of the two positions thus found is the right one? To know this it is enough to consider the records given by a third seismograph giving the vertical component of the received disturbance. According as the first movement of the ground at the station was upward or downward it is deduced soon without ambiguity which of the two positions is the right one.

The scrutiny of the seismographs obtained at the Parc Saint-Maur Observatory on the 1st of September last is carried out at present under the direction of the eminent seismologist, M. Eblé, and is not still over. All that can be said according to the calculations already made is that it indicates that the ground at Parc Saint-Maur has passed through in the north-south direction and in comparison with its stable position a real displacement of about 0.7 mm. and in the east-west direction a displacement of about 0.6 mm. which corresponds to the total displacement of about 1.4 mm. and 1.2 mm. in the two chief directions.

This is slight if it is compared to the real shakings caused by the least motor-bus in the street. This is much if we bear in mind that this is what remained still at nearly the distance of 10,000 kilometres from the shaking sustained by the soil in Japan.

If the previous records obtained at Parc Saint-Maur are referred to it seems that for the amplitude of the movements the Japanese earthquake of the 1st of September last was surpassed at least once: when the earthquake in China in 1920 ravaged the province of Kan-sou, killing one does not know how many thousands of persons and which was manifested at Parc Saint-Maur by a real movement of the ground whose amplitude probably exceeded 2 mm. I say *probably* because the shock was so violent that the seismographic needles used in order to amplify and multiply greatly the real movements of the ground were in this case projected outside their field of inscription.

It is proper to observe moreover that the more or less destructive character of earthquakes depends less upon the amplitude of the movements of the ground than their acceleration, as we know the acceleration being given, if I may dare to put this simple definition, the rapidity with which velocity varies.

Take a table over which a plate is placed. If its corner is raised gradually but slowly to ten centimetres in such a way that the duration of this movement of lifting should be some seconds, the plate will perhaps be slightly displaced and will slip a little on the table. But if I re-commence the experiment and raise once more the corner of the table to ten centimetres but very quickly and suddenly so that the duration of this movement of lifting should be a tenth of a second at the most the entire plate will be violently

projected and undoubtedly be reduced to crumbs. In these two experiments the amplitudes of the two movements are identical, the difference between the two is the acceleration of the movement. This acceleration (the quantity of whose velocity varies in a second) which was of one or two centimetres in the first experiment, was in the second experiment equal to one metre (1 decimetre in one-tenth of a second is equal to 1 metre in a second).

This simple example helps us to understand how and why what takes place in the earthquakes is the acceleration of the movement much more than their amplitude. Unfortunately the present seismographs or at least majority of them do not directly give the acceleration of the movements recorded by them. The best experiments undertaken on this difficult and important point are those which were made by the Japanese Professor Omori by means of ingenious experimental arrangements.

These led him to substitute the old classifications of earthquakes into new ones in which they are arranged in the order of their violence and in which the latter is measured very accurately by the maxima acceleration registered by the seismes studied at one spot.

Omori showed by means of his instruments that the slight earthquakes so common in Japan correspond to the lower accelerations at one centimetre a second. The values of several centimetres already correspond to the less frequent and more violent earthquakes. Beyond the acceleration of 100 centimetres the earthquake is violent. For an acceleration of 120 centimetres, a fourth of the factory chimneys are damaged, the ill-constructed houses made of bricks are destroyed, the roof tiles are displaced. For an acceleration of 200 centimetres all factory chimneys are broken and almost all brick-made houses destroyed. For an

acceleration of 250 centimetres about 3 per cent. of wooden houses are destroyed and many of the masonry walls are damaged. The rail-roads are torn off. The river water floods the banks. For an acceleration of 400 centimetres the high roads are cracked and cut up, the tombs are cut open, and the fields are overthrown.

Finally for the higher acceleration at 4 metres a second, all buildings are destroyed and enormous sliding of the ground produced. The greatest acceleration observed formerly by Prof. Omori was 4.30 metres in the great earthquake of Mino-Owari. But it is very possible that this figure was exceeded in the cataclysm of the 1st September. We do not still possess data on the subject, but we already know that while during the five days following the Mino-Owari earthquake 808 after-shocks were recorded, the Central Observatory at Tokio registered 1039 after-shocks between the 1st of September 12 (noon) and the 6th of September. All this tends to prove that at least so far as the vertical component is concerned the earthquake of the 1st September is unprecedented since seismographs were set up in Japan.

Among the accessory questions raised by the earthquakes there is one which has interested the public very much for a long time. Can we predict, can we announce beforehand earthquakes? A London amateur whose name I have forgotten made himself famous by predicting in the press (according to a method which he pretended to keep secret and for a very good reason too) earthquakes on such and such dates. When the prediction was verified it happened that from time to time they were noted at the stated dates. The truth is that since the seismographs record several tens of thousands of earthquakes predictions of this kind, vague and inexact, are often likely to be verified even when they

are made at random. To be taken seriously these prophets should take care to indicate exactly on the one hand, the position of the announced centre of disturbance, and, on the other, the amplitude of the latter. As they do not do so one cannot take them seriously.

The only truly scientific idea which is expressed on this subject is due to the Danish geologist Von Kœveslighty. This scientist rightly observed that just as the tension of the girders of a ceiling about to give way increases at first progressively until the moment of breaking, in the same way the terrestrial rocks must, before the seismic disturbance, undergo an increasing local tension. One can measure the tension of given rocks, for example, by measuring the velocity with which sound is propagated and the latter varies according to the variations of the former. One can therefore predict that, in future, the stations proceeding regularly from this study in these threatened regions will announce the earthquakes sometime in advance.

MUKUND M. DESAI.

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THE PLACE OF PRACTICAL WORK IN ELEMENTARY SCIENCE TEACHING.

THERE was a time when the study of a language was considered identical with the study of its grammar. It was not noticed that a language has its literature long before it has its grammar; that men write and speak well without knowing a single rule of syntax; that the study of grammar may be a valuable aid to a man's culture but it need not be the goal of life for all. Things have changed now with a vengeance; the pendulum has swung over to the other side. Grammar is being neglected in schools to such an extent that the students in the Matriculation class cannot distinguish an adverb from an adjective, and we are again feeling the need of revising our ideas.

This sort of oscillating is seen not only in the study of languages but of other subjects as well. There has been a marked change in the methods of science teaching in schools during the last twenty years. Before 1900 the subject was chiefly taught in the class-room. The master explained a lesson, illustrated it with experiments and the pupils remained passive listeners. Since 1900 the student is made more active than the master. He learns his subject—or is supposed to learn it—not so much in the class-room as in the laboratory where he performs his experiments and takes his notes in his journal. We have passed from one position of the pendulum to the other and the time has come for us to think if we should not retrace the path. Things have not turned out as we expected them to do. Recently a certain amount of uneasiness is exhibited over the results obtained and persons who took a leading part in inaugurating the new era

in science teaching are anxiously asking if science was not better taught twenty years ago*.

Obviously there is something wrong in the Kingdom of Denmark. As in the case of grammar educationists have over-rated the importance of practical work in the laboratory. Instead of remaining a valuable aid in science-teaching, it has become an end in itself. A treble mistake is committed in this connection:—

1. It is taken for granted that once an experiment is performed in the laboratory, the student has completely mastered its theory and practical details.

2. The laboratory work is considered the *sine qua non* for complete understanding of scientific facts; *ergo*, what cannot be studied in the laboratory should not be taught and is not taught.

3. Lot of childish work is done in the laboratory and the pupil's time wasted in order to have some kind of practical work corresponding to everything taught in the class-room.

In different stages of a pupil's development laboratory work performs different functions. Thus it may be used—

- (a) for leading a child to fresh information and thus laying the foundation of auto-education;

- (b) for verifying things explained in the class-room;

- (c) for cultivating the habit of accurate observation and correct reasoning;

- (d) for obtaining practice in ordinary laboratory routine;

- (e) for scientific investigation and research.

* Vide 'Nature' of 28rd Sept. 1922.

Now we may at once leave out of consideration the last two as beyond the limits of Elementary Science. We may similarly omit the first. Whatever be the truth in the claims advanced by the advocates of the heuristic method it is generally admitted that the method cannot be adopted by an average teacher in an average school. It will therefore be enough if we confine our discussion to (b) and (c) only. There cannot be two opinions about the necessity of verification. It is felt in all subjects but more urgently in science. Often a pupil leaves the class only half satisfied with the explanation given by the master. He or she yearns to touch the apparatus to satisfy some silly curiosity, or wishes to argue with the master along some absurd point which cannot be raised in the class. Small as they appear, good science-teaching is possible only when we can meet these individual needs. But arrangements required for this sort of work are not those usually obtained in the laboratory. These individual needs will vary from pupil to pupil. A rigid syllabus is useless in this case. The same experiment may appear ridiculous to one, interesting to another, difficult and tiresome to a third and to ask all three to perform it and take elaborate notes in their journals is to waste their time. We are doing much harm to the intellect of our students by forcing on them things for which there is no craving or which cannot be easily digested. Again what the student wants to verify is not the whole experiment but only that part of it which he finds puzzling. Instead of a rigid syllabus requiring tiresome and often meaningless measurements what the student wants is discussion with the things laid out before him. He wants a lot of apparatus spread before him on the table, option to do some or none of the experiments suggested and the master ready to answer every absurd query. Instead of this we force him to follow a cut

and dry procedure. Liberty of action is the soul of laboratory work; but under the present arrangements a student is under greater restraint in the laboratory than in the class-room. In the class he may or may not listen. In the laboratory he must do an experiment and note it in his journal. We do not respect his wants nor his inclination.

It is claimed that this drilling has an educative value. It is supposed to train the pupil to accurate observation and correct reasoning. How far the claim is sound is extremely doubtful. Many psychologists regard it as an exploded hypothesis. A careful analyst is not always a clean and tidy person. A trained geologist has no eye for the sign-boards in a street or the show-cases in a shop. A famous scientist is not necessarily a rational critic. A little consideration will convince us that we are simply exhibiting old wine in new bottles. A similar claim was being made by the advocates of cramming. "Learning by rote trains the memory" they said. Experimental psychologists attacked this hypothesis and tore it to pieces. The claims of those who defend tiresome laboratory work for its cultural value are not less absurd.

Let us take a concrete instance. The Practical Physics Syllabus for F.Y.A. of the Bombay University is admittedly for the non-specialists. About a dozen of the experiments are childish. An equal number will do well for students reading for the B. Sc. The rest require little observation and less reasoning. There is a clear confusion on the five-fold function of practical work noted above. Any attempt to improve the syllabus will be equally unsuccessful. The needs of non-specialists cannot be met by a cut and dry syllabus. Again what cultural value the course may have is completely destroyed by the way the experiments are performed. In

order to minimise his work the demonstrator puts it in a neat frame. He carefully performs the experiment before the pupils, points out important points, warns against possible pitfalls, supplies type-written directions and draws a table on the black-board wherein the blanks are mechanically filled by the pupils. It is difficult to see what scope is left in all this spoon-feeding for observation and reasoning.

Once a teacher asked his students to bisect a straight line *six inches* in length and then explained how it can be done by drawing arcs with the extremities of the line as centres. He deserved the highest punishment allowed in the Educational Code. He offered the solution before presenting the difficulty in the problem. We are doing just this thing every day in the laboratory. There is no presentation of the problem; no time is allowed for thinking; the solution is ready served and yet we claim that laboratory work cultivates the habit of observation and reasoning. Practical work to be useful must be accompanied by intellectual effort on the part of the pupil, and if this cannot be secured let us not waste time and energy in forcing the pupils to go through certain mechanical operations as in a Brahmanic ritual. An unprejudiced survey will easily convince us that a cut and dry syllabus cannot do it. To some it will appear ridiculous, to others it will be tiresome and even the few experiments that may possibly be interesting to all are spoiled for want of good apparatus. Again even in the most favourable circumstances we have nothing but camouflage. Reasoning is deductive and inductive. It is dangerous to leave a beginner to draw his own deduction. He is sure to be more often wrong than right;* for at no time will he be in possession of all data.

* "Oxygen is a compound of Potassium Chlorate and Manganese Dioxide" was seen in many answer books at the last Matriculation Examination (Bom.)

Induction can be tried with greater certainty; but when we ask the pupil to draw his conclusion with one experiment only we have anything but the inductive process. This partial deception may be necessary because we have to pass through the work of centuries in the period of a few weeks but then let us not deceive ourselves and others by assuming virtues for which we have no claim.

The school science is pulled on two sides; on one by the exponents of the heuristic method who are making the work ridiculous by their enthusiasm to present everything only as a discovery; on the other by specialists who would see every child develop into a Watt or a Kelvin. They will present him only quantitative experiments and ask him to note the peculiarities of the apparatus. It is absolutely necessary to revise our notions in this respect. The heuristic method has its limitations. Black worked with the carbonates for many years and could not discover CO_2 . Chlorine baffled several investigators before Davy established its elementary nature. But we expect our pupils to tackle these problems in a couple of hours. Upto a certain stage the heuristic method is interesting; beyond that it often leads to self-deception. We have also no wish to train all our pupils into Watts and Kelvins. We want some of them to be Tennysons, Gladstones, Wellingtons and Scotts. For them it is enough if they can use a telephone, read a thermometer, fix an electric bell; they do not want to learn how these are made. They must know that oxygen is necessary for life and is used largely in hospitals, submarines and aeroplanes. They may remember it is made from potassium chlorate. It would be wasting their time to ask them to prepare a few litres of it and bother their heads with precautions necessary when heating the retort or inverting the gas cylinders in water. They ought to learn the

THE SOUTH INDIAN TEMPLE.

inspiring stories of Galileo, Newton, Röntgen, Marconi, Edison, Nobel, Curie, Heckel, Darwin and Mendel. They may have a look at the spectrum, an X-ray photograph, an evolution chart; it will be interesting to hear a radio-message, to see a dynamite charge explode or feel the warmth of a radium crystal. But we will drive out of them all liking for science by asking them to plot the cooling curve of water, to determine the specific heat of lead, to calibrate a thermometer or compare the vibrations of tuning forks. *In elementary stages we ought to teach the literature of science and not the grammar of science*

It will thus be seen that the utility of practical work in elementary science-teaching has been greatly exaggerated. There is a good deal of mixing of ideals and it is necessary to eliminate from it the experiments *a la kindergarten* introduced by the followers of the heuristic method. It is also necessary to drop those that can interest only a specialist. It is equally important to rid ourselves of the self-deception that the drill in the laboratory has great educational value in cultivating the habit of accurate observation and correct reasoning. When all this is done it will be seen that the work in the laboratory can be most useful in verifying things learnt in the class and we should equip our laboratories chiefly for this purpose. The laboratories at present are godowns: let us convert them into museums, but museums to which the students will have easy access. This sort of equipment will be more instructive and proportionately much cheaper.

The new era in science-teaching is responsible for a big gap in the school-finance while educationally it has been barren, or the results have not been quite satisfactory. At least for this reason, if for no other, the question requires anxious consideration.

M. R. PARANJPE.

THE South Indian temple has served and is serving many purposes. Obviously it radiates Bhakti and is a standing reminder of man's allegiance to God. It was a feeding-house of the poor and was richly endowed by kings and big men. Some of the strongly-built of the temples have perhaps served as refuges in danger. Architecture, Sculpture, and Engineering in South India can best be studied in them. But many do not know that they served as educational centres and a part of the property given to them was appropriated for the noble purpose of enlightenment. It appears that the *Karanagama* states that the school for teaching the alphabet and elementary knowledge is to be placed in the North and North-West corners of the temple and the school teaching Philosophy and the Vedas in some other specified corner. Even to-day in Tamilakam the Veda-ghosti and Devara-ghosti are a familiar feature in big temples. And everyday portions of the Sanskrit and Tamil scriptures are recited before the idols and there are not a few Chola inscriptions providing lands for such purposes. This was a direct encouragement of the study of the holy books. But the establishment of *Patasalas* of a residential type fills us with admiration and pride for the generous patronage of learning and for the intellectual atmosphere they kept up at such an early period as the 10th or 11th century A. D.

1. A plate of Kaurnandadakkan of the family of Ays (9th century A. D.) states that he built a Vishnu temple and established a *salai* (a boarding school) where students studying three Charanas were admitted. The entrance qualifications were a knowledge of Vyākarna, Mimamsa and Paurohitya and a certificate from five Sattars that he could be admitted. No abusive language should be used in the school

and there should be no quarrelling or fighting. (Travancore Arch. Series I.)

2. There was a similar institution at Kanyakumari set up by Srivallabha, the Pandya or Ay. King of the 9th century A. D. (Travancore Arch. VII, p. iii).

3. In the Tiruvottiur temple there are Chola inscriptions stating that Sivadharm and Soma Siddhanta were taught there. A Mantapa was maintained with 60 Velis of land for the upkeep of teachers and pupils who studied Grammar (Madras Ep., 1913).

4. In the reign of Virarajendra (11th century) in the Jananatha Mantapa attached to the temple of Tirumukkadal were located a school for the study of the Vedas, Sastras, Grammar, Rupavatara, etc., a hostel and a hospital. The students were given food, bathing oil on Saturday and oil for lamps. There were 15 beds in the hospital. A physician and a surgeon were maintained and the stock of medicines in the hospital is also given (Madras Ep. Rep., 1916).

5. In the reign of Rudramadevi Kakatiya (13th century) at Mandaram, Visvesvara Sivacharya established a temple and a feeding house. He gave lands for the maintenance of students and for a maternity, a hospital, etc., 3 teachers for the 3 Vedas, and 5 for Logic, Literature and the Agamas and one capable doctor were provided for. Music and dancing were patronised by him and special songsters from Kashmir were maintained. (1917).

6. The Assembly of Ennayiram maintained a hostel and a college for Vedic study. 270 students learnt the Vedas and 70 Vyakarna, Prabhakara and Vedanta. There were 18 teachers. No. 823 of 1917 provides for a teacher of a free school (1918 Rep.)

7. In the reign of Rajadhiraja I (11th century) a village was provided for the Paja and

festivals of a Perumal temple, for the recitation of Tiruvaymoli and also for 12 teachers of the Vedas, 7 teachers of Vyakarna, Vedanta, Mahabharatha, Ramayana, etc., and 260 students. (1919 Rep.)

The above examples give us a glimpse into the educational facilities that were provided in institutions attached to temples. If education should be in accordance with the age and should satisfy its needs, it can be said with certainty that these institutions eminently fulfilled the condition and contributed to the building of the body, character and intellect of the students. The mental and physical discipline obtained by the students of those days can be brought home to the minds of the most sceptical by a visit to some of the well-conducted Patasalas in the Tamil land to-day. The teachers and taught were provided with boarding and lodging. They led a simple life with no dirty coats and sweaty head covers, had frugal fare at regular intervals and studied the noblest thoughts of the oldest literature of the world. Education as everything else was a part of Theology and this was not peculiar to India in the middle ages. Education was free and provided at the expense of the State or big men in whose eyes it was a big charity.

True there was learning by rote but it was tonic to the brain and music to the ear and what they memorised was for life and not for the examination only. The present day slaughter of youths on the altar of cram does not prove we have grown wiser after 30 generations. True the opportunities provided in the temples for learning were not in the reach of all classes but that was not the fault of the Brahmin but of history. Economically such an education will perhaps be considered useless but other things being equal, the marginal utility of the Indian graduate will be nearing zero in a few years, he having

too much knowledge to be of use to or to be absorbed in, our society.

Whatever fault you may find in those native institutions you must admit that they were native, and that the education imparted in them was in accordance with the spirit of the times. We have out-grown the age of such instruction but unfortunately we are slow, painfully slow to adjust ourselves to modern conditions. We lack, hopelessly lack, the native atmosphere which our great ancestors had.

K. R. SUBRAMANIAN.

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GARDENING IN SCHOOLS.

By MR. M. S. SUBRAMANIA SASTRI, M.A., L.T.

A GARDEN is an imperative necessity of every school. The syllabus in Elementary Science especially for Middle School Forms includes a lot of plant life. The study of plant life is quite impossible without a garden. The District Educational Officers are very keen about the garden and if there is no garden in the school, they not only make mention of it in their Inspection reports, but even go to the extent of remarking that science teaching is ineffective, the teachers being handicapped for want of a suitable garden. They are perhaps not far from wrong when they say so. A science lesson has to be done as far as possible in a practical way. The method of science is the method of experiment and observation. The children should be made to learn truths first-hand by making experiments, observing the results and drawing the necessary inferences. And unless there is a good garden where the boys could work and observe plant life how can the teaching be effective? Yet I am sure there are not many schools that have a garden in that sense, though many schools may have a garden in the front to adorn the compound.

The kind of garden I have been speaking of in the last paragraph is no doubt very useful and has a very important place in the school studies. But by “gardening” here I do not mean that kind of gardening—a help to the study of plant life—but gardening as an occupation—shall I say a vocation! In a previous issue of this *Review* I wrote about “Vocational Training” and tried to show that it is something that is not quite necessary for all the boys in a Secondary School. However I should think there is at least one subject

which it would be necessary for all to know even as a vocation and that is gardening. The reason for my saying that it is necessary to teach all the boys gardening is that it is an occupation in which every one can engage oneself in whatever walk of life one may be.

Gardening here must be very practical. It will have two aspects the *aesthetic* and the *utilitarian*. In the aesthetic aspect it would consist in the planning and cultivation of a garden consisting of plants having flowers and leaves of variegated hues. Such plants as the rose, the jassamine, etc., could be grown with great advantage. In the utilitarian aspect such education imparted should consist of the life history of all the common vegetable plants and fruit-bearing trees. The children should be made to have a knowledge of the seasons when particular vegetables are grown, i.e., the time to sow the seed so as to reap the fruit in due time. Then a knowledge of the parasites that are destructive of these plants and the method of destroying them should be taught. Though it may not be possible for all the pupils to cultivate a garden consisting of long standing trees and trees yielding fruit after a considerable duration of time yet there is no doubt that every one would be in a position to grow a vegetable garden which is only short lived and yield only for a short period. Such ordinary vegetable plants and creepers as கத்திரி, கொத்தகரை, வெண்டை, பாகல், பொடல், பிரக்கு, பச்சை மிளகாய், கொத்தமல்லி, பூவண்ணி, etc., can be easily cultivated by one and all. Not only is it easy, but every one has a demand for them in every day life. So if we could arrange to give instruction in these things in a very practical way during a boy's school days, it would be very useful to him in his future life. Further

this could be very easily done without much help from the Department or from the authorities provided we have sufficient space for the same in the school garden. Such an education would, I am sure, stand the pupil in much better stead than all the knowledge of botany, about tap roots and fleshy roots, about mono-cotyledons and di-cotyledons and a host of other information. Also this education could be finished within the course of one year. I therefore suggest that it should be done in all our Secondary Schools without any exception in one of the lower forms. Needless to say that it should form a very important subject in the Elementary School.

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ELECTION BY UNIVERSITY GRADUATES.

THIRTY seats in the Senate of the University of Madras and one seat in the Madras Legislative Council are to be elected by the graduates of the University. It is quite good and necessary that graduates of the University should have a great voice in the affairs of the University. But I take great objection to the method of registering graduates on payment of fees for enabling them to exercise their franchise. Electing 30 Fellows to the Senate is a privilege enjoyed by graduates for being graduates of the University. The necessary qualification therefore for voting at such elections is that they should be graduates. But in our University this is not sufficient. The graduates must be graduates of not less than seven years' standing. Further they must have got themselves registered by paying the necessary fees; otherwise they are not qualified to vote.

Let us see what obtains in the case of other elections. One member to the Madras Legislative Council is to be returned by the University graduates. Though even here, the graduates should be of seven years' standing, they are not required to register themselves on payment of fees. All graduates of seven years' standing are registered as voters and allowed to exercise their franchise.

Then with regard to the other Constituencies of the Madras Legislative Council, the voters do not pay any fee to get their names registered as voters nor do they undergo any period of apprenticeship after having the necessary qualification to become eligible for voting.

Let us come nearer home to our own University. Every District Board is required to

elect one among themselves to the Senate. So also all the Municipalities in the District—the qualification for voting being that one should be a member of the District Board or a Councillor of a Municipality. They are not required to pay a fee and purchase the franchise.

It is clear that a person gets the privilege of franchise on account of a particular qualification that he possesses. Nowhere is that privilege purchased. But curiously our Madras University requires the graduates alone to purchase the privilege by registering themselves. In the light of what is taking place everywhere else I should think that all graduates of the University should be given the privilege of voting at the Senate elections. They should all be registered as voters as soon as they take their degree without exacting any fee for the same.

The other thing about which I complain is the time limit. I do not find any reason why graduates should be of seven years' standing before they could begin to vote. The University Constituency of the Madras Legislative Council and the Madras Senate require that graduates should have a standing of seven years. For no other Constituency is this period of apprenticeship undergone. Why should these two alone insist upon that period of apprenticeship? It is but fair, I should think, that every graduate should be registered as a voter both for the Madras Legislative Council Constituency and the Senate.

M. S. SUBRAMANIA SASTRI.

TECHNICAL EDUCATION

By Mr. ANAND SWARUP SINHA, M.A., L.T.,
D. A. V. College, Debra-Dun.

TECHNICAL Education concerns itself with the details of particular trades. In the narrower sense it aims at imparting manual dexterity and an elementary knowledge of machinery but in the higher sense it should (i) give a man a thorough command over the use of his eyes and fingers, and (ii) impart to him artistic skill and knowledge which mere practical work cannot teach. That technical education is badly needed in India, everybody will have to admit. Lately it has attracted a considerable attention here.

OLD INDIAN SYSTEM OF TECHNICAL EDUCATION:—India was ever famous for her handicrafts. Time was when India was one of the foremost manufacturing countries of the world; and her manufactures found a ready market in every country. The industries were worked by hand and the artisans inherited from their ancestors the skill which could not be surpassed by artisans of any other country. "In manufactures the Hindus attained to a marvellous perfection at a very early period, and the courts of Imperial Rome glittered with gold and silver brocades of Delhi." "The gossamer muslins of Dacca, beautiful shawls of Cashmere and the brocaded silks of Delhi adorned the proudest beauties at the Courts of Cæsars when the barbarians of Britain were painted savages..... before London was known in history, India was the richest trading mart of the earth".—(*Indian Empire*: M. MARTIN). The Indian child learnt his hereditary craft from his father, picked up his knowledge by watching him at his work and soon learnt to handle the tools. This system was an excellent means of technical education in old days, and still prevails among the Indian carpenters and shoemakers. It was very cheap, for the father's workshop was in the son's very home. But such teaching reproduced the old fashioned knowledge

of father to his son and did not tend towards progress. The Industrial Revolution in Europe completely changed the old methods of production. The use of steam and machinery enormously cheapened production. The Indian artisan with his old tools and old methods, and no capital or organising skill was no match for the foreign manufacturer. "It was a struggle between a giant and a dwarf." To these were added the efforts of the East India Company to ruin the Indian industries, "England excluded these fabrics not by fiscal duties but by absolute prohibition."—(Sir W. HUNTER.)

CAUSE OF THE FAILURE OF TECHNICAL EDUCATION IN INDIA:—(i) "*The divorce between brain and muscle*. The intellectual castes dislike work with the hand and hanker for a literary education. The artisan classes are content to move in the old grooves, and they dislike even that bare minimum of literary education without which artistic skill cannot be developed."—(SARKAR).

(ii) *Lack of well-trained teachers*.—The teachers are mostly fresh men from some technical institution. They have no experience of trade methods or workshops. Sometimes they are pure workmen with their old methods without any thought of improvement.

(iii) *Want of genuine students*.—The sons of the rich are not prepared to lead a life of manual toil while the sons of the poor do not like to leave their homes to join some technical school or college situated at some distance from their homes. The worst stuff is always sent to these institutions. Moreover, a father here always decides what his sons are to do without any consideration of their natural aptitudes.

(iv) *Want of Fund*.—The fund is always the Government money. There is no response from the public.

(v) *The spirit of self-improvement is wanting in our countrymen*.—The old fogysm still prevails.

(vi) *The absence of universal primary education*.—The result is that our technical schools in the beginning are compelled to give some lessons in the mere rudiments of education to their pupils

instead of going direct to instruction in science and art as applied to industry, and hence a great waste of valuable time.

HOW TO MAKE TECHNICAL EDUCATION SUCCESSFUL IN INDIA?—There should be three different classes of technical schoolshere:—

(1) *Primary Technical Schools*.—The young men should be taught the special craft for which they have a natural inclination. They should be taught to give up the old methods and to learn the modern ones. In these schools literary education should be entirely discarded, otherwise the sons of artisans will not stick to them. The pupils should learn only to read figures and names, work ordinary sums in arithmetic and very simple principles in geometry. The use and care of tools and work with the hand should be the most important subjects of instruction. The introduction of manual training classes in our schools in recent years has to some extent met this demand.

(2) *Secondary Technical Schools*, such as the Victoria Jubilee Technical Institute, Bombay, and the Roorkee and Shapur Engineering Colleges.—In recent years some modern industries have been started in the land and hence there is a growing demand for trained mechanics, and our technical schools are beginning to receive genuine students in increasing numbers. The abovenamed institutions have been successful in turning out exactly the grade of mechanics, draftsmen, and overseers, for whom there is a demand now. They do not produce high grade engineers, men with the highest scientific education and the heads of big industrial concerns for which there is no opening for Indians at present. The Kalabhavan in Baroda is one of the biggest technological institutions and has special departments for teaching, dyeing, applied chemistry, weaving, and mechanical technology. In the United Provinces we have a number of technical and industrial institutions of the above two types (*vide* Appendix A and B). For this we are thankful to the Government and specially

to our Christian missionary brothers who have done a great deal in this direction. But these institutions are not sufficient and there is an ever-increasing demand for them. We are sorry our big *raises*, zemindars and taluqdars have not taken any prominent part in this direction. Now it is the time for them to come forward and help the country in this matter.

(3) *Technological Colleges*.—Here the most promising youths of the country alone should be sent up. Manufactures and industries require a good deal of education and intelligence. Many persons believe that a technical college can turn out ready-made 'Employers', i.e., persons capable of managing big industrial concerns. No theoretical study without some practical experience in some factory or business can impart the requisite qualities of such leaders of industries. In my opinion, no diploma or certificate should be given unless the student has gone through some years' practical apprenticeship in some workshop after leaving school or college.

HOW TO MAKE SUCH INSTITUTIONS SUCCESSFUL?

(i) They must be started according to the local industrial needs and should aim at supplementing the efforts of the local working men who are engaged in the crafts, e.g., carpentry schools should be opened at Bareilly and leather working classes at Cawnpore and Agra.

(ii) The industrial centre of a particular group of industries is the best centre where to disseminate knowledge concerning that group.

(iii) The aim of these schools should be to supplement the older methods by imparting scientific knowledge to the actual workers in the workshops.

(iv) A technical institute working in conjunction with big workshops would turn out the right sort of stuff.

(v) The schools should be under the supervision of technical experts and not under the literary Educational Inspectors.

Below I give a list of some of the important Technical and Industrial institutions in the United Provinces.

Appendix A.

Institutions under the Department of Industries.

1. Technological Institute, Cawnpore (for post-graduate students.)
2. Government School of Arts and Crafts, Lucknow.
3. The Government Technical School, Lucknow.
4. The Government Technical School, Gorakhpur.
5. The Government Technical School, Jhansi.
6. Government Carpentry School, Allahabad.
7. Government Central Weaving Institute, Benares.
8. The Government School of Dyeing and Printing, Cawnpore.
9. Government Leather Working School, Cawnpore.
10. Government Leather Working School, Meerut.
11. Government School of Needlework, Lucknow (for Girls.)
12. C. M. S. Industrial Mission, Sikandra, Agra.
13. St. John's College Commercial Training Institute, Agra.
14. Reid Christian College, Department of Commerce, Lucknow.
15. S. P. G. Mission School, Roorkee.
16. A. P. Mission Industrial School, Saharanpur.
17. Wesleyan Mission Industrial School, Benares.
18. London Mission Girls' School, Almora.
19. Pitman's Shorthand College, Lucknow.
20. The Prem Maha Vidya, Brindaban (Muttra.)

Appendix B.

Institutions under the Department of Agriculture.

1. Cawnpore Agricultural College, Cawnpore.
2. Bulandshahr Agricultural School, Bulandshahr.
3. Allahabad Agricultural Institute, Allahabad.

—From *Education*, Nov. 1923.

Reviews and Notices.

THE STORY OF EARLY ENGLISH TRAVEL AND DISCOVERY, BY A. W. SEERS.—TOLD THROUGH THE AGES SERIES. (G. G. HARRAP CO., LTD. LONDON.) INDIAN AGENTS:—P. T. I. BOOK DEPOT, BANGALORE CITY. 1923. pp. 240. Price: 2/6.

This volume describes in a graphic manner the various important travels of discovery and adventure made by Englishmen down to the times of the voyages of Frobisher, Chancellor and Davis in the latter half of the 16th century. It describes first the pilgrim voyages made by early Englishmen to Ireland, the Continent, and even the Holy Land; first the tale of travel of Arculf to Jerusalem written by Adamnan, Abbot of Iona; then of the labourers of St. Boniface, the Apostle of Germany, and of his nephew Willibald, famous as the first English pilgrim to the Holy Land about A.D. 754; then of Othere and Wulfstan, Norse pirates in the service of Alfred the Great, the first of whom doubled the North Cape and penetrated to Archangel, while the latter explored the coasts of the Baltic Sea. The narrative continues, with occasional joints of events made by the author to explain connections, to tell of the pilgrimage of Sæwulf to the Holy Land after the First Crusade, as preserved in the manuscript saved by Archbishop Parker. The mediæval trade of England led to the slow growth of intercourse with Hanse towns, with the Teutonic Knights of Prussia and with Portugal; but till the close of the 15th century there was no continuous exploration. We have a brief account of the Merchant Adventurers and the Staplers and incidentally of the famous Lord Mayor Whittington. The adventures of Sir John Hawkwood in the wars of the Italian cities; of Henry of Derby (later Henry IV) fighting in Prussia, the mediæval travellers' tales like those of Sir John Mandeville blending fact and fancy with a certain amount of charm, and of Nicholas

Lynn who purported to have made voyages to parts about the North Pole; and the accounts of voyages of exploration made by the Cabots, Wiloughby and Chancellor, Frobisher and Davis—all are told with as little departure from the original accounts as possible. As already noted, only a few pages here and there have been inserted suggesting atmosphere, character or possible links between historical personages; like an Exile at Myklegard (Constantinople) and the friends of Chaucer's youth. The last two chapters dealing with the struggle for the Levantine trade and the Portuguese supremacy in the Atlantic form good historical material, the extracts being mostly from Hakluyt's *Principal Navigations, etc.* The book should be in every school library.

'ESSENTIALS OF MODERN PHYSICS,' BY CHARLES E. DULL (GEORGE G. HARRAP & CO., LTD., LONDON). INDIAN AGENTS:—P. T. I. BOOK DEPOT, BANGALORE CITY.

These are days of Educational Reform and the importance of Science in the School Curriculum is being increasingly felt. Text books on the reformed plan however are very few and it is with a view to meet the situation with reference to Physics that the above book seems to have been written. To justify their existence, the treatment in School Science Text-books has to be in strict relation to the life about us—natural and artificial—and the present book admirably satisfies that. The author, as pointed out in the preface itself, begins most often from the common facts about us and draws upon the same for illustration. Many of the natural phenomena are explained and the important modern scientific appliances are also dealt with in a popular way. The diagrams in this connection and otherwise are very satisfactory. Another novel and interesting feature about the book consists in the pictures of the eminent Physicists with short biographical notes. The inspiration it gives to the young readers cannot be

over-estimated. The language is simple and the get-up very attractive. The book in short is the right one to be put in the hands of the pupils who are to be introduced to the subject. The teachers must of course direct the use of the book, to suit local syllabuses and requirements.

The book treats, in as clear a manner as is practicable in a short treatise like that, of almost all the fundamental phenomena in Physics and, for that comprehensive survey, it is suggested that teachers will also go through the book for their own edification.

'A TEXT-BOOK OF LIGHT,' BY R. W. STEWART AND J. SATTERLEY (UNIVERSITY TUTORIAL PRESS, LTD.)

This book, as is common with the books in the Tutorial Series, has a definite plan and will be found to satisfy the Intermediate Standard of the Madras University. It cannot be made out that the book is as complete as a treatise as Glazebrook's 'Light,' for example, but in the hands of students it has some advantages over the others. The language is very clear and the logical arrangement of topics, along with a judicious avoidance of some details, adds to the clearness. The book has also enough by way of problems and questions. The chapter on Polarisation, in a book of this kind, is an addition of doubtful usefulness. The type of print is a bit small but the get-up of the book is otherwise neat and satisfactory.

PRACTICAL CHEMISTRY, BY E. J. HOLMYARD. (G. BELL AND SONS, LTD., LONDON—1923). Price: 4 s. net.

This book is more or less a laboratory companion to the author's 'Inorganic Chemistry,' a Text-Book for Schools published in 1922. It is divided into two parts, Elementary and More Advanced. The first part is further sub-divided into seven sections dealing experimentally with Ele-

mentary Chemistry of Mixtures and Compounds, some Chemical Laws, Equivalent Weights, the Common Gases, Acids, Bases, and Salts while the second part consists of five sections on some Inorganic Experiments, Volumetric Analysis, Gravimetric Analysis, Physical Chemistry and Organic Preparations respectively. The author has thus a very ambitious programme and as for its utility for our school students, it is quite unsuitable. But it covers more or less the syllabus in practical chemistry for the Intermediate and Pass students of the Madras University, if we exclude qualitative analysis.

The author has no faith in the heuristic system and "believes that a little sound knowledge acquired by the method of direct teaching is distinctly more valuable than much hazy and inaccurate knowledge gained by the so-called 'method of research' which is but a sort of game of make-believe." The book is therefore intended to supplement personal instructions by the teacher in the laboratory and will serve the purpose. It deals within the short space of 260 pages innumerable experiments to illustrate the topics dealt with and school-masters will find it very useful for selection of suitable experiments for practical work.

READABLE SCHOOL CHEMISTRY, BY J. A. COCHRANE, B.Sc. (G. BELL AND SONS, LTD., LONDON, 1923). Price: 2s.

This is one of Bell's Natural Science Series of which E. J. Holmyard is the General Editor. It deals historically with the chemistry of fire, air, water and limestone. Any pupil with a rudimentary knowledge of chemistry can very profitably read the book right through as it is sure to create an interest in elementary chemical theory whose establishment has been traced step by step from the earliest times to the present day. The book is interspersed with fine portraits of eminent chemists like Paracelsus, Scheele, Lavoisier, Priestley, Cavendish, Black, Sir William Ramsay and Lord Rayleigh who have contributed much for the advancement of the science.

THE PROPERTIES OF MATTER, BY BASIL C. McEWEN, M.Sc., B.Sc. (LONGMANS GREEN AND CO.). Price: 10/6 net.

This text-book is based upon a course of lectures delivered by the author at the Nizam's College, Hyderabad, to students appearing for the B. A. Degree Examination of the University of Madras. In his preface the author states "The order followed is the reverse of that adopted in most text-books dealing with the Properties of Matter. Commencing with the first Law of Thermodynamics, an extension is made to the more general Principle of the Conservation of Energy".....then to the kinetic theory of Matter, Properties of Gases, Liquids and last the Properties of Solids. "It is thought that this method of treatment is simpler and follows a more natural sequence than is attained by commencing with a study of the Properties of Matter in the solid state." Opinions vary regarding the order to be followed. Probably, from the students' point of view it would be better, to proceed from the more concrete to the less concrete.

The author has dealt with every part very thoroughly and although 'particular emphasis has been laid upon the experimental treatment of the subject,' the theoretical part has not been overlooked. The book with its modest price of 10/6 will be found very useful to teachers and B. A. students alike.

THE JOURNAL OF THE SCIENCE ASSOCIATION, MAHARAJAH'S COLLEGE, VIZIANAGRAM.

This journal is intended to popularise Science and promote Scientific Research. It is edited by Mr. Y. Venkataramaiah, Professor in charge of the Research Laboratories of the College and published quarterly. Three numbers of Vol. I have been out for April, July and October and they record mainly the scientific activities of the staff of the college though papers from those working outside also find a place. Among the articles published in July and October issue (Nos. 2 and 3) are Studies in Phototropy, Electrolytic Production of Active Hydrogen and Classification of Lac-Insects.

It may not be out of place to say that the Journal is mainly the outcome of the deep interest in Science of the young chemist, Mr. Y. Venkataramaiah, who seems to possess a high aptitude for research.

MADRAS UNIVERSITY—CONVOCATION ADDRESS

BY

Diwan Bahadur R. VENKATARAMA NAIDU, M.A.

THE privilege of addressing—of felicitating and counselling—the graduates of the year I owe entirely to the favour of the Chancellor, to whom I beg to tender my humble thanks. The honor of the position, it is obvious, consists essentially in a highly responsible task; from which, if merit were the main test, I should instantly shrink. For it is a task the difficulty of which—from the double search of new subjects and of fresh forms for familiar themes—has been repeatedly owned by those admittedly my superiors in learning and experience. Yet an impressive ceremonial affecting so large an assemblage of the choice youth of the land cannot but be intensely grateful to the heart of an old school-master, especially an Indian school-master. To him, as he nears the close of the working-period of life, this solemn scene is as a Pisgah-height vision of that Promised Land towards which, in humble imitation of shining exemplars he has striven in his day to direct a succession of pilgrim steps. To the sight this is a joy; to the spirit, a benediction.

Another introductory word may recall the sublime sentiment shared in by all leading faiths that where even a few congregate for a worthy object, the Eternal Witness is unfailingly present to inspire and to bless. If there be some real significance in the myth which traces the genesis of learning to a striking incident in the self-manifestation of the Supreme, an occasion on which hundreds of ardent lives, with a promising future before them, are to be consecrated to the noble ends of culture and character, ought to be solemnised by the felt presence of the Parent of light and life. May we, while we are here, think and feel as under that pure, all-witnessing Eye!

A distinguished predecessor of mine in this position concluded his learned discourse with the

world-renowned name of one whom he judged to be the greatest man of the nineteenth century—'one who combined in himself more of the rich characteristics of greatness than were to be found in any other man of his time'—'the great and good' Master of Rugby. It becomes my sacred, if melancholy, duty to open my humble address with the widely respected name of one who has been frequently styled the Arnold of India. On the 15th of July of this year terminated a career which close study and correct appreciation can designate by only one word, 'glorious.' The ideals which inspired that life, the principles which governed it, the vigour and devotion which characterised it, the activities which engaged it, the beneficence which resulted from it, the affection and reverence which were elicited by it, have imparted to that life the significance of a dispensation of Providence. The University is indebted to the Rev. Dr. William Miller for work which, estimated by the period over which it extended, by the directions in which it ramified, by the ends which it sought to achieve, by the results which it helped to realise, will, I feel assured, be universally acknowledged as the richest contribution made by any single person to the growing usefulness of our *Alma Mater*. With all the might of keen fore-sight, broad sympathy and wide experience, he strove to enlarge the influence of this University upon its Affiliated Colleges so as to augment their usefulness as centres of a liberal education. It were far from easy to calculate in terms of ordinary computations the full value of the monumental work he could achieve as the presiding genius of that splendid institution whose history, during nearly two generations, may be interpreted as his own concretised autobiography. But one fact is clear; with the cordial co-operation of devoted co-workers, who always accepted him as their guide and pattern, he replenished the entire South Indian community with the rich asset of successive bands of well-educated and carefully trained

members, whom precept and example would inspire to a life of industry and integrity, fidelity and sympathy. Services of this high order and large magnitude justly entitled him to be designated, in one of the previous Convocation Addresses, "the *Doyen* of the Madras University and Madras Education." But immeasurably richer than the work is the gift to humanity of the model life exemplified by this prince among men. It is a life which, in the phrase dear to our hearts in this land, may be named *Dhanya Jeevana*: the blessed life, a life abundant in the blessings of grace. It is a life illustrative of the sage words of one of the broadest-minded and finest-souled thinkers of our day: "the good, the absolutely good, is eternally working itself out in the world"; and it is man's prerogative "to feel himself infinite in his finitude, to learn to accept his closely bounded life and task as the process in which the side of him that is touched by infinity becomes real, to be aware of the Immanence of the Divine in the humblest and saddest consciousness." Dedicated to an end that surmounts the bounds of time and sense, refined and expanded through a strenuous course of self-liberation—ever-taxing and yet ever re-assuring, the pilgrim is led on to an illumination that visions the divine harmony which, like the calm above the storm, prevails eternally through the hankerings and strivings of the work-a-day world. 'The numbing cloud mounts off the soul'; the whole being is filled with undimmed light and unmixed sweetness; the full current of life is set, free and pure, to noble ends. The message of this emancipated and illumined life may, in some measure, be summed up in the master's own words: the ideal life, for every man as for every nation, is the life of service; and service and subordination are the life of the Universe, isolation and selfishness, its death. To the graduates of the year I can offer no happier felicitation than the benediction of his spirit, and I can address no loftier exhortation than the counsel to follow the guiding signal of his life. Before I

pass from this subject, might I bespeak your very calm and deep consideration, as befitting persons of culture, to one observation made by this great teacher? Does it not furnish food for reflection to one and all of us, when Dr. Miller, with his profound knowledge of history, confidently asserts that "the partnership between India and Britain is the appointed channel through which the influences tending towards the complete unification of humanity are to flow." Dr. Miller was the bearer of this great message of confidence, goodwill and co-operation—of light, love and life—from the heart of Britain to the heart of India.

An expression of deep regret is due to another great loss of the year. Eminent in position, widely respected in society for simplicity of ways, sobriety of temper, independence of spirit and steadfastness of purpose, Sir K. Sreenivasa Iyengar closed his brilliant career with startling suddenness. For this University he won high credit as he rose steadily from under-graduate to Vice-Chancellor. Equally striking was the success he achieved in the larger sphere of public life; where he owed it entirely to his solid merit that he was elevated to two of the highest offices open to an Indian in this Presidency. His whole spirit was in happy accord with the ideals of the University; and he cherished a glowing zeal for the honor of his *Alma Mater*. In his impressive Convocation Address the key-note of the exhortation was: "be true to the spirit of the student"; and how sublime was the picture he drew of that spirit! This loyalty to the spirit of the student he sought to enjoin with an austere unconcern for passing consequences. This rule of conduct explains his last noteworthy act as the Vice-Chancellor of the University, in dealing with a most unfortunate incident which saddened every thoughtful mind. 'Morality as regards study,' observes Carlyle, 'is a primary consideration which overrides all others'; and the Vice-Chancellor acted in this spirit of uncompromising rectitude—a spirit which could not but be respected not only by those who disagreed with him but even by those

on whom the chastisement fell. The example of this worthy life is bound to hearten many an aspirant after true distinction. In this instance also, my congratulations to the graduates of the year may be formulated in the wish that to their portion in life may come some of the success which he achieved; while my exhortation to them may find fit expression in the noble words with which he bade farewell to the graduates who had the privilege of being addressed by so distinguished a son of the University: "Speak the truth, do your duty, swerve not from the highest study."

To these two departed worthies—each remarkable in his own way, the one an illustration of the amplest culture united to the sublimest character and the other a fine specimen of the rich fruit of University Education in this country—to these two gifted souls we render the tribute of our profound respect, even as we mark their exit from our plane of existence with keen regret. However, may there not be found something more significant than mere accident in the coincidence that these two striking personalities, so prominently connected with this University, should be translated to a brighter realm even as the institution which lies beholden to them for great services ungrudgingly rendered is to be ushered into a new day through the operation of the University Reorganisation Act? Who can say but that the illumining memories of the two brilliant lives have been set up as a double rainbow arch of hope to cheer the University in its fresh tasks?

The passing, in February last, of the Reorganisation Act just referred to, marks an epoch-making event in the history of the Madras University. As the first fruit of an administrative reform, whereby Education has become a "transferred subject," placed under a people's Minister, the Enactment is a welcome augury of the generous interest which this University will, in future, receive from both the Government and the community. A teaching residential University is the very heart of higher education; and its formal establishment

after a series of preparatory developments, furnishes just occasion for much satisfaction. Through large and wholesome improvements effected partly before, and largely after, the Universities' Act of 1904, the University had, for years, ceased to be a merely examining body. The affiliated Colleges were, in a real sense, centres of University teaching and academic life. The masterly Report of the Calcutta University Commission, which is a mine of helpful suggestions, roused thought on the subject all over the land. It also presented a carefully-designed model-scheme of University reform. And the time was thought to be ripe for the final—the definitely finishing—step being taken for creating a teaching and residential University. The policy of focussing the operations within a circumscribed area has been adopted. Exception has been taken to this method. But its practicability has been urged as its justification. The intention to extend the plan to other areas has been acknowledged in the Act. As it is, the ample character of the scheme will take several years to unfold itself in its completeness. But the prospect is bright. To all friends of liberal education the future offers rich opportunities for zealous work. A commendable feature of the scheme is the reorganised constitution. The principle of election has been liberally applied. The bifurcation of the administrative function into executive and academic sections, each with a separate agency, is an improvement of great moment. The ideal of democracy is writ large on the reconstituted Senate, whereby that body becomes the meeting-place of all the interests and all the capacities necessary for the successful administration of a modern University. Even with the limitations to which they were subject under the old system, the Indian Universities have been appreciated as 'lasting monuments of glory which England has reared unto herself,' as convincing proofs that 'England treated India as a trust from God,' and as fostering nurseries of noble influences which 'are binding together the two lands and the numerous races with cords more powerful than the

strength of armies and more enduring than the craft of statesmen.' May this University, as it grows under new conditions of increased resources and enhanced prestige, prove the wisest exponent of national life and the mightiest inspirer of humanity!

To a few topics relevant to this subject of educational reorganisation I shall request brief attention.

1. The status of the Mofussil Colleges, styled the Affiliated Colleges, under the new Act has been a subject of discussion. Is there any ground for the apprehension that the new scheme would tell adversely on this class of educational institutions? It has been urged that Colleges of this denomination retain an altogether unaltered, if not a somewhat improved, position in relation to the University to which they are affiliated. But the real issue is, how does the translation of colleges within a certain area into Constituent Colleges determine the position of the rest? Do these latter stand, as they did before, on a footing of equality with the former? Is the division of the Colleges in this Presidency into Constituent and Affiliated Colleges a distinction without a difference? Are the advantages—the special facilities and opportunities—of a teaching and residential system, of negligible educational value? Or does not the existence of these advantages in which only one class of colleges can mostly, if not wholly, participate, place those colleges on a vantage ground? The Council of Affiliated Colleges, whose sole function is to look to the interests of the Affiliated Colleges, will have, as its first duty, to give the most earnest attention to this question. The Act provides for the establishment of 'University Centres'. The need for their establishment is thus recognised from the very commencement of the new operations. The Affiliated Colleges can, in my humble opinion, escape deterioration mainly through the creation of such Centres of University efficiency. The Council of Affiliated Colleges should presently set about the work of investiga-

ting the situation and formulating definite proposals. A 'settled fact' has been loyally accepted; but that does not argue that the apprehensions of injury have been disproved. My esteemed friend, the Revd. Principal Meston, expects the establishment of one University, if not of more, in the regions outside the metropolis, before the close of the first quinquennium. May the expectation prove a prophecy!

2. In his Convocation Address the Rt. Hon. M. E. Grant-Duff observed that the Madras University existed in the midst of a huge Dravidian people and yet one could hardly make a guess as to what the Dravidians might do. The outside world would seem even now to be little aware of the fact that a Dravidian Culture existed. Any how, the imperative duty in this respect lies in the direction of a vigorous development of the study of the leading South Indian Vernaculars. The compilation of Lexicons and the conduct of philological research are good in their own way. But they are accessories; the essential is the recognition of the Vernaculars as subjects of culture and the media of instruction. Vernacular poetry, the study of which is now a very minor concern, forms, according to the people's innermost sentiment, a rich source of intellectual enlightenment and moral inspiration. The very manner in which a verse in a Vernacular is recited by a pandit-educated and by a modern-educated Indian, brings out the difference—in the one case it is a chant, in the other a stammer. The Elementary school-master is learned in many sciences, but does not feel at home in Vemana's verses; and the simple rustic asks what doth it profit a man to acquire so many *Sastrams* but lose the soul of poetry? Again, by bands of earnest workers, animated by various motives, the literary prose is being developed, at least in some of the vernaculars, into a fit vehicle for cultured thought and sentiment. But it is a task weighed down with difficulties; and it merits generous encouragement from the University as well as the public. If

modern learning is to be carried to the heart of the nation, it can be done only through the Vernaculars. Without a broad and well-laid basis of wide-spread Vernacular education, higher culture, restricted to a few, would, for national efficiency, mean something like the dwelling-place of Duesse—a mansion on a morass.

3. A former Convocation Address noted that the claims of studies relating to industrial life of the community had been temporarily 'waived in deference to the claims of pure learning.' But education along the lines of applied science is the clamant need of the land. The study of science enlists zeal only when it is directed to a practical end. Material prosperity and social harmony stand guaranteed to that nation alone which vigorously promotes the intellectual development of its industrial population. At the present time there exists an estrangement between 'learning' and 'business.' Inestimable as have been the benefits of a liberal modern education, the best influences of the University have, however, been mostly confined to particular classes or communities. A feeling of 'academic untouchability' has been generated. For example, it has taken us some decades to realise the relation subsisting between the processes of irrigation and the fields to be irrigated—between Engineering and Agriculture. Similar limitations have tended to make the system lop-sided. A link of sympathy should be established between men trained in intellectual aptitudes and men trained in industrial skill. The University should steadily widen the orbit of her activities so as to stimulate technical training of a high order. Thus alone can a University justify itself to, and command the co-operation of, all sections of the great community, amidst which it exists.

4. The last of the subjects to be considered here is that of Moral Instruction. This subject has, a short while ago, been distinctly integrated into our educational courses. A certain class of educational institutions has always been alive to this responsibility. But the community as a whole has been rather torpid as regards this duty. Our system of education has, therefore,

been almost completely secular in aims and methods. But if 'the formation and development of character is the central function' of sound education, too much stress cannot be laid on the moral responsibilities of life. The promises demanded as a condition precedent to graduation are a testimony to the importance of this aspect of education. That all well-directed study has certain ethical tendencies may be granted. Yet, if the distinguishing mark of man is his moral sense—his susceptibility to 'the three reverences,' direct, active, moral instruction should be a notable and noble feature of our educational system. I believe the best section of the community will endorse and support a liberal-spirited scheme of moral instruction. It will be in harmony with the finest traditions of the land. I venture to add that morality—man's correct response to his 'temporal surroundings,' will irresistibly elevate itself to spirituality—man's correct response to his 'eternal surroundings.' And this exaltation of morality need cause no alarm. India's ultimate unity, consistently with her age-long genius, must rest on spiritual affinities. Let us only realise that sound education is a preparation 'for fulness of life.' As Bacon urges, the whole system of being should 'be thrown out altogether,' as 'Nature does in forming a flower'. Thus alone the Teacher becomes the *Guru*.

Graduates of the Year, Ladies and Gentlemen: I feel grateful for the courtesy of your company in the foregoing ramble over the field of education. This excursion were a digression but for the plea that to you, one and all, education ought always to be a subject of absorbing interest. Distant as Utopia may be the millennium when, as a certain enthusiast has hoped, the nations of the world would conclude to lay aside politics and concentrate attention and energy on education. The truth is, however, being made increasingly clear, for all the obsessions of the passing hour, that the sovereignty of arms and armaments is short-lived, and that the future chiefly belongs to culture and character. Hence the paramount importance of all problems of educational reconstruction. It is the duty as well as the privilege of every educator

person to participate, with understanding and zeal, in this glorious work of national renaissance.—Now, ladies and gentlemen, I deem it an honor as I feel it a pleasure to offer to you—to each member of this fraternity—the most cordial congratulations of the University—might I add, of this assembly and of the whole South Indian community?—on the respective Degrees which you have won through tested capacity and acknowledged merit. As the eye dwells with delight on this thrice happy sight and the heart feels braced as if by an elixir of life, the memory spontaneously recalls that charming scene where, invited by a richly-ornamented friend to produce her jewels, a noble Roman matron introduced her beloved sons with words of the purest wisdom and love, ‘these are my jewels.’ You are the latest—the freshest and brightest—jewels of the mother-land; the youngest and, therefore, the dearest daughters and sons of *Bhāratamāta*. Unto you is richly due, and is hereby heartily accorded, all the prayerful joy, all the hopeful felicitation, befitting this auspicious hour. If the true wealth of a country consists in the numerical strength and the moral soundness of the educated section, the Convocation of the University is the annual presentation of the treasure-trove of South India for the appreciation of her well-wishers. This day is your ‘Day;’ we rejoice with you; we render our thanks for you. The field of culture is world-wide; the domain of character is universal. To wish you well is to wish well of the whole country, indeed, of the entire race. This inspiring ceremony is significant of several noteworthy ideas and sentiments. It testifies to the lasting interest taken by the community in liberal education. It betokens the sympathy and the goodwill shown by all thoughtful persons towards zeal for learning and eagerness for self-improvement. It evidences how you are the objects of the tenderest solicitude from all quarters. It discloses the nature and scope of that fellowship, transcending faculties and professions, which a University seeks to establish. It aims at awakening in your minds and hearts a lively sense of your responsibility to augment the stores of your own knowledge and experience by incessant industry and to dedicate your powers and

opportunities to the welfare of your fellow-beings. It commemorates your reception into a vast academic brotherhood of noble aims, generous sympathies and devoted service. It celebrates your initiation into that second—the higher and holier—life of the Spirit in Wisdom, Goodness and Grace.—My first word of counsel to you, therefore, is that you value your Degree at its intrinsic worth which is unquestionably high. Your Degree is your testimonial that you embody in yourself a respectable measure of talent and capacity, of perseverance and industry, of self-control and self-denial. It is the witness unto your possession of a cultivated intellect, chastened tastes, refined susceptibilities, worthy aspirations, considerate demeanour and disciplined character. The studies whereby you have qualified for the degree have ‘learnt’ you one supreme lesson—that the tasks of the student are in themselves enlivening and elevating, that ‘labor is life’ and ‘labor is glory.’ Those studies were designed and directed to evolve in you the true spirit of the scholar—the spirit noted for passionate quest of knowledge, cheerful submission to discipline, unswerving adherence to duty, keen appreciation of the realities of life and an inexhaustible fund of humane impulses. The ‘promises’ which you have had to guarantee with your honor before you could be admitted to your Degree constitute a comprehensive covenant that you would be ever alive to your obligations as an individual, as a worker, as a citizen, as a member of society, as a factor of humanity. Through these pledges you have bound yourself to eschew whatever is low and unworthy, to strive after whatever is high and honourable, to employ your talent and influence for the diffusion of enlightenment and the propagation of virtue, to discharge with loyalty and integrity the whole round of your duties in life and to further the best interests of the community and of humanity to the utmost possibility of your opportunities. Thus, in eloquent symbol, your gown is the robe of Dedicated Life, your hood, the badge of an ever-growing League of the Leading Light; and the diploma now handed to you, the Lamp of Learning more constant and more potent than Aladdin’s ‘Wonderful Lamp.’ These form the charter of your franchise in the

Republic of Letters. By your graduation you have been admitted to the freedom of the world-wide Commonwealth of Culture. Your Degree is thus a pearl of great price. I exhort you to use it with wisdom and to wear it with honor. I wish you all the happiness of its possession.

It goes without saying that the Degree the possession of which entitles you to the esteem of all lovers of learning, has been won with incalculable pains. ‘Tendrils strong as flesh and blood’ intertwine the several generations; and as Emerson teaches us, ‘every man is a quotation from his ancestors’. But how hard the task to sum up the full ‘tale’ of their self-denying services to posterity! However, out of a vast number, may it be permitted to a descendant of three generations of military men to dwell for a moment on one striking instance, memorable but oft-forgotten? In his brilliant Convocation Address, after a glowing tribute to the countless deeds of endurance, self-denial and heroism of the Madras Army, Col. Hughes-Hallet assured the graduates of the year, ‘it is the Madras Army which has made your presence here to-day possible.’ To the numerous lives laid down on the battle-field should be added the still larger number spent out in winning the victories of peace. From the humble hind who binds the sheaf or watches the reef to the exalted sage, who from the Eiffel-tower of genius, surveys the domain of knowledge, there ranges a glorious procession of good men and true who have ‘toiled and bled and died’ that we may gain and grow and thrive. To them all we owe the pious tribute of profound esteem and deep gratitude. Thus, as a fruit of great sacrifice your Degree has come to be yours; and as an offering of pure sacrifice alone will you be suffered to employ it. This is the true meaning of the noble precept, ‘freely ye have received, freely give.’ As a free gift of the self-sacrifice of the past you have received it; and, rendered richer with your reverent mite, as a free offering of the present you will pass it on.

This incidental reference to a truth of great moment—namely, that life can perpetuate itself only through renunciation, that lasting good is achieved solely through ceaseless self-surrender—demands that I should make a fervent appeal to you, with all the earnestness of a sincere well-wisher, to cleanse your minds of even the slightest taint of one misleading and injurious notion. I refer to the not uncommon notion that there exists a real antithesis, an inherent conflict, between privileges and obligations, between rights and duties. Unlike certain other pairs of words—such, for example, as light and darkness, good and evil—which name irreconcilable and, therefore, mutually extinguishing antagonisms, the twin words we are now considering denote not divergences but parallels, not contraries but complements. Rights and duties are inseparable concomitants, inalienable allies. It would be a fatal mistake to think of rights as the bribe for duties or of duties as the penalty for rights. Rights and duties are two aspects of one concept, two directions of one energy, two results of one function. They form the inlet and the outlet of one fountain of life—the inlet of power and the outlet of service. Rights without duties would be an idle boast; duties without rights, a surly growl. Rights and duties are welded into the undivided serene strength of self-realization through self-reliance and self-expansion. Is it right or is it duty that prompts the stream to flow, the seed to grow, the bird to sing, the heart to beat? Withhold from the heart the right to pulsate, it is numbed; withdraw from the heart the duty to purvey, it is clogged. Nor is it irrelevant that we ponder over this fact for a moment. Our *Alma Mater* prescribes to us Culture as the supreme end of our being; and the distinguishing characteristic of Culture is the equipoise of Truth, which resists what the poet calls the ‘falsehood of extremes.’ The goal of Culture is that emancipation from the bondage of self-interest whereby every right is instinctively transformed into a duty, as in unimpaired physical

reverence due to sanctity. In you and the other members of the sisterhood is vested the true greatness of the nation. May you achieve your heaven-appointed mission!

To Graduates of the year in all the Faculties I would, in conclusion, address one word, with all the solemnity of the farewell moment. It is not a word new to you; nor is it a word you will be suffered to forget. It is a word associated in the human mind with mingled feelings of awe, sadness and thankfulness—even the regnant word, *Duty*. The longer one lives and strives to be true to the purer promptings of one's nature, the more vividly is brought home to one's consciousness the sovereignty of this mighty word over human life. It is, therefore, incumbent on the out-going to offer to the in-coming generation, even as a memento of mutual good-will, some vivid though succinct account of one's deep-impressed experiences relating to this all-compelling idea.—On the subject of Duty it is not possible that I can say anything that is new. But the reiteration of a world-old ideal is a daily task, like the daily reappearance of the Sun. The precept, 'whatever thy hand findeth to do, do it with all thy might' signifies that a dedicated life alone can be a useful life. The sacred Book of Human Existence opens with the dedication—'*To Duty*.' In the estimates of Duty, there is no distinction of high and humble. The day's duty notes the fulfilment of the day's worship. The privilege of performing Duty is 'the only absolute Right' of man.—Of the several characteristics of Duty, reference will here be made to two. The eye of Duty is ever upon man. It is 'the Hound of Heaven' watching over him through all the windings of life. No moment, no incident, is too trivial for the purview of Duty. The final judgment on Life is the verdict of Duty. Again, marvellous is the change of aspect in which Duty successively presents itself. It is usual to picture Duty as 'stern'; and severely stern it undoubtedly is, as it enforces fidelity. But before long, experience discovers stern duty as

stimulating purpose. Through discipline comes development. And as development expands and enriches life, duty is ultimately hailed as delight. Discipline, Development, Delight—these mark the stages in the transformation of sternness into sweetness. Duty may at first be struck out 'as the waters out of the rock'; but, in the end, duty oozes 'as honey from the comb.' With this grace of sublimating labour into pleasure, Duty endears itself to life. Indeed, in the crowning accomplishment of man—self-realisation, life is Duty, Duty is life. The paramount Duty enjoined by Culture is to realise the soul and surrender it to service. The supreme reward of a life devoted to Culture is the privilege to dedicate itself to love and service—that beatitude, the glory of which has been chanted in such sublime notes in that 'Lord's Lay' of our times: the *Gitanjali*:

"Life of my life, I shall ever try to keep my body pure, knowing that thy living touch is upon all my limbs.

I shall ever try to keep all untruths out from my thoughts, knowing that thou art that truth which has kindled the light of reason in my mind.

I shall ever try to drive all evils away from my heart and keep my love in flower, knowing that thou hast thy seat in the inmost shrine of my heart.

And it shall be my endeavour to reveal thee in my actions, knowing it is thy power gives me strength to act."

Graduates of the year, such is 'the vision divine' that Culture brings into ken. Such is the heavenly gleam that shall be followed, with unaverted eye and undaunted heart, by every votary of Culture—the 'golden dream':

'Of Knowledge fusing class with class,
Of civic Hate no more to be,
Of Love to leaven all the mass,
Till every Soul be free.'

Ladies and Gentlemen, once again I offer to you, as Sister and Brother Graduates, the heartiest congratulations of our University. And as she bids you an affectionate farewell, our *Alma Mater* pronounces upon each one of you the benediction of the 'benign mother': Heir of the Past, Trustee of the Future, Apostle of Truth, Harbinger of Hope, may the richest gifts of Grace abide with you all your days!

The Educational Review.

We thought that the days of trade monopolies were over, but the Government of Bombay in the Educational Department is willing to give us a surprise in the matter in spite of Education being a "transferred subject" under the control of a Minister elected by the people. A Press Note issued by the Educational Department, dated the 8th December 1923, when Prof. R. P. Paranjpye was Minister, announces that "the contract for the publication of the Boys' Vernacular Reading Series in Marathi, Guzerati and Sindhi has been given to the *Times of India Press*, Bombay, for a period of ten years!" The popular verdict of the Bombay Presidency has been against the Ministry of Prof. Paranjpye, as is evident from his being unseated by a practising lawyer in the recent elections, in spite of the former's special qualifications to represent the University Constituency and this last act of his will not add credit to his administration. We can understand Prof. Paranjpye being enamoured of the political opinions of the *Times of India*, for in recent months it has been more or less an organ of the Liberal party to which Prof. Paranjpye and many of his defeated compeers in the recent elections belong, but when did the great educationist discover that the *Times of India Press* had special capacity for publishing educational literature? Does not trade competition bring out the best results in the publishing trade as in any other

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business? Is it not outrageous that such a contract should be given to a European firm in these days of much-talked of Indianisation of everything and is it any wonder that Ministers capable of such acts have not been able to command the confidence of the electorates? Any kind of monopoly in such affairs is bad enough, but the Government of Bombay has found it necessary to commit itself for the long period of ten years during which many changes of educational ideas are possible and the text-books prepared under the doubtful auspices of the *Times of India* may become out of date. As the Bombay Government has committed itself to a contract of this kind, its hands will be forced to continue one set of text-books for the whole period even if educational considerations demand a change. The Government Order is dated the 8th December, when the elections were going on in the Bombay Presidency, and would it not have been graceful for the departing Minister to leave this matter to the next Government and his successor in office, whoever he might have been? Where was the reason for this indecent hurry and what was the justification for binding his successors to a contract for ten years which they will not be able to repudiate even when the elections were on? We trust that the genuine upholders of Indian interests in the new Council will look into this matter and at least direct public attention to it, even if they cannot end this compact, so injurious to educational as well as numerous other

interests. A slight reduction of price in the text-books which is to result as the consequence of this contract is flourished before the public in the Press Note, as if a similar cheapening were not possible by sheer competition. We know there are many enterprising educational publishers in the Bombay Presidency, Indian as well as European, who would have been quite glad to meet the wishes of the Government in the matter. The most serious part of the tragedy is that all this is for the production of books in the vernaculars of the province and no better auspices could be found than the *Times of India Press* for them. The Press Note does not say if at least the literary work will be entirely under the supervision of the Department.

If we have had occasion to speak so adversely of the action of the Bombay Government in this matter of

The Primary Teacher. the contract for the publication of books, it is pleasing to record a beneficent step of educational reform recently announced by it. The Government of Bombay sanctioned increments of salary to primary school teachers in the year 1921, in accordance with the following scale:—

	Monthly pay.
Unqualified assistants	Rs. 20
Qualified but untrained assistants ...	25
Qualified but untrained headmasters ...	30
First year trained teachers	30
Second year trained teachers	35
Third year trained teachers	40

Government later raised the minimum to Rs. 25 per mensem and we are glad to

note that a further instalment of increase has been just sanctioned, subject to the approval of the new Legislative Council. Here is the new scale which is to involve an additional expenditure of nearly seven lakhs of rupees, Government bearing the entire extra cost which Municipalities and District Boards will have to incur during the current year:

	Monthly pay.
Unqualified teachers	Rs. 20
Qualified teachers	25—1/5—30
1st year trained teachers	30—1/3—35—1/2—40
2nd year trained teachers	35—1/2—45—1—50
3rd year trained teachers	40—2/3—50—1—60

2. In addition head teachers will be given an allowance based upon the average daily attendance at the school during the previous calendar year, according to the following scale, provided that no 3rd year teacher with a total service of less than 10 years, and no 2nd year teacher with a total service of less than 5 years shall ordinarily be eligible for such allowance:—

Average attendance.	Head teacher's allowance.
	Rs.
Up to 50	3 per mensem.
51 to 100	6 "
101 to 150	9 "
151 to 200	12 "
201 to 250	15 "
Above 250	20 "

These allowances will be treated as pay for purposes of leave, allowances and pension.

What makes the scheme particularly attractive is the fact that it is to have retrospective effect from the 1st March 1923, and the arrears of pay are to be paid immediately after the new Legislative Council sanctions the proposal. The primary school teacher is among the

most unfairly paid people in the world and no effort should be spared to improve his lot if there is to be real educational advance in any land. May we commend this action of the Bombay Government to the Ministry in Madras, if it is capable of thinking of anything other than the advancement of the Non-Brahmin and the grasping of a few more loaves and fishes for members of the community?

The nominations to Ministerships have not been made in all the Provinces of India at the time of writing this note, but there have already been some glaring examples of the claims of distinguished educationists being overlooked for the Ministerships of Education. Among the noteworthy educationists elected, there are two, both in the United Provinces of Agra and Oudh, who should have deserved high confidence for the choice, Dr. Ganesh Prasad, M.A., D.Sc., formerly of the Benares Hindu University and now the Hardinge Professor of Mathematics in Calcutta, and Dr. Zeauddin, C.I.E., the Pro-Vice-Chancellor of the Muslim University, Aligarh. Both of them are educationists of great ability and distinction and should have proved capable Ministers for administering the Department of Education. But Sir William Marris has chosen to continue the Raja Paramand in office though it is difficult to discover any special claims on the part of this Taluqdar member for this office. Whilom Sub-Judge in British India and Judge in the unprogressive

and reactionary States of Indore and Kashmir, we are not aware of any special educational experience on his part. But the Taluqdars are in a majority in the Council and this gentleman must be foisted on the educational world of the Provinces. This is Democracy with a vengeance, enough to chill the most ardent enthusiast for 'Liberty, Equality and Fraternity.'

It was an excellent Address* that was delivered on the occasion of the last Convocation of the University of Madras by Diwan Bahadur R. Venkataratnam Naidu, M.A., though one might wish it had been less verbose and also smelt less of the midnight oil. It is significant that the Diwan Bahadur should continue to have his grave misapprehensions about the new Madras University Act even at this stage. He is prepared to wait and see the millennium ushered in, if it is possible, as the result of the waving of the wand by Rao Bahadur A. P. Patro. We endorse cordially his plea for the encouragement of the Vernaculars under the auspices of the University and we are glad he spoke with such effect on the needs for a cultural life on the part of the graduates. His concluding exhortation for the performance of duty was a real inspiration and we hope that the graduates left the portals of the University with a lively appreciation of the many valuable lessons of his address.

* The full text of the Address is reprinted elsewhere in this number.

The dramatisation of history for the benefit of students in educational institutions has not yet been familiarised in India, in spite of its great instructional value. The appeal to the eye is naturally more effective than the appeal to the other organs of sense and when historical incidents are visualised before the young, they produce a permanent impression. It is with this appreciation of the value of the dramatisation of history, that we welcome a new publication on the subject by Prof. Patrick Geddes,* at present Professor of Civics and Sociology at the University of Bombay. Admirable suggestions are made for the open-air presentation of historical masques from the most ancient times down to the establishment of the Universities of to-day. It is a grand pageant that passes before the mind's eye as we examine the contents of the volume, starting with the splendours of Babylon and Assyria, passing through the civilisations of the Greeks and the Romans and extending to the establishment and organisation of such recent Universities as Edinburgh and Birmingham. Oriental history and civilisation are not forgotten, Harun-al-Rashid and scenes of Indian life of various kinds being among those represented. In commending the book to the notice of teachers of history in India, we should suggest the getting-up of similar scenes more intimately connected with the life and

civilisation of India in the various epochs of her chequered history.

The apprehension has been sometimes expressed that the interests of European education are not likely to

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be safe in the hands of the Indian legislatures and grumblings have sometimes been heard in spite of the circumstance that European education is being very generously treated at present, in comparison with other departments of education. It was well therefore that H.E. Lord Lytton gave expression the other day, speaking at the anniversary of a European school in Calcutta, to some ideas on the subject refuting these common allegations. There was also an encouraging assurance that no retrenchment will be effected at the expense of education. His Excellency pointed out that if retrenchment was thought of, it was only to help such nation-building departments as education and "retrenchment" will therefore result in greater educational prosperity. Turning to the apprehensions of Indian hostility, he said: "I would beg you also not to be apprehensive about the composition of this or future Legislative Councils. It is true that their concurrence is necessary to our expenditure, but the Legislative Council has not hitherto shown any unfairness towards the needs of European schools, and I have no reason to fear that whatever may be the electoral changes, the Council will be animated by racial prejudice in this matter. The European community has on many occasions

* *The Dramatisation of History*. (The Modern Publishing Co., Karachi). Rs. 2.

shown considerable generosity towards purely Indian needs and Indians, I think, would have more to lose than to gain from any refusal to support European schools, but I do not base my confidence in the Indian members of the Legislative Council merely upon grounds of self-interest. I believe they will give you the support you require, not because it will pay them to do so, but because they will recognise what is due to you. I have always found in life that people are apt to conform to the standard which you assign to them. If you treat them as unworthy of confidence, they will possibly prove untrustworthy, but if you confidently expect the best of them, they will give you their best. It is in this belief therefore, that I ask you to take heart and rest assured that so long as your school continues to maintain its high standard the Government will not let you down." We are glad that His Excellency Lord Lytton took such a statesman-like view of the matter.

The University of Delhi has been handicapped from the beginning of its career for want of funds, so essential for the progress of any educational institution. The report on its work for 1922-23 which has just been issued shows that good progress has been made in the working of the institution in spite of this serious disadvantage. As many as 303 graduates representing all communities had registered themselves and the three Arts Colleges had among

them 750 under-graduates. The various University bodies have been formed and they have held frequent meetings to settle the preliminaries. The University was provided with a grant of Rs. 40,000 during the year by Government. The University also received an income of Rs. 8,301-6-0 on account of fees paid for enrolment, registration and *ad eundem* Degrees. The expenditure during the year under review was Rs. 26,931-9-6 leaving a balance of Rs. 11,668-12-6. A satisfactory feature of the first year's work was the receipt of three endowments of the total value of Rs. 17,600. It is maintained that education at the Delhi University is cheapest of all the Universities in India and if it is true, it is a great achievement indeed.

It is now admitted on all hands that the National Education Movement started in the days of Non-Co-operation

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has been a great failure. Many young careers have been blasted and considerable sums of money have been spent on work which does not seem to lead anywhere. In one case we know that a generous trust of ten lakhs of rupees has been created, but it has failed to attract any students of promise and the money could any day be spent with much greater advantage on other educational projects. Very little can be said by way of appreciation of the *Vidyapits*—the *Foundations of Learning*—either at Ahmedabad or at the other centres in India. We are therefore not surprised that the *Times of India* has thought

it fit to indulge in the following numerous skit, at the expense of those institutions:—

One of the most flaming stunts of the original N. C. O. programme was "National Education." The world was informed that the Governmental system produced slaves and scoundrels and Western education was nothing but a curse; what was wanted was a truly "National" system producing Indian patriots and free-men, run by Indians for Indians. The sign and symbol of this new system was the Gujarat Vidyapith or "National University" of Gujarat which was opened in 1920 by Mr. Gandhi at the blast of whose trumpet the walls of the Government Jenuks were immediately to fall flat and the imprisoned students were to rush out and join the truly "National" institution. It has always seemed to us somewhat queer that such a peculiarly National University should start with all the paraphernalia of a Chancellor, Vice-Chancellor, Senate and so on, and with Matric., Inter, and B.A. examinations. We do not recollect to have come across these institutions during the course of our researches into the history of the truly "National" education in pre British times, but that must be due to an oversight on our part, and doubtless there will be found to be ancient Sanskrit terms of hoary antiquity. But we may let that pass and come to the third Annual Report of the Gujarat Vidyapith which will show us what have been the results of three years "national" enthusiasm in the cause of education on patriotic lines. Naturally as the "nation" is behind the effort these results must be on a par with this exhibition of the firm determination of India to be free.... Gone indeed are all the bright hopes called up by the glowing imagination of Mr. Gandhi, melted by the cool breeze of fact. And yet there are still people who believe in Non-Co-operation! It seems incredible, but we are afraid that there will always be a sufficiency of fools to provide practice for charlatans. And not only practice but cash, for we are told that a site for the Vidyapith has been purchased at a cost of Rs. 87,798-6-0, and that the expense incurred on

buildings is Rs. 79,382-2-3. (The "3 pies" is delicious). For ourselves we have no sort of objection and we pray that the Vidyapith may long continue; such a standing joke is far too good to be lost.

At a recent meeting of the Executive Council of the Allahabad University, it was decided that it was not

desirable that Professors of the University should stand as candidates for election to the Legislative Council or be members of the body. It is unfortunate that such a resolution should have been passed, probably with the assistance of the non-professorial members of the Executive Council. The Universities are given the right of electing representatives to the Council, and a resolution of this type is to put a voluntary ban on the right of a University to get itself represented by one of its own workers. A Professor, actively engaged in the work of the University is better fitted to represent its educational interests than a layman whose connection with the University is only nominal. The practice of European and American Universities is to facilitate a Professor's aspirations in these directions and many educationists have played a prominent part in the legislatures of their States. A Professor should have the right of standing as a candidate not only on behalf of the University itself, but also on behalf of any general constituency, if necessary. We trust that steps will be taken to get this decision of the Executive Council reversed.

EDUCATIONAL EXHIBITION, TANJORE, 1924.

Mr. C. D. SUBRAHMANYA CHETTI, M.A., Acting District Educational Officer, Tanjore, writes:—

It has been decided with the permission of the Department of Public Instruction to organise an Educational Exhibition (comprising work of Elementary and Secondary Schools of the District of Tanjore) and to hold it about the second week of February 1924. The Hon'ble Sir A. P. Patro, the Minister for Education, has very kindly agreed to be the Chief Patron of the Exhibition and to open the same. Mr. R. Littenbailes, Director of Public Instruction, Madras, has very kindly agreed to be a Patron and to preside over the last day's functions and distribute the medals, etc.

Distinguished Educationists will be requested to take part in the Proceedings of the Exhibition which is expected to last for a week. Among those who have already agreed to preside on one of the remaining days is Mr. R. M. Statham, Deputy Director of Public Instruction, Madras.

Supplement to the "EDUCATIONAL REVIEW."—April 1923.

CALCUTTA UNIVERSITY CONVOCATION.*

H. E. THE GOVERNOR'S SPEECH.

I AM very proud to occupy the post of your Chancellor and I devoutly hope that it may be my privilege to render some service to the University in that capacity. At present unfortunately I am suspected of being engaged in a sinister conspiracy to destroy its independence, if not its very existence. I am not concerned to defend myself against such a charge to-day as on this occasion I wish to avoid all controversial topics and I will content myself with saying only two things in this connection. The first is that I do not regard the post of Chancellor as a merely nominal title and an ornamental adjunct to the office of Governor of Bengal. I recognise that the post makes me for the time being the responsible head of the University and so long as I hold it I shall study to promote the permanent interests of the University to the best of my ability.

The second thing I wish to say is that I can only serve with any advantage in this dual capacity if the University is either quite independent of the Government or else associated with the Government in an intimate and friendly relationship. I fear that the first of these alternatives, though ideally the best, is unattainable in India, and this I think was recognised by the University Commission presided over by Sir Michael Sadler. The Report of that Commission deals with the matter in the following words:—"The Provincial Universities of India were all established by Government action; and they were established partly in order that they might exercise, on behalf of Government, certain functions of regulation and control over colleges and schools, within their allotted areas. For that reason they have been from the first not independent corporations of

learning, but bodies mainly nominated by Government wielding defined powers which were delegated to them, and subject to constant supervision by Government."

The connection of Government with the University, therefore, and the supervision by Government of the affairs of the University are no new things which we are seeking to create for the first time. They exist to-day, and the only object of the legislation which we are contemplating for the University is to make that connection and that supervision as intimate, as helpful and as harmonious as possible. I am content to leave the matter there and to trust to the future to dissipate the fears and the suspicions which have recently been aroused.

I now want, as this is the first occasion on which I have an opportunity of addressing the students of the University as their Chancellor, to tell them what is the function which I wish this University to serve in their lives and what are the qualities which I should like to see developed in them as the result of their University training.

I regard Calcutta University as primarily a great human factory and I am anxious to see that it supplies the commodity which is most required. The great need of the moment in India is for men—and by that word I do not mean human animals of the male sex—It is one of the defects of the English language that we have no noun to describe the human species except in terms of men and women. I use the word men in a sexless sense to mean persons—both men and women—with intellects, character, and physique fitted to do the work of the nation to which they belong and which this generation is pledged to create. You may think, Gentlemen, that at college you

* His Excellency the Governor of Bengal as Chancellor presided over the Convocation which was held at the Senate House on 31st March 1923.

have only your personal interests and prospects to consider, that you have but to acquire knowledge, pass examinations, obtain degrees, and enter a profession. You doubtless hope after leaving the University to earn enough money to live comfortably, to marry and to raise a family to succeed you and carry on your name. But if that is the only conception you have of your University career and of your destiny in life you will have failed to realise a fact which I want to bring to your notice. There are periods in the life of every community when the interests of the whole community dominate the interests of the individual, when the State has a supreme claim upon the services of its members. Such a period we have just lived through in England under the stress of the great European War. All those who lived through those years came to realise that the needs of the nation were supreme, and that to those needs their individual happiness or comforts or interests had to be subordinated. Though we were not individually responsible for the danger which threatened us we accepted the obligations which that danger imposed upon us. Such periods occur as a rule when the life of the community is threatened by some external calamity. In a besieged city, in a district afflicted by flood or famine or pestilence, in a nation at war for its existence, this law of compulsion is recognised and accepted; at such times the rights of the individual must perish that the community may live. The thought I want to impress upon you is that we are living in such a period in India to-day though the evidence of it is not so easily recognised as in the conditions I have mentioned. India to-day is not threatened with destruction from without, we are not faced with any calamity of nature or assailed by any foreign foe. Yet she is engaged in a struggle for life which entitles her to claim the services of her sons and daughters. Her need arises not from the fear of death but from the throes of birth. The Indian nation does not yet exist but it has been conceived in the womb of Time. That conception having taken

place it is not in the power of anyone to avert the consequences. But it is in the power of all of us to control and direct them. It is the fate of this generation to witness in India the birth of a nation, and this fact imposes upon us all, whether we like it or not, very solemn responsibilities and obligations. We all have a part to play, I for a few years only, but you during the whole of your lives, in this great drama. We have to accept the consequences of the actions of others who preceded us but upon our actions, upon the conditions which we establish, will it depend whether the nation which is born in our time is strangled at birth, or crippled for life, or grows into healthy manhood.

That is why I have said, Gentlemen, that you cannot live for yourselves alone, and that is why I have said that the supreme need of the moment is for men and women with clear vision and understanding of what is going on and with the intellect, character and physique which will fit them to play their part. I do not mean by that that you have all got to be politicians. Actual politics play a much smaller part in the building of a nation than is generally supposed. In addition to politics a nation requires commerce and industry and sciences and arts. India wants statesmen, judges, administrators, doctors, nurses, engineers, captains of industry, philosophers and teachers; it wants a healthy, happy cultivated people with sufficient food and occupation; it wants fine buildings, roads and bridges and railways; it wants paintings, sculpture and music. If these things are needed it is to Universities like this that we must look to provide the needs. I feel therefore that in addressing you to-day I am addressing those who are going to supply the needs of India to-morrow, and according to the conception you form of your responsibilities and of your opportunities while you are here will depend the extent to which India will be well or badly served in the years to come.

I have spoken of the building of the Indian nation and, I want to pursue that metaphor for

a moment. It is not inconsistent with the metaphor of birth because we speak of building a body as well as of building a house or a temple or a monument. This nation then has to be built and you are both the builders and the material of which it will be composed. The material is of almost infinite variety and that has led people to say that a nation can never be built out of it. That would be true if India had got to become homogeneous before it could have national existence. But homogeneity is neither necessary nor desirable; the character of the various materials, they need only to be welded together so as to serve a common purpose. A body is composed of eyes and nose and mouth and ears and trunk and limbs; they all have their separate purpose in serving the body, but if you were to try and make a body which is all eyes or ears or limbs it would be a lamentable failure as a body. Similarly in a house there are many materials—slates and bricks and wood and stone, many features, doors and windows and roof, etc.; all these are different and valuable and necessary for the purpose of the house. So, too, in this Indian nation which you have to build out of your own selves there are Hindus and Mahomedans and Sikhs and Christians and Buddhists and Jains and Parsis and Jews, there are Brahmins and Namasudras and the whole range of caste between these two, there are hill-men and plains-men, there are Bengalis and Punjabis and Madrasis and a host of others; that they are different does not mean that they are irreconcilable or unserviceable, all that is required is the cement of a common purpose to enable them to coalesce into a nation.

I don't want to talk politics as one who is concerned for your welfare and that of your country, and in that capacity I want to invite you to cultivate an attitude of mind which will make you good builders and good building material and to avoid, as far as you can, an attitude of mind that will unfit you for either of those purposes. I hope you will acquit me of any racial arrogance or

prejudice when I tell you that the mental attitude I want you to avoid is the one which I and most of my countrymen have been schooled in from infancy and the one I am recommending to you is one which should be congenial to Eastern philosophy and which if practised would enable the East to teach the West a lesson. What then is this doctrine against which I am warning you? It is the conception of life as a great battle-field in which rival forces are always fighting for mastery. We are taught in the nursery, in school, by the church, by society to regard life as a battle for which we must prepare ourselves by learning to distinguish between right and wrong, between what to fight for and what to fight against. According to this view of life conflict is a law of existence and individuals are organised into contending groups. The world is represented as a struggle between duty and pleasure, health and disease, poverty and wealth, capital and labour, right and wrong, God and the devil, life and death. The result is that in every human being, as in humanity at large, there is internecine war, waste of energy and retarded progress. The ghastly object lesson of 1914—1918 is only a reproduction on a world-wide scale of what goes on in every individual soul. And the pity of it is that though all war viewed from without is seen to be wasteful and destructive and evil, viewed from within it has attributes that are glorious and noble, it stimulates energy, calls forth unselfishness, and is often inspired by the highest ideal of the human mind. "Dulce et decorum est pro patria mori"—to die for the right, to vanquish the enemy, to win the victory—idealism can go no further. Yet stripped of its ideal associations what can be more hateful, more mad, more wanton than warfare in any form?

I imagine you all passing out of the doors of the University and being surrounded immediately by the clamour of rival partisans, calling upon you to join their groups and fight for their causes, and I want to suggest to you another conception of

life, another principle of conduct which will save you from the embarrassment of selecting an army in which to enlist. My message to you to-day, is to make the purpose of your lives creative not destructive, to aim at the reconciliation and not the defeat of opinions and movements to which you feel opposed. Make as much use as you can of all the materials which are within your reach. When you encounter some activity which appears to you to be pernicious, instead of saying to yourselves "that must be wrong because it is opposed to what I think right therefore I will fight it" say rather "there must be some right in that because many others believe in it. I will not rest till I can find some way of reconciling it with my view and making it serve my purpose."

When you see two forces fighting against each other, instead of throwing in your lot with one of them, seek rather to unite them both. Imagine a world full of trains or motor-cars all chained together back to back in pairs and being driven in opposite directions. Do not be satisfied to link on to one of these and impel it a little further in the direction in which it is facing but try to turn as many of them as possible in the same direction so that their energy may be used in unison and not in opposition. Take for your guiding principle in life, and make it an article of faith, that all seeming opposites are reconcilable, that you can accomplish more as lovers than as haters, that it is greater to create a good than to destroy an evil. If you will do this you will, I am confident, find life both easier and happier and you will add a hundred per cent. to the efficiency with which you can serve both yourselves and your country.

VICE-CHANCELLOR'S* SPEECH.

It is now incumbent on me, in accordance with established usage, to review in brief outline the work and activities of the University during the twelve months which have elapsed since it was my privilege to address Convocation last year. By an unusual stroke of good fortune, the ranks of our

* Sir Asutosh Mookerjee.

active members have not been thinned by death during this period, though we have to lament the loss of three of the most notable of our Honorary Fellows, each of them a graduate of this University: Raja Peary Mohan Mookerjee, Nawab Seraj-ul-Islam and Nawab Sir Syed Shamsul-Huda were once familiar figures in these halls, and, in years gone by, were closely associated with the administration of this institution. They distinguished themselves in diverse spheres of life, but their characters had many a striking feature in common. Devotion to duty, sobriety of judgment and honesty of purpose secured for them the genuine respect of all with whom they were brought into contact. Fearless and trenchant critics of men in authority and of unwise measures invented by them, they were still regarded as true friends of the State. In the sphere of education, they never faltered from their adherence to the principle of freedom, expansion and improvement. May their careers serve as beacon lights to the rising generation of our young men!

THE ALLEGED PROCESS OF DISSOLUTION.

The belief, I think, is widespread that during the last twelve months the University has been subject to the operation of a silent though persistent process of dissolution, and a complete collapse, imminent and inevitable, has been as keenly apprehended by our friends, as eagerly expected by our enemies. By the never-failing grace of Providence, however, we have hitherto escaped what could not but be regarded as disaster by all well-wishers of high education in these Provinces, and our work has been steadily continued amidst unsettled and perilous circumstances.

ASSIMILATION OF WEST WITH EAST.

During the last sixteen years, we have uniformly recognised the principle that the most fruitful results in the domain of higher studies could be achieved only by the assimilation of what is best in the West with what is best in the East, for the revivification of all that is most vital in our national ideals. It is for this reason that we have

successively brought our students into contact with such master-minds as Prof. Arthur Schuster, Professor George Thibaut, Dr. Gilbert Thomas Walker, Dr. Andrew Russell Forsyth, Professor Herman Oldenburg, Professor Herman Jacobi, Prof. Paul Vinogradoff, Prof. Henry Edward Armstrong, Professor Alfred Foucher, Professor Sylvain Levi and others too numerous to name.

We consider this one of the most valuable features of our arrangements for the promotion of special studies and research by the rising generation of our scholars, and to me personally it is a matter for peculiar satisfaction that our efforts in this direction are likely to be materially facilitated, if we can act in close co-operation with the Academy of Culture, the Viswabharati at Santiniketan, which owes its existence to the inspiring influence of our great national poet.

During the last few months, we have had amongst us more than one scholar of international reputation. Professor James Willford Garner of the University of Illinois, whose name is a household word wherever International Law and Political Science are studied, delivered a course of illuminating lectures on the Development of International Law during the first two decades of this century, as it has emerged out of that wreckage of modern civilisation, the Great World War. Professor Arthur Antony Macdonell, of the University of Oxford, whose name is held in honour in every centre of Oriental learning, discoursed to our students on Comparative Religion, as the first occupant of the Stephanos Nirmalendu Ghose Lectureship, founded by our distinguished benefactor, Mr. G. C. Ghose, in memory of his son. These lectures constituted a new departure in our ideal of the scope of academic activity. In this materialistic age, when Universities are apt to be regarded as workshops for the manufacture of the public servant, the professional man and the skilled mechanic, it cannot be superfluous to impress upon our students that the highest ideal for man lies in love and service to his fellow-men

and that whether we turn our eyes to the unfathomed depths of the sea or the boundless regions of space, beyond the things which are seen and temporal are the things that are unseen and eternal. We had also two courses of stimulating lectures by Dr. Stella Kramrisch who opened out to our students a wonderful vista in the domain of Indian Art, its contact with the Art of other civilisations and its true place in the system of Indian Aesthetics. In addition to these, we had short courses of lectures by Professor John Mackenzie, of the University of Wales, on Our Present Outlook in Philosophy, by Professor Millicent Mackenzie, also of the same University, on recent Educational Developments, and by Professor Buck, of the University of Nebraska, on American Universities.

A YEAR'S RECORD OF ACADEMIC ACTIVITIES.

While we have been fortunately able thus to extend a cordial welcome to so many distinguished scholars of such varied types for the benefit of our senior students, we rejoice to think that it has also been found possible to send out some of our most capable University teachers to investigate educational methods abroad and to undertake research in special branches of learning. In this category are included Professor Hemendrakumar Sen, Dr. Sisirkumar Mitra and Mr. Prabodh Chandra Bagchi, each of whom has been awarded one of the Travelling Fellowships founded by our eminent benefactor, Sir Rashbehary Ghose. Dr. Sen and Dr. Mitra are well-known specialists in Chemistry and Physics, and we confidently expect that their visit to the West will enhance their unquestioned fitness to direct higher scientific studies in this University. Mr. Bagchi, who acquired a competent knowledge of Chinese under Mr. Masuda and Mr. Kimura, our University teachers of that difficult language, has been deputed to accompany Professor Sylvain Levi in his tour through Indo-China and Japan and finally to proceed to the University of Paris for the pursuit of studies indispensable for the proper

appreciation of the manifestations of Indian civilisation in ancient times beyond the limits of India proper. Well-wishers of this University will no doubt be delighted to learn that arrangements are in progress for the deputation of three other scholars during the current year.

While we have thus endeavoured to ensure a steady supply of men permeated with the highest traditions of scholarship, current alike in Eastern and Western seats of learning, we have not neglected the needs of what might be erroneously deemed as humbler spheres. For the first time in the history of this University, after hesitation and deliberation for many years on the part of the authorities, we have at last found ourselves in a position to institute the Degree of Bachelor of Commerce, and within a few weeks we shall hold an examination to test the fitness of students trained in the Department of Commerce which is attached to the Krishnath College at Berhampore and is maintained by the liberality of the Maharaja of Cossimbazar. We have also framed new Honours Courses for the Degree of Bachelor of Science, specially designed for students who may subsequently make a choice of technological studies. Instruction in these courses under modern conditions must be necessarily expensive, and we look forward to the best Colleges in this city, singly or jointly, to arrange for the introduction of these groups of fruitful studies. We have, in the sphere of legal studies, assigned an important position to Roman Law and Constitutional Law as necessary pre-requisites for a Degree in that Faculty. The changes I have hitherto specified have already received governmental sanction and have come into operation. We have recently had occasion, moreover, to examine the regulations for Degrees in Medicine and to effect alterations in them with a view to elevate the standard of instruction and examination. One topic has here created a real difficulty such as sometimes inevitably arises from a conflict between an irresistible demand for expansion and an imperious need for efficiency; in

such circumstances, prudence requires a reasonable reconciliation of the opposing ideals. But, of far graver importance than any of the changes mentioned are the proposed new Regulations for the reconstruction of the Matriculation Examination, which are based upon the recommendations of a Conference of Head Masters of Secondary Schools drawn from every part of these Provinces. They are of a far-reaching character, and if ever brought into operation, they are bound to revolutionise our entire system of education.

THE PROBLEM OF THE STUDENTS' HEALTH AND RESIDENCE.

In these days of political ferment when plans for the reform of an institution leave out of sight the fundamental purposes of its foundation and culminate in devices calculated to concentrate authority in the captors, it may not be unprofitable to dwell for a moment upon one aspect of our activities which concern directly the student population for whose benefit the University and all who administer its affairs have been called into existence. During the past year, the work of our Students' Welfare Committee and Students' Residence Committee has been carried on amidst rapidly increasing difficulties. The Students' Welfare Committee, which commenced its work now three years ago with extremely limited resources in both men and money, has continued its examination of students in the University and in the affiliated colleges. The successive reports, which have been published and widely circulated, would have forthwith riveted the attention of responsible people in any civilized community, not wholly callous to the physical welfare of its rising generation. The facts ascertained during the last year have fully confirmed the appalling situation disclosed in previous reports; there is no longer any room for doubt as to the rapid deterioration and the consequent danger of the ultimate extinction of the cultured manhood of the country. Thousands of students have voluntarily submitted them-

selves to medical examination, and our records, which have been accurately prepared according to the most modern scientific methods, indicate that two out of every three students require immediate care and attention. Defects of all descriptions, in every part of the human frame, affecting the eyes, heart, pulse, tonsils, lungs, throat, spleen and liver, are matters of the commonest occurrence. What remarkable improvements may be achieved by proper training and supervision under favourable conditions has been conclusively established by the fine presence of the members of the University Training Corps which must have excited the admiration of all well-wishers of the students of the rising generation. Notwithstanding all this, neither the Government as representative of the people, nor the members of the educated public have come forward with material aid to promote the work of the Students' Welfare Committee. Yet, in spite of great financial stringency, the University has carried on this laudable enquiry, of inestimable value to the nation, with the assistance of members of the medical profession, who have devotedly worked with unflagging zeal and have accepted what would be considered in every University other than ours as a ridiculously inadequate honorarium. At the same time, the problem of the residence of students, which is closely connected with the question of student welfare, has reached an insoluble stage. The houses available for this purpose are insufficient in point of accommodation, and in many instances, are unsuitable from the standpoint of sanitation. The rise in the value of land, the increase in the cost of building construction, the severity of competition for such houses as exist, have all contributed to a phenomenal advance in the rent, to an extent which is found oppressive by the middle class student with a limited purse. Here, again, applications for even a modest measure of additional help from the public funds has proved ineffectual. I cannot conceal my conviction that the problems I have indicated, which affect our students every moment of their lives, stand in need of immediate and

sympathetic attention, and will be regarded by all their benefactors as far more urgent than the most ambitious plans for reconstruction of the machinery of the University.

THE SACRIFICE OF THE PROFESSORS.

Let me pass on for a moment to that section of our institution which has been created and is maintained for higher teaching and research and may appropriately be regarded as the true University. During the current academic session, which is about to close, the work of our University teachers in every department has been successfully carried on amidst financial difficulties of the gravest character. It is my pleasant duty gratefully to acknowledge that the wholetime University teachers, who cannot look forward to any external source of income, voluntarily kept a substantial portion of their salaries in abeyance, while lecturers who are connected with colleges or may rely upon other sources of income, have, in many instances, ungrudgingly continued their association with our work without any remuneration. To crown all, Professor Sir Prafulla Chandra Ray, that veteran founder of the Indian School of Chemistry, who has also made his name illustrious as the guardian angel of suffering humanity, has offered to surrender his entire salary for a term of five years for the special benefit of the department which is proud to acknowledge him as its leader. Self-abnegation of this description is bound to call forth feelings of admiration from all but the most debased minds. I do not overlook the fact that a considerable number of our University teachers has succumbed to the pressure of untoward circumstances and has taken up appointments elsewhere on more attractive terms, in some cases in institutions in different parts of India, aided or maintained from the public revenues. Nevertheless, it is indisputable that notwithstanding privation, the large majority of our University teachers has tenaciously clung to their work of higher instruction and advancement of research.

PROGRESS OF RESEARCH WORK.

There are unmistakable signs of intellectual ferment visible to all but the stone-blind, and I could not conceive of a more persuasive testimony to the rapid success of our efforts for the promotion of higher studies and research than the fact you have all witnessed, namely, that during the last twelve months as many as five candidates have been approved for the Degree of Doctor of Science and four for the Degree of Doctor of Philosophy. These degrees can be obtained only by original research of unquestionable merit, and when we look at the subjects comprehended within the scope of enquiry undertaken by our investigators, we realise the diversity of the training they have received, the tastes they have developed and the culture they have acquired. Dr. Surendramohan Ganguli has taken a peep into the mysterious regions of hyper spaces; Dr. Brajendranath Chakrabarti has studied the colours of tempered steel; Dr. Bidhubhushan Ray has investigated the theory of coronas, glories and iridescent clouds; Dr. Nripendranath Sen has successfully tackled many an unsolved problem in the motion of fluids; Dr. Nalinimohan Bose has attacked problems on the diffraction of light; Dr. Sahayram Bose has prepared a monograph on the fungi of Bengal; Dr. Sita Nath Pradhan has constructed a chronology of ancient Indian History down to the age of Alexander the Great; Dr. Upendranath Ghoshal has composed a history of Hindu Political Theories from the earliest times to the commencement of the seventeenth century of the Christian era; and Dr. Narendranath Law has elucidated the growth of ancient Indian polity. Be it remembered that the labours of these distinguished scholars have been appraised by investigators of the first rank, mostly connected in no way with this University; in the majority of instances, the Boards of Examiners were composed of men of the highest eminence in their respective subjects in British seats of learning.

What has just been mentioned furnishes only one illustration of the incontestable claim of this University to occupy the foremost position amongst the Universities of the Indian Empire as an organisation for the promotion of higher teaching and original research in many a department of knowledge in Letters as well as in Science. This has been manifest for some time past to all impartial persons interested in the progress of education here and elsewhere. Take at random recent volumes of recognised media for the publication of original research, such as the *Philosophical Magazine*, the *Astro-Physical Journal*, the *Physical Review*, the *Indian Antiquary*, the *Journal of the Asiatic Society*, the *Bulletin of the Mathematical Society*, the *Proceedings of the Indian Association for the Cultivation of Science*, the *Journal of the Chemical Society of London*, the *Journal of the American Chemical Society*, the *American Mathematical Journal*, the *Transactions of the Tohoku Mathematical Society*, the *Transactions of the Faraday Society*, and last but not least, the *Proceedings of the Royal Society of London*, you repeatedly come across contribution after contribution by our University teachers or by our University research students who have utilised in the fullest measure such opportunities as are afforded by an unreformed University. It is of paramount importance to emphasise that this steady output of original work, rapidly increasing in volume and improving in quality, emanates, not from one or two extraordinarily isolated or exceptionally gifted workers blessed with special advantages and facilities but from a large body of able and devoted scholars, who have received inspiration from less favoured teachers. Their imagination has been fired by a keen desire to wipe out the familiar reproach that graduates of an Indian University are, by their training, if not by their very constitution, as a rule incapable of participation in the task of extension of the bounds of knowledge.

While on this topic it is indeed refreshing to note that there is no immediate danger that the

supply will be exhausted, for there are abundant signs that as the front ranks advance, their places will be taken up by men of the younger generation. This will be patent to all whose minds have not been petrified by green-eyed jealousy and who have generosity left to appreciate the full significance of the persistent increase in the number of well-qualified candidates for the Premchand Roychand Studentships. When these studentships, originally awarded on the result of written examinations, were restricted to candidates who had given evidence of capacity for research, it was feared that suitable competitors might not be forthcoming, in view of the extremely limited facilities for original investigation available at that period. Experience has proved that the apprehension was groundless. On the other hand, Boards of Examiners are now embarrassed by the high quality of the work, submitted in a variety of subjects whose relative value for purposes of comparison cannot be expressed in terms of the same denomination. Only a few weeks ago, the Boards of Examiners found it incumbent upon them to award the studentships to seven distinguished graduates, who had submitted creditable theses on such diverse subjects as Town-planning in Ancient India, History of Indian Alphabets, Indian Psychology of Perception, the Colours of Tarnished Metal Surfaces, Tidal Oscillations, the Researches of Martin Freund and the Properties of Cubic Curves.

A NEW RACE OF LABOURERS.

Distinguished workers of the older generation, whose mental elasticity has not yet been impaired by lapse of time, should not be slow to recognise that a new race of labourers has entered the field, fully qualified to maintain and continue the tradition they have so worthily created. Let me dwell on one instance only by way of illustration. It was my pleasant duty to mention here last year that through the liberality of Kumar Saratkumar Ray of Digbapatiya, supplemented by a generous grant from Sir John Marshall, Director-General of Archaeology, we then hoped to be placed in a

position to undertake excavation work in classic Varendra land, in conjunction with the famous Research Society, so ably directed by one of our acutest writers on History, Mr. Akshay Kumar Maitra. Notwithstanding all our embarrassments, the scheme has taken shape, and at the present moment the work of excavation is in progress. To me it is a hopeful sign that in the accomplishment of a task of this nature, veterans like Professor Bhandarkar and Mr. Maitra should be able to enlist the cordial co-operation of three of our University Lecturers, Mr. Banerjee, Mr. Majumdar and Mr. Ray, brilliant young men of promise still in the threshold of their careers. It is only by a constant supply of men and money that historical research may be carried on in this style, so that we may aspire to tread in the footsteps, though at a respectful distance, of the founders of the British School at Athens and the British School at Rome.

My optimism as to the possibilities of the future refuses to desert me, when I consider the solid work which has already been silently accomplished under the most adverse circumstances and in spite of distressing embarrassments. The *Journal of the Department of Letters* which has now reached its tenth volume and the *Journal of the Department of Science* which has reached the fifth volume contain original papers by University teachers and students whose value as contributions to the progress of knowledge has been frankly recognised in many a seat of learning in Europe and America. Within the last twelve months, our University Press has published not a few notable works, such as the *Molecular Diffraction of Light* by Prof. Raman, the *Geometry of Hyper-Spaces* by Dr. Ganguli, the *Prakrita Dhammapada* by Dr. Barua and Mr. Mitra, the *History of Indian Medicine* by Dr. Mookerjee, the English version of the classical commentary of Medhatithi on the *Institutes of Manu* by Dr. Jha, the *Life and Times of Socrates* by Mr. Guha, the *Administrative History of the Mahrattas* by Dr. Sen, and the

Economic Condition of Ancient India by Mr. Samaddar, which in most instances, have already attracted respectful attention in centres of culture far beyond the limits of India. The work of Professor Cullis on the supremely recondite subject of Matrics and Determinoids and the treatise of Professor Banerjee on the highly controversial topic of Indian Fiscal Policy do not stand in need of more than a bare mention. Add to these the truly monumental work on the History of Indian Logic, ancient, mediæval and modern, by the late lamented Dr. Satischandra Vidyabhusan, which has just been published and cannot fail to be recognised as one of the most important events of the year in the field of Oriental scholarship.

INDIAN VERNACULAR PUBLICATIONS.

I shall not venture to tire your patience with a detailed enumeration of our publications in the department of Indian Vernaculars which has been organised on a scale not hitherto attempted in any other Indian University. The volume of selections from Zend and Old Persian prepared by Prof. Taraporewala has already been published. The scheme for a comparative study of Indian Vernaculars continues to make satisfactory progress, and fresh volumes of typical selections from Hindi by Lala Sita Ram, and from Uriya by Mr. Majumdar, have been brought out, while the typical selections from Assamese and from Gujrathi are still in the Press. A start has been made in the way of publication of carefully edited and annotated ancient texts of our mother-tongue with editions of Kabikankan Chandi and Gopichandra. The University Press has, however, failed to keep pace with the publication of the lectures delivered by Dr. Dineschandra Sen as Ramtanu Lahiri Research Fellow, specially of his great work on Mymensingh Ballads which have never before been reduced to writing and still largely exist in the mouths and memories of the people. They will throw a flood of light on the social, religious and economic history of Bengal, though they are liable to be scanned by

scholars chiefly from the linguistic standpoint as a contribution to the history of the Bengali language in one of the most attractive periods of its development.

THE TRANSCENDENT BEAUTIES OF OUR VERNACULAR.

The inestimable value of what is thus nothing short of a memorable achievement in unexplored regions of scholarship has long been realised by master-workers in this domain. I still hear ringing in my ears the exhortation, pregnant with eloquence and wisdom, uttered in this hall thirty-six years ago by one of the most cultured of my predecessors, who, though a foreigner, felt far more genuine appreciation of the transcendent beauties of our vernacular literature than many a latter-day countryman of mine made insolent by the superficial veneer of the Western culture they claim to have acquired. Sir William Wilson Hunter, with the prophetic vision of a seer, saw in his mind's eye graduates of this University who would discover new Americas in the world of Mediæval Bengali literature and stand forth as its interpreter to the Western world, with a nobler pride in their labours than in the richest material success or the highest official distinctions which might reward more lucrative careers. I must not, however, detain you longer with an exhaustive description of all the work which has been accomplished in this University during the last twelve months; but I feel it is incumbent on me to emphasise that intellectual achievements of this description, in the most diverse fields of activity, by scholars of the most varied types, working under widely dissimilar conditions, cannot justly be regarded as casual or accidental. The true scope and character of the work produced by our teachers and students as members of the foremost seat of higher learning in India, are apparently unknown in many quarters, while in others it is often deliberately ignored that we occupy a unique position as an active, a living centre of research in an ever-widening domain of knowledge.

THE OBJECT OF THE REVIEW.

Let me assure you at this stage that this imperfect review of the successful efforts of our workers in the field of academic activities has not been placed before you with a view to create the impression that we have achieved sufficient eminence and that no further progress is needed. Far be it from me and all my colleagues to lend even the vestige of support to such a ruinous theory of self-complacence. On the other hand, we cordially look forward to helpful advice and criticism from enlightened men who realise that the troubles of mankind come from ignorance, that ignorance which consists less in not knowing things than in ignoring the things already known. We have accorded serious consideration towards criticism of all types to such an extent that we have had to undertake the preparation of as many as ten comprehensive statements in the course of one academic session, not indeed with a hope to revive the traditions of the pamphleteers of the Augustan Age of English literature, but rather to help our critics to appreciate the true position with regard to many a vital point in our activities.

A DETERMINED CONSPIRACY AGAINST THE UNIVERSITY.

Our defects, as may be conceded are manifold; but no wonder that this is so, for we all know how adverse have been the circumstances which have affected our endeavours to lay the foundation of a Teaching and Research University. Let unfriendly and prejudiced critics magnify our deficiencies, if they choose, but let them not overlook the good that has been accomplished. I am moved to indulge in these observations because we have no desire to conceal our disappointment at the attitude of critics who regard charity, justice and fairness as lost virtues. We cannot shut our eyes to the lamentable fact that there have been abundant indications in recent times of the existence of what looks like a determined conspiracy to bring this University into disesteem and discredit.

A SATIRIST'S CLASSIFICATION.

A satirist, gifted with an uncommon sense of humour, recently classified the members of this confederacy as political adventurers, academic imposters and sanctimonious hypocrites. I cannot vouch for the logical accuracy of this classification, much less for its completeness; this at any rate is plain that critics of this type, if they exist, neither ascertain the facts for themselves nor act upon them when they have been investigated by others. They appear to have discovered from the depths of their inner consciousness and without adequate knowledge of academic affairs in other parts of the civilised world, that our activities have been developed on an extravagant scale and that we are actually guilty of the crime of duplication. The truth, on the other hand, is, I earnestly maintain, that this University was the first to organise special facilities for higher instruction and original research. We have passed through the four successive stages of development which so often accompany all new movements in this country. Were not our efforts at first completely ignored? Were not they mercilessly ridiculed and then vigorously attacked? When victory for our aims and ideals was complete, were they not readily appropriated even by our opponents and that without acknowledgment? In such circumstances, I feel that the wisest of men can by no intellectual subtlety establish the charge of duplication against our institution.

THE CHARGE OF EXTRAVAGANCE GROUNDLESS.

The charge of extravagance will be found equally groundless to all who are familiar with the strenuous endeavours which have been made to establish new seats of learning throughout this country as also to widen the sphere of influence of the most renowned Universities in the West. They have set the standard of a University and its functions, which we may cheerfully accept as our ideal. For years past we have unflinchingly maintained the fundamental position that a University

greatest defects of the existing system which was forced on the country by the Indian Universities Act of 1904 notwithstanding the emphatic and unanimous protest of the educated public. Let us not repeat, much less accentuate, the errors of the enthusiastic reformers of the generation now about to pass away.

IGNORANCE COSTLY: KNOWLEDGE CHEAP.

We cannot further conceal our anxiety that schemes of reform should be matured without full enquiry into their financial aspect and apparently regardless of possible financial arrangements. It is a truism that education of all grades has hitherto suffered in this country by reason of inadequate financial assistance from the State. Let us not forget that education is the one subject for which no people has ever yet paid too much. The more they pay, the richer they become, for nothing is so costly as ignorance, nothing is so cheap as knowledge. Explore the history of civilisation, ancient and modern, you will find that the people who provided the greatest educational opportunities were always the most wealthy, the most respected, the most secure in the enjoyment of every right of person and property. This truth will be a hundredfold more manifest in the future than it has ever been in the past, as the struggle for existence grows keener and keener, and the very right arm of all future national power comes to rest in the education of the people. Yet, in these strenuous times, when Governments and institutions of all descriptions are beset with financial peril, notwithstanding unlimited powers of taxation which have been exercised to the utmost limit, we are reproached as bankrupt because we have exhausted our resources in the fullest measure for the spread of high education and advancement of research. Those who admonish us forget that education is a necessary preparation for the discharge of civic functions in a progressive age and that the indifference or hostility to the spread of education is liable to be attributed to the fear that knowledge and intelligence might create a wish for freedom.

A STRIKING CONTRAST.

Contrast what has happened quite recently in the British Isles when all their Universities, even such ancient and wealthy seats of learning as Oxford and Cambridge, were threatened with imminent financial disaster. The British Parliament came forward with an interim grant of £30,000 a year to each of these two Universities for general purposes, and a Royal Commission was appointed to report on the position of Oxford and Cambridge, their special value to the nation and the dangers that must inevitably arise from want of funds. The Commission consisted, not of politicians or amateurs who clamoured to destroy the autonomy and liberty of the institutions, but of understanding people, who were University men themselves, who had attained eminence in many a department of Letters and Science, who were aware of University sentiment and tradition, who were prepared to respect them and were even concerned to preserve them. The Report of this Royal Commission which was based upon a large body of evidence is one of the most valuable documents in recent educational literature. We may affirm without hesitation that the Publicity Officer who will arrange for its distribution throughout the length and breadth of the country in its original form as also in vernacular version, will have justified his existence, if not earned the gratitude of the community. Meanwhile, we earnestly commend the report to all reformers who are sincerely anxious to embark upon so perilous a venture as the reconstruction of an institution which is a precious part of our intellectual and moral heritage as a nation. Let them imbibe that breadth of vision and freedom of spirit which characterised the members of the Royal Commission as is abundantly evidenced by the nature of their recommendations. Far-sighted as they were, the Commissioners did not decry the activities of the Universities; they did not advocate curtailment; on the other hand, they earnestly pleaded for expansion. They recommended the grant of public money on an extensive scale,—one hundred and ten thousand pounds a year to each University—for such purposes as proper salaries and pensions for University teachers, the adequate maintenance of University

libraries and museums, the endowment of research and advanced teaching, the increase in the number of Professors, Readers and Lecturers, the establishment of additional research studentships for young graduates, and the maintenance of laboratories and departmental libraries as an integral part of the apparatus of teaching and research. At the same time, the Commissioners boldly proclaimed that if there were any danger that grants of public money will lead to State interference with opinion and tendency in the Universities, it would be the less of the two evils that they should decline in efficiency rather than lose their independence in order to secure adequate means. They resolutely rejected the proposal for the presence of outside representatives on the University Council whom they characterised as occasional disturbers of policy and originators of inconsistencies. They were equally firm in their condemnation of the proposal to include in the Council representatives specially nominated by the Government. They emphasised that the addition of such nominated representatives would assuredly be not in the interests either of the Universities or of the Government and that it was most undesirable that the autonomy of the Universities should be limited by continuous administrative pressure from without. It is refreshing to find that even on the Board of Finance the Commissioners did not consider it right to provide for representation either of the Government or of Parliament, and only recommended the inclusion of two additional members, who might or might not be members of the University, to be nominated by the University Council to represent Finance generally. I have been moved to press this point home with perfect candour in order to controvert what is assumed even by cultured people as a universal truth that with Government money must go Government control. That, I maintain, is a radically wrong ideal. As the Royal Commission pointed out, incalculable are the dangers due to centralisation of higher education under Government influence, and the right progress of University education can only be secured if the authorities of the University themselves remain responsible for its conduct. The University should, on the one hand be treated as

the trustees of a great national concern who are able to appreciate their duties and responsibilities. The Government, on the other hand, should realise the paramount need of a great and progressive University for the people and the duty which it owes to the growth of such an autonomous institution.

PARAMOUNT NEED FOR UNIVERSITY AUTONOMY.

The opinion I have ventured to place before you as to the paramount need for autonomy in a University is the result of experience of University administration for a long series of years and has been publicly set forth from time to time ever since the stormy days of the debates over the Indian Universities Bill of 1904 in the Legislative Council of the Governor-General. I find myself in full agreement with men of the highest repute and ripest judgment in academic circles when I maintain that the University must be free from external control over range of subjects of study and methods of teaching and research. We have to keep it equally free from trammels in other directions—political fetters from the State, ecclesiastical fetters from religious corporations, civic fetters from the community and pedantic fetters from what may be called the corporate repressive action of the University itself. The University must have the fullest independence and the amplest powers in working out its intellectual salvation. There need be no anxiety as to the future of the University, if a constitution is wisely planned on these principles, and the exercise of power is entrusted to academic bodies composed of qualified persons—not so large in size as to lose in efficiency, yet large enough to prevent degeneration into intellectual cliques; neither eternally unchangeable so as to resist all progress, nor so rapidly changing as to destroy continuity, yet varying sufficiently from time to time to prevent the dominance of personal policies; and, finally, representative enough to be in touch alike with the experience of the past, the needs of the present and the aspirations of the future. The strength of our convictions is not unnaturally intensified when they are found to harmonise with the deliberate judgment even of accomplished administrators who have been called upon to occupy exalted

can only flourish if it is a seat of learning as well as a school for under-graduates. We must not only have adequate arrangements for the effective instruction of students by the best known methods, tutorial or otherwise, but we must also provide adequate arrangements for advanced teaching and research. The teachers of the University must be men of learning; they will no doubt absorb and utilise the new material which constantly becomes available throughout the field of knowledge; they must at the same time by steady research themselves contribute in the fullest measure to the increase and supply of such material. Within our limited resources we claim to have made provision for research and investigation without which higher teaching itself must inevitably lose both solidity and freshness and must become fatally impoverished in all its branches. If the Universities of Oxford and Cambridge are deemed not yet to have done enough in the way of provision for advanced teaching and research, would it not be an error of the first order to assume that our arrangements are sufficient to meet the rapidly growing needs of the community? If it is apprehended that without further provision Oxford and Cambridge are likely to find their position as centres of intellectual life seriously imperilled before long, is not there grave danger to our future progress as a nation, should our growth be atrophied at what is but the commencement of our career?

LYTTON COMMITTEE.

The view I have just indicated receives weighty support from the opinion expressed in a valuable report on the condition of Indian student life in the United Kingdom, drawn up by a Committee over whose deliberations Your Excellency presided. The Commissioners boldly outlined the policy that as India had been set on the road to self-government and autonomy, her sons and daughters should obviously be able to receive their education within her own borders. No Government in India, whatever its constitution, should be satisfied until the Universities of the country are staffed with

the teachers and equipped with the material, necessary to ensure the best education which any Indian could require. When that has been accomplished, no Indian will be under the necessity, which now exists, to seek his education abroad. Here in Calcutta we have for years past striven resolutely for the realisation of this ideal. The obstacles and difficulties have been numerous and powerful. We confidently claim re-construction and development on the basis of a sound and generous educational policy, not destruction or curtailment according to the desire of administrators; for it must not be forgotten that we have been first in the field, we have achieved a large measure of success, we have set the example to others, and though we have found imitators, ours is still the one University in India whose name is familiar in Western seats of learning as an institution devoted to teaching and research. We do not, while we maintain this, ignore the often undeserved cavil at our standards. Notwithstanding the defects of our methods and the deficiencies of our implements, our graduates and under-graduates have distinguished themselves in every rank of the public services and the learned professions where they have irresistibly penetrated in ever-increasing numbers. Finally, the significance of the patent fact cannot be overlooked that it has now become well-nigh impracticable to retain in our employ our University teachers, as they are constantly exposed to the temptation of higher emoluments offered by the authorities of reformed or newly-constituted Universities, who have discovered that, after all, men imbued with our traditions may also help them in the realisation of their new ideals. We feel that however inconvenient it may be to have our ranks depleted in this fashion by our wealthier and more fortunate compeers, it is by no means a matter for legitimate regret that we are thus in a position imperceptibly to permeate new institutions with our influence and our traditions.

RECONSTRUCTION OF THE UNIVERSITY.

Let me pass on now to the burning topic of the hour, the problem of reconstruction of this University. You will not expect me to embark upon an analysis of all the prophylactics which have been manufactured as sovereign remedies for the radical cure of our ailments. What has stirred us most is the confidence and readiness displayed by the physicians who have offered us the benefit of their remedial restoratives. We cannot overlook, however, that the magnitude and complexity of the task so impressed the Government of India that more than five years ago they were led to appoint a Commission to enquire into the conditions and prospects of this University and to frame a constructive policy in relation thereto. The members of the Commission were chosen with anxious care, and the majority consisted of four distinguished educationists of experience who had taken a prominent part in the administration and reconstruction of four different British Universities. The Commissioners visited educational institutions throughout India and received an enormous mass of evidence, oral and documentary, representing all shades of opinion in this country. They next framed their elaborate report and supported their recommendations by detailed references to the evidence they had received as also by an exposition of the reasons which carried weight with them. The plan outlined by the Commission has already been adopted in the reconstruction of other Indian Universities and in the establishment of new Universities. Bold indeed must be the reformers who, whatever their status and attainments, determine to set aside the recommendations of the Commission in respect of the very University with reference to whose special needs they reported. It is clearly incumbent upon such reformers to submit to the bar of public opinion a full and reasoned statement in justification of the action they advocate. To take an illustration, we have not yet heard of a vestige of a reason for a

departure from the fundamental proposal of the Commission that the administration of a large University such as ours requires for the most effective conduct two bodies of men which should have largely different functions and for the most part a different personnel. They must at the same time be, however, bound to co-operation for the welfare of the University, by regularly appointed and trustworthy means of understanding each other's views and necessities, and by a system of checks that will operate in guarded ways to make each responsible for its initiative to the other. One arm of the University should thus be chiefly responsible for what may be called its material affairs; the other arm, equally strong, self-respecting and independent within its appropriate sphere, must be wielded for the accomplishment of the academic functions. The Court of the University should be so constituted as to represent every important element in the public opinion of the areas specially served by the University and every kind of expert judgment whose criticisms on the University policy would be of perennial value. This supreme body will be vested with extensive legislative and financial functions in the administration of the University. Such a body should be so constituted as to consist largely of elected members so as to satisfy the legitimate demands of the democratic principle. On the other hand, the duty of the Academic Council to be introduced into the structure of the University would be to direct and review all the academic work and to be responsible for the standards of instruction and examination. The connecting link between the Court and the Academic Council will be furnished by an Executive Council and a Committee of Reference whose powers and duties need not be described here. It would be lamentable if a plan of this character, carefully worked out by a special body of experts, were to be discarded in favour of an unknown type of constitution. Such a course is full of grave dangers and may aggravate what the Commissioners described as some of the

offices under the crown. We find, for instance, that Sir Harcourt Butler, in his capacity as Chancellor of the University of Allahabad and later on as Chancellor of the University of Rangoon, expressed with perfect candour his apprehension of the tendency to interfere with the freedom and initiative of the University from outside. He emphasised the necessity for freedom of the Universities on the authority of the great Commission on the Universities of Oxford and Cambridge, and unreservedly associated himself with the warning pronounced by that distinguished body against Government interference, which was equally applicable to external interference in this country. In the same way, Sir Reginald Craddock was emphatic in his disapprobation of any invasion by the State of the independence of the University. In his capacity as Chancellor of the University of Rangoon, he observed that the Minister and the Legislative Council might endeavour, though such action would be quite unconstitutional, to make the grant of supplies conditional on the University surrendering its principles to conform to some other educational theories of the Minister or the Legislative Council. Any such pressure, if it ever should be brought, would have to be stoutly resisted by the University itself, as indeed by all citizens who prefer the genuine to the sham, and are not to be imposed upon by fallacious ideals of national welfare. A University so enchained, he did not hesitate to assert, would be a body without a soul.

I cannot but deem it a singular coincidence that similar sentiments should have animated the leaders of thought in far distant lands in relation to their own Universities. I can never forget the eloquent words employed by one of the noblest sons of Scotland, a Scot among Scots, while he described the probable dangers incidental to an endeavour, even if made from the best of intentions, to bring a Government and a University into the closest possible connection and co-operation.

The Earl of Rosebery, in the memorable address which he delivered as Chancellor of the University of Glasgow, described the situation in terms of unsurpassed vividness: "We do not take much or even ask much from the State. But the State

invites us every day to lean upon it. I seem to hear the wheedling and alluring whisper 'Sound you may be, we bid you be a cripple. Do you see? Be blind. Do you hear? Be deaf. Do you walk? Be not so venturesome. Here is a crutch for one arm; when you get accustomed to it, you will soon want another—the sooner the better.' The strongest man, if encouraged, may soon accustom himself to the methods of an invalid; he may train himself to totter or to be fed with a spoon. The ancient sculptors represent Hercules leaning on his club; our modern Hercules would have his club elongated and duplicated and resting under his arms. The lesson of our teaching was—Level up. The cry of modern civilisation is—Level down; let the Government have a finger in every pie, probing, popping and disturbing."

If opinions of this character could be deliberately maintained, in the very home of freedom, by one who had occupied the highest place attainable in the British Empire, there is no reason for surprise that we in this land should feel timid of the bearers of gifts from the public treasury. No arguments are needed to convince you, who are familiar with our travails during the last twelve months, that such a situation is full of untold possibilities of mutual suspicion and resentment, surrounded by a thick atmosphere of doubts difficult to dispel. The custodians of the public funds may not have the fullest confidence in the worldly wisdom of those entrusted with the management of the University, and they may seek, as indeed they did in our case, to annex unacceptable conditions: these, even when wisely abandoned, cannot but leave traces of an attempt to interfere with that limited autonomy which the University now enjoys. Conditions of this description, whenever imposed, in whatever form or shape, must be stoutly resisted by a University, anxious to realise that full measure of autonomy which, when attained, would be its priceless possession.

THE GOVERNMENT ANNOUNCEMENT.

The application of these principles to present-day problems is so obvious that but for a recent event which must be fresh in the minds of all the

members of this assembly, I would not have felt myself called upon to dwell on the subject further. It would however be idle for me to ignore the announcement made by His Excellency the Governor of Bengal before the Legislative Council that his Government was determined to press on with its projected legislation for what is called the reform of the University at the earliest possible opportunity. His Excellency further intimated with sufficient clearness that the plans of the Government had not up to this stage commended themselves to the members of the University. It may be explained here that the Government of Bengal had not responded to the request of the Senate that the proposed legislative measures might be communicated to them, and I do not feel myself free at present to discuss their provisions, as they were forwarded by His Excellency in his capacity as Chancellor for the ascertainment of the views of our Members with an injunction that the contents might be treated as confidential. I earnestly hope that in view of the acknowledged divergence of opinion between the Government and the University, on what I consider as root questions of principle and policy, the authorities will not hesitate to make accessible to the public of Bengal and Assam all the documents and correspondence on the subject, so as to lay bare the full development of the scheme in all the successive stages. Thus and thus alone can the people, who will be most seriously affected by the results of legislation, form an independent judgment as to the soundness or otherwise of the position adopted respectively by the Senate and the Government. No one, however, I take it, will venture to maintain that the Senate should not have recorded their opinion, with the utmost frankness and sincerity, when they came to the conclusion, after protracted deliberation and anxious examination, that the intended measures were detrimental to the spread and development of education among our people on the right lines. We have never made secret of our deep-rooted conviction that the best interests of the nation

imperiously demand an autonomous University, disentangled from the meshes of a political organisation of a new type, which has not yet had time to establish a regular tradition and whose future growth and possibilities cannot be predicted with certainty by the wisest of prophets. Surely, it cannot be for the welfare of an educational institution of the highest grade that it should be liable to be blown about by every wind of fashionable dogma in political circles, or that its principles and policies should be dependent upon every rise or fall in the political barometer. We stand unreservedly by the doctrine that if education is to be our policy as a nation, it must not be our politics; freedom is its very life-blood, the condition of its growth, the secret of its success. We do not hesitate to avow that we, as members of a University, are naturally distrustful of external control, and we are consequently pleased when we are assured that the authorities have no intention to place the University under the control of the Government. At the same time, this may be borne in mind that the members of the Senate have, in the expression of their views, been guided by the elementary principle that under normal conditions men may be presumed to intend the probable consequences of the course of action they pursue or the plans they devise. We as practical men are, however, concerned, not so much with the philosophy of motives and intentions, as with probable effects and consequences, and that will be the touchstone which we shall apply to test the character of such measures as may hereafter be brought forward for the reconstruction of this University.

AN ERA OF THE GREATEST CRISIS.

Far be it from me to bring this address of mine to a close on a note of gloom and despair. I do not forget that we have passed through anxious times and that we are still in the midst of what is likely to prove an era of the greatest crisis in the history of this institution. Supremely gifted must be that friend of the University who can see gladsome light through darkness visible, and

predict with confidence the result of this clash and conflict of ideals. But when all is said and done, there stands forth unshaken the conviction that our insistent claim for the freedom of the University is a fight for a righteous cause, a fight for the most sacred and impalpable of national privileges. We have this consolation that when we look at the history of the growth and development of seats of learning in the West, the land of Liberty, we find that the cause of freedom and progress has invariably triumphed in the end. We feel consequently encouraged in our tenacious adherence to our ideal, in the belief that determined fight for the Truth is the noblest sport the world affords. Plans for reconstruction, if they are calculated to secure the realisation of our ideal, will meet with an enthusiastic welcome; if they are destructive of our cherished aim, they are bound to provoke strenuous opposition. It is superfluous for me to emphasise that what is at stake in the re-constitution of the University, is the education of all our people within our jurisdiction, and nothing can be more unwise than to force so momentous a measure without full opportunity afforded to them to express their considered opinion, when they have been awakened to a knowledge and care of their own interests. It is a truism to assert that a democratic Government rests on the people and not on the few, on free public opinion and not on authority. There may be those who may scoff at the suggestion that the opinion of the whole is to be preferred to the judgment of the enlightened few. But who will seriously dispute, in these days of reformed constitution, that while individuals are of limited sagacity, the common mind is infinite in its experience? Truth is not to be ascertained by the impulse of an individual; it emerges above the strifes of parties and the conflicts of sects. It acknowledges as its only faithful interpreter the dictates of reason proclaimed by the general voice of mankind. He is the truest friend of the Government, who urges it to proceed with caution and circumspection and with sole regard to the

good of the people whose welfare should be its supreme care. For, have we not witnessed that legislative measures, triumphantly placed on the Statute Book, notwithstanding the deliberate opposition of the people, have been ruthlessly swept away into the limbo of oblivion during the very lifetime of their distinguished framers?

"THE UNIVERSITIES GO ON FOR EVER."

Let it be remembered that there is some subtle salt or secret that keeps Universities alive, that makes them indifferent to fortune or time. No human institution is so permanent as a University. Dynasties may come and go, political parties may rise and fall, the influences of men may change, but the Universities go on for ever as seats of trust and power, as free fountains of living waters and as undefiled altars of inviolate Truth. Have not Oxford and Cambridge outlasted changes of party and of policy? Have not Paris and Berlin valiantly withstood revolutions that have transformed the faces of their nations, and do they not still exist, stronger than ever before? Have not Harvard, Yale, Princeton and Columbia outlasted illustrious Presidents of the American Republic? Have not Benares and Navadwip survived aggressive onslaughts of foreign invasions and devastating floods of foreign culture and do they not still stand forth pre-eminent as monuments of Indian scholarship and civilisation? Generations of men have lived and died, but Universities have gone on their way, and well-founded they will go on for ever, for no human activity is so permanent as their influence for the betterment of human society and the good of mankind.

THE FINAL SACRIFICE.

Fellow-Graduates, you speak of this University as your *Alma Mater*. Do you always realise the nobility of this commonplace expression? What a singular endearment it voices—our fostering mother—what fine relation is that for a great institution of learning to bear to all those who

throughout the years have learned wisdom at her feet and have gone out into the world, sustained by her strength and inspired by her lofty example. Those amongst you who have just been admitted to your degrees, will now enter into the great arena of the world, into the thick of the smoke and dust of its conflict, into the toil and moil of its labours, into the stress and storm of its passions, into the fierce crucible of eternal forces—the mighty touchstone of the Almighty for His creatures by which He puts them to the test. There you will walk into the shadow sometimes, but if you are worthy, just as often in the light. There you will feel the sting of defeat sometimes, but if you are strong, just as often the elation of victory. There you will see with unclouded eyes the weakness, the depravity, the imperfections of the human kind, all the naked wretchedness which under the wise decree of Providence is a necessary part of human lot; but oftener, if you are true, will you look upon, in all their splendid proportion, the charity, the kindness and the goodness in human kind—those unconquerable virtues which redeem it, preserve the balance of human happiness and make of human life a broad and stately highway marked by the milestones of exalted action and reaching into the throne of Heaven. But in whatever sphere your lot may be cast, whatever your hopes and fears, turn back to your *Alma Mater* with filial piety and attach-

ment. Councils will come and go; Ministries will blossom and perish; parties will develop and disappear or change their nature and survive. But your University, my University, will live on for ever, if her children by thousands and ten thousands stand by her with steadfast loyalty and devotion, alike in her days of triumph and affliction. Unalterable is my faith as to her bright future, because I feel she must be a national organisation, self-reliant though bound in service to the nation, adapting herself to the manifold and varying wants of the community, from generation to generation. I call upon you, Fellow Graduates, to join with me, in the words of the warrior poet, in a solemn pledge of eternal devotion to the Spirit of our Motherland, the protecting divinity of our *Alma Mater*.

"I vow to thee, my country—
all earthly things above—
Entire and whole and perfect,
the service of my love—
The love that asks no question;
the love that stands the test,
That lays upon the altar
the dearest and the best;
The love that never falters,
the love that pays the price,
The love that makes undaunted
the final sacrifice."

FORTHCOMING PUBLICATIONS:

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By Mr. N. G. WELINKAR, M.A., LL.B.

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By Mr. V. RAGHUNATHA AIYAR, B.A., L.T.,
Assistant, Teachers' College, Saidapet.—In the Press.

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LUCKNOW UNIVERSITY CONVOCATION.

ADDRESS OF THE VICE-CHANCELLOR DR. G. N. CHAKRAVARTI, RAI BAHADUR.

This is the first occasion on which we have been honoured by the presence of
Welcome to Sir His Excellency Sir William
William Marris. Marris to preside at a University function, and it is my privilege as the Executive head of the University to accord to him, on your behalf, a most cordial welcome. The last University function was the First Convocation of the University, and although it was brightened by the sunshine of success, there was also the shadow of the impending departure of His Excellency Sir Harcourt Butler lurking in the background. Never can the University recognise sufficiently the immense debt it owes to him and the Honorary Degree of Doctor of Literature conferred upon him on that occasion was but a poor tribute to his intense solicitude for the welfare of the University. But it was the highest gift the University had to offer, and was at least an attempt, however imperfect, to give expression to the deep feelings of gratitude which every one connected with this University felt towards him. It was natural that amidst our festivities we should have been haunted on that occasion by the spectre of his approaching departure, but the sadness which tinged our thoughts instead of damping our energies only succeeded in inspiring us with fresh courage and hope and in spurring us on to redoubled activity, so that the University, which his strong hands had helped in creating, might prove worthy of his blessings. We were comforted by the thought that amidst the shifting scenes of the phenomenal world such partings were inevitable, and were enlivened by the cheery prospect that his place would be taken by an administrator reputed alike for his cultured erudition and his sympathy with the awakening soul of the Indian people. The last message which Sir Harcourt Butler left with me was the assurance that the University would grow

and flourish under the fostering care of such a finished scholar of progressive views as Sir William Marris. My experience of the past three months amply bears out the soundness of the prophecy, for personal contact with our new Chancellor has brought home to my mind forcibly his active interest in our University and his intense desire to forward the movement initiated in our Provinces for putting University education on a really sound basis. I am confident that this University which aims at realising the ideals of a living University with its intensive culture and potent influence for moral uplift, will always enjoy the kindly interest and ready support of His Excellency.

2. Since the last Annual Meeting of the Court, Prefatory remarks. our infant University has safely weathered another year of its growth—a period which is important not only because of the actual record of the pace and power of development it unfolds, but because of the steps already taken being fraught with immense possibilities for the future. Our University is only a couple of years old, and what are two years in the life of a University, the principal function of which is to mould the character and direct the thought-currents of the rising generation and thus supply the right kind of material for the building of the future Indian nation? A University, in order to rise to the height of its responsibility, must not be too eager to produce results that strike the eye, but should strive to lay its foundations upon firm ground and build solidly if slowly. Our chief concern therefore has been that no false steps should be taken which would prevent its fulfilling the destiny which our high aim and ideal have chalked out for it, although even in point of actual achievement the volume of work accomplished is by no means insignificant.

APRIL 1923.]

LUCKNOW UNIVERSITY CONVOCATION.

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3. You will remember my drawing your attention to the fact that the constitution of this University was essentially different from that of the older Universities and I expressed the opinion that it was a distinct improvement upon the older constitution. But I also anticipated that in the practical and actual working of the machinery some of its parts might require adjustment to unforeseen exigencies. Such a re-adjustment has been found necessary in certain details, some of which the Executive Council could deal with themselves. An important case of this character is the change effected in the Ordinance regarding the constitution of the Selection Committee for appointing teachers other than Professors or Readers. You might remember that at the last meeting of the Court a strong opinion was expressed that the Selection Committee, which was constituted on the lines of that of the Dacca University and consisted of the Vice-Chancellor, the Dean of the Faculty concerned and the Head of the Department concerned, should be enlarged and be made more representative. According to this wish the constitution has now been changed and the Committee now consists of:

1. The Vice-Chancellor,
2. The Dean of the Faculty concerned,
3. The Head of the Department concerned,
4. Two Members elected by the Academic Council,
5. Two Members elected by the Executive Council.

Another notable change, the need for which has been brought out by the practical working of the machinery is the alteration in the Statutes regarding the appointment of examiners, the proposed change in which is before you for consideration. The Statute, as it now stands, does not provide the most satisfactory method of securing the best and most efficient examiners.

There are certain other highly desirable modifications, which need the amending of the Act itself. This is a more serious undertaking than making a change in the Ordinances or even the Statutes and therefore needs greater and longer deliberation. It is proposed to take up this question in the course of the year.

4. In every department of human activity there is ever one particular aspect of Staff, work which appeals to an individual more strongly than others and in my conception of a University the quality of the staff of teachers occupies the central place. Organization, buildings, equipment, have all their importance and value, but it is the teacher who vitalises the whole organism. However perfect the organization, and however magnificent the buildings and equipment may be, they are fated to be sterile of results so long as the breath of life is not infused into them by the teacher, who is at once the head and the heart of the University. In a speech I made in the Legislative Council on the occasion of the passing of the Lucknow University Act, long before I had any idea that I was destined to be placed at the helm of the University, I expressed a fervent hope that the temple of learning, the foundation of which we were laying that day, might draw "teachers from all parts of the world inspired by the sacred mission of bringing wisdom where there is ignorance, light where there is darkness, and peace where there is strife." This was the old ideal of a University, and must ever remain the true ideal of a living University. And from the day I assumed charge of my duties as Vice-Chancellor, it has naturally been my earnest and unremitting effort to secure for the University teachers who will not only make it a real centre of learning and culture, but will inspire all those who come into contact with them with enthusiasm in the pursuit of knowledge and devotion to highest ideals of purity and service. In spite of the great emphasis I have ever laid on this aspect of my work, I am conscious of the immense distance that still separates the actual from the ideal; but we may with justice claim to have taken definite steps towards reaching the goal, bearing in mind the limitations imposed upon us by the paucity of funds and inadequacy of accommodation and equipment. Last year we reported the appointment of a number of distinguished men in the Faculties of Arts and Science, and this year we have devoted our attention principally to the strengthening of the Medical Faculty. The only notable additions we have made in other Faculties are a Reader in Politics and Civics and Lecturers in Sociology and

sphere. Indeed, we earnestly believe that the intelligent and vitalising methods of education we have adopted must tell upon examination results also. The terrible tragedy of failures in the various University examinations of this country can only be accounted for by the defective character of the education imparted. In order that University degrees should command respect and be regarded as a valuable asset in life, it is absolutely necessary to maintain a sufficiently high standard of examination, and the only way in which such a standard can be maintained without being followed by the annual massacre of the innocents is to improve the quality and method of teaching. If this is assured, the rise in the percentage of passes is a "consummation devoutly to be wished"; but every effort must be made to be quite sure that the standard is not lowered. The courses of study must be carefully devised and only such examiners as have both learning and experience to their credit should be appointed. I believe we have, in this University, done a good deal already in improving the courses and methods of study, and it would be a surprise if the examination results did not show a corresponding improvement. The examiners appointed are men of standing and repute and in order to command public confidence we publish the names of examiners instead of keeping them confidential. The change in the Statutes on the subject, to which I have already referred, is also directed towards ensuring this result.

8. In addition to the supplementary and tutorial instruction which brings the Guardian Tutors. teachers and students into close contact, we have a system of guardian tutors. Each student on his admission to the University is assigned to a particular teacher, who is *in loco parentis* and looks after the moral, intellectual, and physical welfare of the student in a special way throughout his University career, and gives him wholesome advice in all the difficulties of his life as a student.

9. The full value of this system can only be secured when the University Hostel accommodation is residential in reality as also in theory. The paucity of Hostel accommodation continues to be a serious obstacle to our advancing towards the ideal we have set before ourselves. We did the best we could under the circumstances and added to the Hostel accommodation available in the Canning College by

hiring a house in Kaiser Bagh and converting the two houses belonging to the University near the Iron Bridge into temporary hostels. But these makeshifts were unsatisfactory and met only very partially the demand for hostel accommodation with the result that a number of promising students who sought admission into this University had to go elsewhere. Next term, however, we hope to be able to make up this deficiency if not wholly, at least to a very considerable extent.

10. Of the new buildings which are under construction and which will be ready before July next there are:

- (1) a full Hostel providing accommodation for 100 boarders with quarters for an Assistant Warden and for servants,
- (2) extensions to the Meaton Hostel which will provide room for 40 extra boarders bringing the total in this Hostel up to 100, with quarters for an Assistant Warden and servants.

There will thus be accommodation for at least 300 boarders in the Canning College. We have not been able to take any steps towards providing an additional Hostel for the King George's Medical College as we were hoping that the Government might be able to transfer the buildings of the Hussainabad High School to the University for the purpose. The need for additional hostel accommodation is however pressing and the matter is receiving the serious consideration of the University and the Government.

In addition to the hostel buildings, we have built a house for a Professor, a house for a Reader, a house for the Lady Superintendent of the Hospital, and a house for the Obstetric Assistant Surgeon of the King George's Hospital. The two new houses for the Assistant Wardens will provide accommodation for two Lecturers. Many more houses for teachers of the University are needed as they are working at present under great discomfort owing to the difficulty of finding houses in Lucknow. The limitations imposed by our financial position, however, make it impossible for us to proceed with our building programme at a quicker pace. The buildings mentioned above will cost us about 4 lakhs. In addition to these we had to provide a new block for the teaching of Biology—with its two wings, one for Botany and another for Zoology—as we are making it a special feature of this Univer-

sity, which has a flourishing Medical Faculty. This block has cost us about Rs. 1,10,000. Certain sums were also spent in alterations to existing laboratories and buildings bringing up the total expenditure on buildings to Rs. 5,13,500. The construction of only the most urgently needed buildings was undertaken, and I am afraid that several other buildings almost equally essential will have to await a period of less financial stringency. It is with much regret that I have to announce the dropping of the project of the construction of the Convocation Hall of the University, as there was absolutely no prospect of our obtaining the amount needed in the near future, however desirable it may be for the University, to have a large hall. The Executive Council of the University took this decision with the consent and advice of the University's greatest benefactor, Sir Harcourt Butler, and much as one may feel disappointed at the vanishing of the dream of a beautiful and inspiring edifice, there can be no question as to the wisdom of the decision. The elimination of the Convocation Hall from the building programme however renders it imperative for us to provide extra class rooms and laboratories in the Faculties of Science and Arts, as the plan of the Convocation Hall made provision for 19 urgently-needed class rooms. It is proposed to add a new block for the teaching of Chemistry, thus leaving free the main block in the Canning College for teaching in the Faculties of Arts and Commerce. But I am very much afraid that even this urgent measure cannot be proceeded with at an early date for want of funds. I cannot but confess to a feeling of regret and disappointment at having been compelled by force of circumstances to postpone indefinitely our building programme, but I have not given up the hope that with the passing away of the phase of general financial pressure the University will be able to satisfy both its utilitarian and æsthetic demands.

11. The demand for better equipment for teaching of Science could only be partially met during the year, partly owing to the limited resources at the disposal of the University, and partly because the new building for the Biological Department was under construction and could not be equipped before it was finished. But, till now Rs. 23,550 were spent in improving the equipment of the laboratories in the Physics Department, Rs. 17,600 in the Laboratories in the Chemistry Department, Rs. 17,600 in the Laboratories in the Biology

Department, Rs. 49,500 have been provided for the equipment of the new buildings of the Biology Department.

But what we have done in this direction is merely a small beginning, and much remains to be done before the equipment can satisfy the growing needs of the various departments in Science. Indeed, these departments cannot be properly and efficiently equipped till we have a new building for the teaching of Science constructed on approved plans appropriate to the teaching in each department.

12. The building up of a Library, which is a necessary part of the equipment of an efficient University has also been taken in hand, and books worth Rs. 50,000 nearly were bought during the year.

13. The financial position of the University may be regarded as satisfactory having in view the fact that it had had such a short period in which to develop its resources. Out of a total of about 30 lakhs promised as donation, a sum of Rs. 17,19,124-6-1 has already been recovered. As some of the promised donations were to be paid in instalments, the amount already collected is encouraging. The University has still to depend for the bulk of the expenditure upon Government grants and may have to do so for a number of years to come. But as it is proposed to invest all the donations in gilt-edged securities so as to form a permanent Endowment Fund, spending only the income, it is hoped that in course of time the University will be practically independent of grants from Government, except for the maintenance of the King George's Medical College and Hospital, which were Government institutions transferred to the management of the University. The income from fees is showing an appreciable increase, and it is gratifying to note that in the financial estimates for the year 1923-24 the income from interest on investments and fees—not including the Medical College fees—is estimated at Rs. 2,40,000 and odd against Rs. 1,03,000 of last year, which shows that the income has more than doubled in the course of a year. The total recurring expenditure of the University as originally budgetted comes up to a little less than 14 lakhs including an expenditure of nearly 6 lakhs and a quarter on the Medical College and Hospital. We proposed to meet this expenditure from our resources with the Government recurring grant of

Epigraphy, i.e., teachers in subjects which have now begun to claim attention in Indian Universities. But the Medical Faculty badly needed strengthening as it was appreciably depleted owing to the exigencies of the war just when the University assumed control of the King George's Medical College. Col. Sprawson, who so ably guided the destinies of the College and who rendered invaluable help in organizing the Medical Faculty, went on leave at the close of the last session. Although I missed his wise and cordial co-operation I was lucky in finding in the Faculty another Professor, who had been connected with the Medical College ever since its foundation, to undertake the administrative portion of Col. Sprawson's work, and it is due mainly to the sound advice and enthusiastic devotion to the College of Col. Sprawson and his successor, Professor Said-uz-zafar Khan, the Officiating Principal, that we have been able to raise appreciably the level of efficiency. Col. Sprawson's academic and clinical work as Professor of Medicine has been taken over by Col. Willmore, one of the few people in this country who are members of the Royal College of Physicians of London and a physician of great experience and skill. For the Pathology Department we have secured the services as Professor, of Major Stott, who has given the much-needed relief to Mr. J. G. Mukerji, who conducted the Department single-handed for nearly two years with singular zeal as Reader, and is now ably co-operating with Major Stott in the success of the Department. In the Physiology Department too we have succeeded at last in securing an expert and author of several works in the subject, Dr. Burridge, who has only recently come out from England. Then, we have lately appointed to the Chair of Ophthalmology Dr. B. G. S. Acharya, who is the holder of numerous degrees and whose experience in dealing with eye cases extends over twelve years in England, Vienna, and India. We have also added to the staff a Reader in Materia Medica and Pharmacy with the object of facilitating research in indigenous drugs—an object which is warmly supported by public opinion, judging from the discussions in the local Legislative Council. This post is held by Rai Bahadur B. N. Vyas, who was Civil Surgeon of Moradabad before he joined the University. A scheme for conducting research in indi-

genous drugs in which teachers in Chemistry, Physiology, Pathology, Materia Medica, and Pharmacology will co-operate, is under the consideration of the academic bodies of the University.

5. This brings me to the somewhat difficult question of restricting the number of admissions into the University, for the demand for admissions rises in proportion to the increase in the reputation of the University. The question is particularly acute in regard to the Faculty of Medicine, as our Medical College is the only one in the whole of the United Provinces. The accommodation, equipment and clinical material available impose a limit beyond which we dare not advance without impairing the efficiency of the institution, much as we sympathise with the disappointment of candidates who knock at our portals with earnestness only to be turned away without finding admission. The failure to obtain admission often results in much hardship and heart-burning giving rise to complaints against the principles determining the selection of candidates. In order to put a stop to these, the University has passed an Ordinance under which admissions will be regulated by a competitive examination. This will stop the mouths of the aggrieved, but will unfortunately afford no real relief, which can only be found either by multiplying the classroom, hostel and hospital accommodation here or by starting another Medical College in Allahabad, both of which projects involve a heavy outlay of expenditure. In the other Faculties of this University the situation is not so serious, although both in the Faculties of Arts and Science also, owing to the inadequacy of classroom and hostel accommodation, admission had to be refused in several cases. Steps have now been taken to make a comparatively better provision in these particulars for admissions in the next term; but if the increase in numbers last year is any indication of what the numbers seeking for admission will be, it will be difficult with our slender resources to keep pace with the demand. The rise is particularly marked in the science and in the post-graduate classes. Two years ago when the University was not in existence, the total number of students in Lucknow preparing for the B.A.

degree was 42; the number is more than doubled and is now 95. Post-graduate classes existed only in the Canning College and there were 13 students in Arts and 10 in Science. Now, there are 111 students doing post-graduate work, of whom 88 belong to the Faculty of Arts and 23 to the Faculty of Science.

6. The increase in the number of post-graduate students is distinctly encouraging, as it is an indication not only of the growing reputation of the University, but also of the greater tendency on the part of the students to take up higher work in the University, instead of being content with taking the lowest degree possible. Intensive post-graduate studies at once raise the intellectual level of the University and hold promise of an advance in knowledge which may prove to be of the greatest value in the economic development of the country. In order to facilitate specialisation and research work the University has now instituted Honours courses side by side with Pass courses for the B.A. and B.Sc. degrees, so that there may be a sorting out of those who have an aptitude for higher University work from those who merely wish to get a Pass degree as a passport to other fields of work. But making adequate provision for post-graduate work involves immense expenditure in equipment and staff, and as the amount of money available in the country for such work is limited, it is desirable that some sort of co-ordination and understanding between the different Universities should be arrived at, which would prevent unnecessary duplication and futile competition.

7. While taking steps to stimulate post-graduate and research work, the University is not oblivious of the fact that in order to make sure that such work will bear fruit, it is necessary to secure a solid foundation of general education upon which the superstructure of research work is to be built. It is often remarked, and I am afraid, with some justice, that the Indian intellect trained in modern Universities has been comparatively barren of creative work and has done little towards the advancement of knowledge. But it was idle to expect more brilliant results from the lifeless and mechanical system of University education which held sway in the country until recently. It was obsessed by the examination fetish and the principal, if not the sole, function of the University was the regula-

ting and working of the examination machinery so that a sufficient number of graduates might be turned out every year. Under such a system, colleges were devoid of any intellectual or social life and the contact between the minds of the students and their Professors was of the most nebulous character. The only occasion on which the student saw anything of the Professor was when he was delivering a formal lecture in the class-room and I have known of Professors who never knew one student from another and could certainly never recognise the students either by name or appearance. These were, of course extreme cases, as even under the old system there were teachers who tried to impress their personality upon their pupils by coming into closer contact with them, but if that was so, it was because they refused to be slaves of a system which their moral sense revolted against. But as a rule, the student got little from his Professor besides formal lectures. Under the circumstances, is it to be wondered at that there was no incentive to intellectual activity, no stimulus to independent thinking, and no opportunity for the natural and healthy mental growth, which is possible only in a congenial atmosphere? Realising that formal lectures alone are not calculated to impart sound education, this University has started a system of tutorial instruction, under which every teacher holds what might be termed Seminar Classes. He takes his students in batches of three to six, makes himself acquainted with the individual needs of each student and discusses with him personally his difficulties and doubts. At these discussions the teacher suggests new lines of thought and indicates the sources from which the student might seek materials for the particular line of study indicated. The student is thus encouraged to be self-reliant and to develop new interests, instead of giving his whole time and attention to stuffing himself with lecture-notes or in swallowing deadly doses of cribs with which the educational book market is flooded, just to pass an examination. This system of tutorial instruction is reported to be fruitful of excellent results and its successful working is mainly due to the active interest taken in it by the veteran Principal of the Canning College, Mr. Cameron, whose whole-hearted co-operation and sound counsel have been most valuable assets in the building up of the University. We do not despise examinations, for we recognise their value and function in their legitimate

Rs. 8,30,000 which we had last year, and which we hoped to have repeated this year. But this grant has been reduced by a lakh. So, we had to appoint a Retrenchment Committee to cut down our recurring expenditure by a lakh and we have had to give up the idea of creating chairs in Indian Philosophy and Applied Mathematics already approved of by the Academic Council. For non-recurring expenditure on equipment and buildings, most of which were to be residences for the teachers of the University, we provided in the original budget for a non-recurring grant from Government of a lakh and a loan of Rs. 6,50,000. The Government have, however, been able to give us only a loan of Rs. 1,50,000. So, drastic cuts had to be made in our building programme.

14. In our efforts to improve the mind and morals of the students committed to our care, we do not forget that physical welfare and development are as much a part of sound education as intellectual growth, for the life of the intellect can manifest itself in its fulness only when the vehicle of manifestation is healthy and vigorous. With the object that no physical ailment remains undetected and unhealed for, we have started a system of careful medical inspection of all the students who join the University and each student is thoroughly overhauled by the University Medical Officer at least once a year. Physical Training in the shape of drill has been made compulsory for all students in the first year of their University career.

This is in addition to the various games like hockey, cricket and football which are played by the students at all stages and in which some of the teachers of the University take part. A new feature in the training of the body and mind, which is pregnant with immense possibilities, has been developed during the year by the starting of an Officer's Training Corps. 74 students have actually joined the Corps and over 140 are under training. Numerous applications had to be rejected, as the Military Authorities would not permit of our having more than a couple of Platoons for the present. This restriction had the effect of damping considerable enthusiasm, and one hopes that it will soon be removed. Our Registrar, Major T. F. O'Donnell—who is the Officer Commanding the 3rd Allahabad Battalion of the University Training Corps—takes a keen interest in this department of University activity and is ably supported in his efforts by Messrs. Strang and Walker. When I had the privilege of

addressing a few words to the members of the Corps the day it was started, I had the pleasure and satisfaction of witnessing the warm glow of patriotism lighting up the young faces before me, when I impressed upon them the importance of their military training if India was ever to assume its rightful place in the Commonwealth of the British Empire.

15. I have tried to give you some idea of the main currents of University life; but in every University there are a number of under-currents which influence and mould the student-

mind none-the-less powerfully, even if they do not form an ostensible part of University work. These subsidiary activities are in some ways more potent precisely because their influence is indirect and subtle; and it is these that go towards building up that indefinable and somewhat elusive factor of University life known as tradition. The more prominent of such movements are the University Extension Lectures and the University Union. A large number of Extension Lectures have been delivered throughout the term and some of these have been very well

attended by the outside public. Besides the lectures given by the members of the University staff there have been some very notable lectures delivered at the University by well-known scholars and public persons like Professor Mackenzie, Professor Macdonnell, Mrs. Mackenzie (who was Professor of Education at the University of Cardiff), Mr. Koo (Associate-General and Secretary of the Y. M. C. A. for China), Dr. Annie Besant and Dr. Sir Rabindranath Tagore. The lectures delivered by Professor Macdonnell and Dr. Sir Rabindranath Tagore were presided over by Sir Harcourt Butler and Sir William Marria respectively. The Lucknow public have shown their appreciation of the efforts made by the University to bring them into touch with its intellectual life by attending most of these lectures in large numbers. Popular as these lectures have been, the interest created by the debate at the University

Union, which was started only in August last with Dr. K. N. Bahl as President, has been phenomenal. Distinguished persons took part in several of the debates which were conducted in packed halls throbbing with enthusiasm. Among the