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THE
EDUCATIONAL REVIEW

VOL. XXXI SEP. 1925

NO. 9



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THE EDUCATIONAL REVIEW

A Monthly Record for India.

Vol. XXXI.

SEPTEMBER 1925.

No. 9.

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The Educational Review

A Monthly Record for India.

VOL. XXXI.]

SEPTEMBER 1925.

[No. 9.]

All literary contributions, books for review, newspapers, or magazines, sent in exchange, &c., should be addressed to the Editor, No. 4, Mount Road, Madras. Articles and communications intended for publication in the succeeding issue should, as far as possible, reach the Editor not later than the 20th of the month. The Editor solicits contributions on all subjects of educational interest. Stamps should accompany the MS., if the writer wishes it returned, in case of non-acceptance. The Editor can in no case hold himself responsible for accidental loss.

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UNIVERSITY OF BOMBAY— CONVOCATION ADDRESS.

By DR. SIR CHIMANLAL H. SETALVAD,
Vice-Chancellor.

Introductory.

THIS is the fourth occasion on which I have the honour and the high privilege of addressing you from this chair. And glancing back for a moment, I find that while in 1918 I had attempted to enunciate the aims of higher education as conceived throughout the nineteenth century by such high authorities as Matthew Arnold, Cardinal Newman, Sir Bartle Frere, Sir Alexander Grant and Lord Haldane, in 1920 I had taken up for consideration some of the leading ideas and underlying principles of the Sadler Report, trying to indicate how in Bombay the ideal, which received our general acceptance, would necessarily require to be applied with due

regard to our different circumstances, and therefore with appropriate variations from the Calcutta pattern. In my last address, again, I thought it incumbent upon me to sound a note of warning how short-sighted and injurious it might prove either to neglect higher institutions even for the sake of a rapid extension of primary instruction, or to be in too great a hurry about ousting the English language as our medium for these higher stages, even for the sake of the mother-tongue, under the peculiar circumstances of a land and a people so backward and so heterogeneous as ours.

Education Commissions of 1882 and 1902.

To-day I hope to be excused if I venture upon a wider survey. The appointment of the Education Commission of 1882-4, which I remember as the most striking event of my under-graduate days, was hailed as an All-

India step of capital import by the educated classes throughout the length and breadth of the land. The Commissioners were welcomed by city after city with processions and addresses and all the other marks of a public opinion, young, eager and hopeful. The Curzon Commission of 1902 with the Act of 1904 and the practical measures giving effect to it immediately after, made University policy and administration the burning political topic of the time throughout the quinquennium. The Sadler Commission was the third occasion within living memory when education again agitated the deepest thought and feeling all over India.

University Reform Committee.

I am reminding you of these three landmarks out of our recent history, because education problems in all their depth and in all their range are once again going to become the one outstanding topic of the day upon which the public and the Legislature of our Presidency will have to exercise their mind, and to formulate in terms both precise and comprehensive, decisions of pith and moment which would affect for good or for evil the lives and fortunes of our undergraduates and graduates for many years. The University Reform Committee appointed by our Government have been at their labour of love, for nearly one year, and have just published their Report, which, if I may presume to say so, has in abundance the merits of a business-like statement, inspired in every chapter by high ideals applied to the complex realities of our educational organism with great practical acumen. Under its proposals the University will undertake all post-graduate teaching and research work and by appropriate changes in its constitution come into close association and contact with the

various interests, civic, commercial and industrial, of this great city and further will enlarge the scope of its work and influence by the establishment of the faculties of Technology and Fine Arts. I cannot conceive of better material for the statesmen of our Presidency to try their young legislative ardour upon. It will not be the fault of the Report of the University Reform Committee, if the Bill going to be based upon it, fails to be either thorough or progressive. And I do hope that the general discussion of matters educational that has already begun not only in our midst but also in the press and on the platform outside, will grow in volume and in range, as the Bill comes before our Legislature and that it will grow still more, until the finished Act emerges a living seed capable of propelling the vivifying sap right up to the topmost leaf and twig and flower and fruit of our gigantic Tree of Education, which is itself the secular Tree of Life for all communities modern as well as progressive.

What the principles and provisions are going to be of this Bombay Higher Education Act of 1926, it is not for me to forecast. Let us assume that it will not fail to satisfy the reasonable hopes of practical men and that it will not fail to afford sufficient scope for the reasonable aspirations of earnest educationists. Let us assume that it will not fail either by attempting too high a flight or too wide a range or by going too far in the contrary direction of over-caution and meticulous supervision and control.

University Needs and Shortcomings.

But all citizens of any experience are aware :

"How small of all that human hearts endure

That part which laws or kings can cause or cure."

There are University needs and there are shortcomings in our very best colleges to-

day which can never be met by mere legislation however comprehensive or by mere administrative efficiency however conscientious. And although modern legislation that is remedial and aims at being helpful in furthering a steady advance can afford opportunities and create chances undreamt of till then, the opportunities have to be seized rightly and the chances have to be developed zealously, in order to win the desired results. And finally, liberal culture, that fine flower of civilisation, has an aroma of the spirit that the provision of laws and institutions and funds, however ample, can do little merely by themselves to create and to sustain. It is to some of these aspects of our great and complex educational problems that I wish to address myself to-day.

Deficiency of Staff in Numbers, Variety and Proficiency.

Assuming merely for the sake of argument that the teachers, lecturers and professors we have are able men and of the right stamp, even our best High Schools and Colleges to-day do not possess a staff adequate in numbers. And as we go higher on the educational ascent, this general deficiency in numbers becomes a still more striking deficiency in variety and in proficiency. Take a member of the Indian Educational Service, who has just completed his first ten years of service, and note how he has been employed during this period. The first two years, let us say, he acted as a Junior Professor of English, taking the place of the permanent incumbent who had gone on furlough. The next three years he spends as a Junior Professor of History and Economics, taking classes in Indian Administration (4 hours a week), a period of Indian History (4 hours), Modern English History, political and con-

stitutional (4 hours) and perhaps the Prose-texts of the B.A. Compulsory English (1 or 2 hours). He has also to correct the fortnightly compositions of the students, the numbers varying with the size of his college and the interest and the quality of this particular task also varying inversely as the numbers. Add the test and terminal examinations work as also the work done and the time given in connection with the games, hostels, social life, and the debating and other clubs incidental to all college life. A Senior Professor of History or of English going on furlough for two years, our young member of the I. E. S. leaves the former classes and subjects yet again, for a round of similar routine, but connected with different subjects. And he is lucky if in the 8th year of his career, he becomes the Senior Professor either of English or of History and could at length devote himself to one set of subjects and one only, for the rest of his official life. And even then, and this is my point, our system necessarily fails to help even our best men in obtaining the highest mastery in any subject, by compelling them to try for a high proficiency in too many subjects at once.

Apart from the relation between Professors and subjects, let us look at the relation between teachers and pupils, and the conclusion is equally forced upon us that even our best institutions are understaffed. Mass-lecturing does not afford much scope for the contact of minds. Our colleges must reduce mass lectures to a minimum and work more and more in small groups of one Professor or Lecturer with not more than eighteen to twenty young students gathered together round him for individual or joint study. The method of scientific education in the laboratory, the workshop, and the hospital must be

imitated and adapted more and more to the higher teaching of all other subjects. All the teachers employed need not be of the highest standard. In fact, as literary education has to take a leaf out of the methods of scientific education, it has to take another leaf out of the methods of the industrial factory. Division of labour will produce economy in education just as it has done so in industry, by a system of grading, employing only a sufficient number at each grade and giving to each individual full occupation on work of his own grade. In the best Universities of Europe and America the staff of all grades taken together number over ten per cent. of the pupils in the literary schools, and very nearly twenty per cent. of the numbers studying Science subjects. Fellows, tutors and lecturers are far more numerous than Junior and Senior Professors and the great majority of the men in the lower grades are fresh and keen, remaining in that grade only for two to five years during which period they get the best possible training for rising to one of the higher grades in the same or a cognate branch of learning, according to their tastes, capacities and opportunities.

The University must train up and provide its own necessary Staff.

It is thus that every living University supplies itself with the staff it needs by training them up itself. And it is my humble opinion that no University can be said to be leading a vigorous life, unless it provides itself and its colleges with nearly all the staff it needs in all grades from the highest to the lowest. The distinguished foreign Professor, it also invites and employs, but only for short terms; and it derives the fullest benefit from him, but only for subjects of learning in which it is either backward or wants to advance at

a quicker pace. But as a young University like ours grows to its full stature, the foreign Professors in it must become fewer, until they become quite exceptional and incidental. Of course a change like this from a foreign personnel to indigenous, can only take place gradually. But the Indian Universities cannot claim full citizenship in the University world, until this process of change in the teaching staff is fully accomplished, nor can they provide themselves with a teaching staff adequate in numbers, variety, proficiency and authority, until they are able to train up nearly all the men they need locally, and the supply grows in volume in response to growing needs. A foreign trained agency must necessarily be expensive and also wasteful: they cannot serve except through the medium of a foreign tongue and in the very nature of things they cannot take any effective part in the general, intellectual and cultural movements outside the college halls. An indigenous agency as soon as we can raise it to a sufficiently high level of proficiency, will perform all these services, and our system as a whole will necessarily become cheaper and far more efficient, by the mere fact of being able to keep itself adequate in numbers and variety as well as in proficiency. Some of the Professors, Lecturers and Readers trained up in our University will undoubtedly go to Oxford, Harvard, Paris, Berlin or Cambridge to broaden their outlook and for receiving finishing touches. In passing from the subject, let me repeat that in my opinion a radical change like this can only take place gradually and as circumstances permit. In our own Presidency it appears to have gone forward to a certain point. I am not at all in favour of forcing the pace. But it would be equally injurious to the life and growth of

higher culture in our midst to interpose any artificial delay. The claims of tradition and vested interests have of course to be respected; but the change, however radical, is absolutely necessary for our further growth and must be allowed with proper caution to work itself out to its legitimate conclusion.

Concentration of Colleges and Hostels in a University Quarter.

I turn to another aspect of our problem as intimately connected as the above with the tone and spirit of our collegiate institutions. There is no reason in the nature of things why a college in the mofussil should not be as worthy a house of the academic spirit as one in Bombay. In fact there are many reasons patent to the most casual eye why an under-graduate fresh from his home in the provinces should find plain living and high thinking more difficult of attainment here in his new surroundings. Thus suitable hostel accommodation in the Bombay colleges, however costly, is a most urgent need here at the centre of our University. The concentration of the various colleges in a compact University centre is extremely desirable not only for the economic and most fruitful use of the teaching resources available but also for the creation of the academic spirit that is essential. In this University quarter suitable place should be found for the residence of students and professors of the various colleges and the libraries, halls and other amenities necessary for corporate University life.

Duties of a Modern University.

I pass on to some of the duties which a modern University worthy of the name ought to undertake with special reference to our growing town populations. It is a vast subject of absorbing interest and any attempt at

adequate treatment of it is far beyond all the time at my disposal to-night. I will therefore select for a passing mention only three out of the many tasks which a modern and urban University animated with public spirit and supported by enlightened philanthropists intent upon providing facilities for the harmonious and all-round growth of the community, could undertake as legitimate branches and offshoots of its intellectual and humanising activity.

School of Journalism.

Our University has a School of Sociology. And its School of Economics and the Sydenham College of Commerce deal with economical science, pure and applied, in some of its highest branches. Our Arts Colleges have schools of history and politics and philosophy and ethics. Out of these elements rearranged in proper proportions and with suitable additions, a new school of great importance to modern life could be set up. A school for the training up of journalists desirous of following their profession in the spirit of public service, with a high sense of the sanctity of truth and determined to give fair play to all parties and persons, intelligent and responsible exponents of the views they hold themselves, but at the same time religiously tolerant to all others, however divergent from their own, is, I submit a great need. I do not wish to minimise the difficulties of the task. But with the increasing influence of the Press in our midst, the duty of trying to bring into existence a class of journalists of high character and ideals, is one that the University cannot long continue to overlook.

I have placed this School of Journalism first in my suggestions not only because of the pressing problem of supplying to the

country journalists who might follow their calling as a *liberal* profession in the highest sense of the term, but also because I feel certain that students of the right stamp would join it, as soon as a suitable course combining the history, philosophy and ethics of journalism with sound practical training in some of its lines could be laid down with the necessary tests and degrees. And I have placed it first also for this reason, that for a beginning on sound lines and on a scale necessarily small and tentative at first, it seems to me that we need no more than one fully qualified Professor with, say, two lecturers and perhaps four fellows and readers under him.

Adult Education and University Extension.

The second suggestion I wish to offer to-day for your consideration is both vague in character and much more difficult to realise. We have already considered it more than once in this University and so far without being able to make up our minds how and when to make a start. I am referring to Extension Work among, and Tutorial classes for, our adult city populations. I do not know whether the conditions round about us are ripe enough even yet, for the University to make an earnest beginning. For among the primary conditions of success are :—

(1) Adults willing to pay a small fee each, and able to follow intelligently a course of study steadily for a period of several months, knowing full well that it can do nothing to improve their earning capacity at once, but will only increase their general knowledge, give them a living interest in some department of thought and activity, and make them slightly better citizens than before.

(2) Lecturers and demonstrators able to recast their knowledge and present it without

any sacrifice of substantial accuracy, in such a form as to excite a living interest in grown-up men and women, who are fairly intelligent but occupied for the greater part of the day and year in hard toil or uninspiring routine.

(3) Public organizations able to co-operate with the University both in supplying the necessary funds and in making the necessary arrangements, so that classes once begun might be kept running with the same scholars until the sessions terminate. Printed summaries, charts, tables, etc., will have to be supplied free to the student in return for his nominal fee; and a deal of such prospecting work will have to be put forth, until we learn from experience and by varied experiment what subjects and what methods of treatment possess a steady attraction for the classes whom we should be only too glad to serve if we may.

Technology.

I come now to our need for a College of Technology, which though, the third and last, is the most important of my suggestions connected with my conviction that the true line of evolution is to try to develop our University into an Urban centre of the highest intellectual culture and scientific advance. The idea was first mooted by the Bombay Committee on Technical and Industrial Education 1922, and our Reform Committee have developed it into a concrete proposal, that, in the beginning such a college should undertake four branches only, *viz.*, Mechanical Engineering, Electrical Engineering, Textile Industries and Applied Chemistry. They estimate for this limited scheme a capital expenditure of about fifty lakhs, and a recurring annual expenditure of about three lakhs and a half. But of course as India develops,

agriculture and forestry, mining and ship-building, the needs of ordinary production and transport, as also of our army and our navy, would require the addition of one knows not how many departments, decade by decade. I should not be surprised if this offshoot of our University, once planted, might prove so vigorous that it rapidly outgrew the parent tree in bulk and in height, in costliness and in the amount and value of the material service it was able to render to the community at large.

Higher Education as essential and indispensable as Primary Education.

It has been often urged that much attention is paid to higher education while the more crying need is primary education. The idea that elementary education is of primary importance to the community whereas secondary education is only of secondary importance to it and higher education a mere luxury to be discouraged, has no doubt a relative cogency from some points of view, for there is nothing in this vast and complex world of thought and fact that is absolutely false and wrong, just as there is little in it that is absolutely right and true. But this particular disparagement of higher education is set forth over and over again in a manner that is hardly reasonable and compels one who applies to all such questions a balanced view of our educational problems as a whole, to recall to memory with a smile the venerable fable of the belly and the members. Of the functions respectively performed by the stomach, the eye and the head in the general economy of the human body, which is the primary function, which is the secondary function and which is the superfluous function? Or to take the example of an army on the march, where we have soldiers, officers, divisional Generals, the Commander-in-Chief and his staff, the Commissariat, the Intelligence department, the

Labour corps, the Engineers, the Sappers and Miners, the weapons, the artillery and aeroplanes and tanks and the munitions and stores—can any absolute statement of any value be made about one of these being always and under all circumstances more important than any of the others? Universal primary education is indispensable in a modern society. Higher and technological education of the best type are also equally indispensable in a modern community. Both make life richer, both humanize it, both elevate it. The benefits resulting from each leaven the whole mass and are in either case more spiritual than material, more indirect than direct. The quality of each depends upon the excellence of the other. Without boys and girls properly trained up through excellent primary and secondary institutions, our University institutions would fail even though our Professors and equipment were of the best. And conversely, the quality of the teachers, the books and the methods without which primary and secondary institutions cannot be efficient depends altogether upon the excellence of our higher courses and instructors and institutions. A vigorous University is not only self-supporting in the sense that it creates its own professorial staff; it is the central artesian well from which flow the waters of education needed for the extensive area of primary and secondary fields. Or I may apply here to higher education and to University activities the words which Professor Ramsay Muir employed at our Conference in 1914 when speaking of historical research :—

“It was a mistake (said Professor Ramsay Muir) to think of research (read here higher education) as a sort of ornamental superstructure at the top of the educational building, very pretty to look at, but in no way essential to the

strength and stability of the structure. The true view was to think of the educational system as a whole as an irrigation system in which research (read here the University) formed the great reservoir of pure learning, from which all the canals and ditches were supplied; those pure waters must flow throughout the system."*

I hope not to be misunderstood, gentlemen of the Senate. I need hardly assure you that I have as keen a desire for the extension of primary education as for the improvement of secondary education and the development of higher education. All I plead for is fair play between these three equally essential members of what is an organic whole, one and indivisible. To starve any one of them is to injure all three and to weaken the whole.

Need for funds on adequate scale.

Duty of the Public.

I have now touched upon five of our principal needs at this University, *viz.*, our need for a larger staff, concentration of colleges in a University quarter with adequate hostel accommodation, and new schools of journalism and technology and a new effort aimed at extending the benefits of University culture in appropriate forms to our teeming town populations. Everyone of these objects requires large funds to be steadily applied for a number of years in accordance with a programme carefully drawn up from the first. The State no doubt will have to contribute out of the public revenues but the State cannot be expected to do everything. A substantial part of the necessary funds must come to us from individuals who have been successful in the struggle of life, from captains of industries and merchant princes and leaders in the professions, whose hearts

vibrate in sympathy with their kind, who, it may be, are grateful themselves for the rays of light they were so lucky as to receive during their earlier years, and are eager to provide similar benefits for larger numbers. Philanthropy is a cardinal virtue in the ethical codes of the East and the West alike, and the spread of learning and enlightenment is equally admitted in both hemispheres to be one of the noblest objects worthy of the most liberal philanthropy. In the concrete and day-to-day observance of such sentiments, it is only natural that communities which are richer should outstrip others with less abundant resources. Standing here in this magnificent hall and in these gardens under the shadow of our beautiful tower, with the long list of fellowships, medals and prize-winners we have just heard, I can only speak with becoming gratefulness of the munificence which has marked the history of our University, decade by decade. But the idea I have to-day tried to sketch before you in some of its aspects, *viz.*, the development of our University into an urban centre of modern and intellectual advance for the masses through expanding industries and trade, cannot be realized except with the enthusiastic support and enlightened munificence of our citizens on a scale more than Eastern.

Eastern and Western Culture—a Contrast— Desirability of fusion of both.

Our Eastern culture has the tradition of retiring from the world and its turmoils; it cloistered itself in secluded halls and cells in the heart of the virgin forest and the philanthropy of the mundane world sought it out and built for it those celebrated Universities of the past, Nalanda and Takshashila and Ellora, each an immortal name with its distinctive history and associations. But life was easy in those remote ages. The world was vast in those days. The population was

scarce in those times. Mankind has become far more numerous now, the world has both filled up and become incomparably smaller, the East and the West and the North and the South jostle one another now-a-days in every spot, and the struggle for existence has become more acute. The bare necessities of food and clothing and warmth have now to be produced on a vast scale and perpetually interchanged and diversified and transformed. Even agriculture has got to become more and more resourceful, varied and intensive and even agriculturists have got to combine in order to obtain on the one hand the best science and the best implements for their occupation and on the other hand the best markets for their produce. Spinning golden threads of philosophy invulnerable because inexhaustible, is no longer the sole or even the principal function of the deepest and subtlest human intellect. Culture as a joy and pride and a beauty in itself or as a solace and a consolation, is a thing of the past. In the East as well as in the West the highest thought and the greatest faculty have to be continuously applied to the complex and arduous labours of bringing the bounty of Nature into the homes of the least favoured of our teeming millions. The transcendent Peace that is the note of the East can no longer be won except through the prior acquisition of that Plenty which is the distinguishing note of the pushful and energetic West. Our Universities must become the conduits through which we have to pour into our land the Western mastery of Nature and all her productive and healing secrets. Born to the severe international competition of the modern age, it is thus alone that we even in the East can hope to attain to that Peace of the Soul, which to our remote forefathers was as the breath of their nostrils. It

is only when the East and the West can march together as equal comrades in the realms of applied science and co-operative organisation that the East can hope to teach her perennial secret *Mantra of Shanti* to the unquiet West. This is perhaps the most valuable and the most outstanding of the many lessons which our world-renowned poet and seer Rabindranath Tagore has been trying to teach in a hundred ways, through prose and verse, in tale and song and drama, in beautifully-constructed plots and philosophies and in cadences infinite in variety but each and all reverberating to this basic harmony. It had been my hope to have here in our midst on this occasion the venerable Sage himself to deliver his teaching to us from his own lips. It seemed to me that I could best serve our University on this occasion by standing aside and bringing about if only for a brief moment a historic contact between our University with his magnetic personality. But it was not to be. Rabindranath Tagore has been ordered complete rest and a change by his anxious doctors. And all I can give you this evening instead of his living voice and personality, is a brief message, which he has sent to the students of this University with which therefore I will now conclude.

Rabindranath Tagore's Message to Students.

"I feel sorely grieved when I find a considerable number of our young men of the present day ready to repudiate Western culture, rendering themselves intellectually untouchable in the civilised community. They ought to know that only the mind that is crudely primitive suspiciously barricades itself against all contact of truth to which, by chance, it

* Report: Bombay University Historical Conference, 1914.

is not accustomed. Such a mind may be compared to the fiercely unreceptive desert which allows rain clouds from alien horizons to pass over it without drawing its due share of tribute from them. Man's highest privilege is to be able to claim as his rightful inheritance all that is great and true, appearing in any period of his world and at any period of his history. It is a truism to say that our wealth of culture attains its perfection through its free access to foreign contributions just as the material wealth of a country reaches its greatness not merely from whatever it can produce within its own boundaries, but also from what it can import from the larger world outside. It is because our inmost truth lies in *the fundamental unity of man* that we cannot properly know ourselves unless we know others, and, therefore, if being afraid of losing the sorry distinction of our intellectual solitude, we closely shut our mind against free ventilation of ideas that flow from shore to shore, we also shut out the only light that can reveal to ourselves the universal significance of our own culture."

CHEMICAL PROBLEMS AND THEORIES

FIRST PART

BY

HRIDAYA KRISHNA DE, M.A.,

Professor of Chemistry, Vidyasagar College;

late Professor, Victoria College, Cooch-Behar;

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MICHAEL FARADAY— A BIOGRAPHY.

By Prof. P. A. NARAYANA AIYAR, M.A., L.T.

Presidency College, Madras.

I.

WHO would not have heard of Faraday, one of the greatest scientists of the British Empire, if not the greatest? But how many would have cared to ascertain his early life which, poverty-stricken as it was still, created opportunities for the future man? He is to the Britishers what Pasteur is to France and Mandelief is to Russia. It was only the other day, that the Faraday Centenary was celebrated at the Royal Institution in London, when Sir William J. Pope described the researches and achievements of this remarkable man. In his words 'the task of tracing the career of this great scientific luminary and of learning, how, with so lowly an introduction to life, his dominating position in science was attained, is an interesting one. It is an illuminating one, as showing how the exercise of industry and ability can reduce to negligible proportions the effect of faulty early education and of absence of family support.'

PARENTAGE.

At Clapham Woodhall in Yorkshire, which is now little better than a stone cottage with the door opening directly into a kitchen, there lived Robert and Elizabeth Faraday with ten children, the eldest of whom was a grocer, second a farmer, third a blacksmith, fourth a packer, ninth a shop-keeper and the last a shoemaker. The third son James Faraday, a blacksmith, soon after his marriage in 1786 with Margaret Hastwell, a farmer's daughter, shifted to London and lived at Newington. Here was born to them on September 22, 1791, the third child Michael in Gilbert Street.

While Michael was only five years old, they shifted to a coach-house near by, where the father worked as a journeyman. In 1801, the year of distress, when corn sold at £9 a quarter, the family received public relief and Michael Faraday got for his share one loaf of bread a week.

Michael was the darling of his mother. She would do nothing without his advice. She was very proud of him; so much so, he instructed his wife not to talk to his mother about him and his honours, saying 'she was already quite proud of him and it would not be good for her.'

EARLY EDUCATION.

While living at the coach-house, he attended a common day-school where his education was of the most ordinary description with little more than the rudiments of reading, writing and arithmetic. He writes to a friend later: 'My hours out of school were passed at home and in the streets, playing at marbles.'

AN ERRAND BOY.

A few yards from the coach-house was bookseller Ribeau's shop. Here Michael went as errand boy 'carrying round the papers lent by his master.' This was often brought to his mind in his later life, as once he expressed seeing a newspaper boy, "I always feel a tenderness for those boys because I carried newspapers myself."

A BOOK-BINDER.

In 1805, he was promoted to a book-binder 'without any premium in consideration of his faithful service.' While an apprentice in book-binding, he read several scientific books amongst which was Marcet's 'Conversations in Chemistry,' Watts' 'On the Mind' and the electrical treatises in the 'Encyclopædia Britannica.' He was also allowed by his master to attend occasional evening lectures

delivered by Mr. Tatum on 'Natural Philosophy' at a cost of one shilling a lecture given to him by his elder brother who followed his father's profession. Here he got acquainted with the researches of Newton and Nicol. He also made some new acquaintances. He learned perspective and copied cubes, pyramids or columns. He kept a notebook called by him 'The Philosophical Miscellany' in which he made collections of books, notices, occurrences, events, etc., relating to arts and sciences from reviews, magazines and other public papers. It may be interesting to know the trend of mind from these collections some of which are 'How to loosen glass stoppers' from the 'Lady's Magazine,' 'Electric fish and electricity' from 'Gentleman's Magazine,' 'Water Spouts' from the 'Zoological Magazine,' 'Galvanism and Galvanometer' from the 'Chemical Observer.'

During his apprenticeship, he made the acquaintance of one Mr. Dance, a customer of the shop, who, as a member of the Royal Society, got admission for Faraday to hear four of the lectures of Sir Humphrey Davy. He always sat in the gallery over the clock and took down notes which were elaborated into a fuller form and 'interspersed with such drawings as I could make.'

HIS EARLY LETTERS.

His desire to give up trade and take to science is seen from the letters he wrote to Benjamin Abbot, a confidential clerk in the city, and a friend 'next only to God' whom he respected for his superior erudition and knowledge. It is very difficult to believe that they were written by once a newspaper-boy and later a book-binder's apprentice not yet 21 years of age, and educated only in the rudi-

ments of the Three R's. Such is the correctness and fluency of style, the courtesy, kindness and humility of the thoughts they contain. They also give evidence of the first knowledge which he gained in chemistry and electricity and prove his initial experimental skill and his thirst for further knowledge:—

'I, Sir, I my own self, cut out seven discs of the size of half-pennies each! covered them with seven half-pence and interposed between six pieces of paper soaked in a solution of muriate of soda!!! But laugh no longer, dear A.; rather wonder at the trivial power produced. It was sufficient to produce the decomposition of sulphate of magnesia.'

'Dear A.—I am just now in a fit of vexation. I have an excellent prospect before me but cannot take it up for want of ability. I wish I had known much of mechanics, mathematics, mensuration and drawing.....Alas! Alas! disability.'

These letters are fully recorded in Bence Jones' *Life and Letters of Faraday* and the reader is directed to refer to the same for further information.

In 1812 Faraday went as a journeyman book-binder to a French emigrant in London. The master gave his assistant so much trouble 'that he felt he could not remain in his place.' What with this worry and what with his eager desire to proceed further in the way of philosophy, he was drawn towards the 'service of science' although his task-master held out every inducement and even said to him 'I have no child, and if you will stay with me, you shall have all I have when I am gone.' He wrote therefore to Sir H. Davy for help sending him the elaborate notes he had taken of his lectures. He even met the great scientist who at the first interview which

took place by the window nearest to the corridor in the ante-room to the theatre advised the young man to keep in business as a book-binder and promised to give the binding work of the Royal Institution as well as his own and that of as many of his friends as he could influence. Of this interview, Faraday writes: 'He still advised me not to give up the prospects I had before me, telling me that science was a harsh mistress, and in a pecuniary point of view but poorly rewarding those who devoted themselves to her service.'

SCIENCE ASSISTANT IN THE ROYAL INSTITUTION.

In spite of this advice, Davy was so much pleased with 'the great zeal, power of memory and attention' of the future scientist, that early in 1813 he took Michael Faraday as Assistant in the Laboratory of the Royal Institution at a salary of 25s. a week.

Of this appointment, Sir H. Davy wrote to the managers: "Sir Humphrey Davy has the honour to inform the managers that he has found a person who is desirous to occupy the situation in the Institution lately filled by William Payne. His name is Michael Faraday. He is a youth of twenty-two years of age. As far as Sir H. Davy has been able to observe or ascertain, he appears well fitted for the situation. His habits seem good, his disposition active and cheerful and his manner intelligent. He is willing to engage himself on the same terms as those given to Mr. Payne at the time of quitting the Institution."

With Faraday's appointment as Assistant in the Royal Institution of which he succeeded later Sir H. Davy himself in the chair of Chemistry and as Director of Laboratories, his 'scientific career might be said to have commenced but it had commenced in circumstances which would have discouraged any but the most intrepid.

II.

EARLY WORK IN THE ROYAL INSTITUTION.

The letters that Faraday wrote to Abbot at this period show the work on which he immediately entered in the laboratory and the amount of skill in chemical manipulation. They relate mostly to the self-education which now as ever he was striving to obtain.

'I have been employed to-day in extracting the sugar from a portion of beet-root and also in making a compound of carbon and sulphur—a combination which has lately occupied in a considerable degree the attention of chemists.'

'I shall now acquaint you with the result of some more experiments on the detonating compound of chlorine and azote; and I am happy to say that I have escaped, though not unhurt from four strong explosions of the substance. This compound which it is difficult to consider at any time as secure confers considerable importance on azote which by itself is celebrated chiefly for negative properties and in combination most energetic.'

He became a member of the City Philosophical Society and attended lectures, being always present before they began, for he considered it 'an impropriety of no small magnitude to disturb the attention of an audience by entering amongst them in the midst of a lecture and bordering on an insult to the lecturer.' His letters to Abbot are now full of comments about the lectures, the lecturer, apparatus, diagrams, experiments and lecture-room. These show the keenness of his observation, the abundance of his ideas and the soundness of his judgment. In two years and a half he had learnt so much that he made bold to deliver a course of lectures on 'Chemistry' at the City Philosophical Society which secured for him a reputation as a scientific lecturer.

His early work at the Institution may be summed up in his own words: 'I was constantly engaged in observing the works of Nature and tracing the manner in which she directs the arrangement and order of the world.'

HIS CONTINENTAL TOUR.

In the autumn of 1813, Sir H. Davy proposed to take Faraday abroad along with him as his amanuensis and this provided him with an opportunity of travelling in France, Italy, Switzerland, Germany, Geneva, etc., and meeting eminent scientists of the Continent. His impressions concerning the manners and customs of the people he visited are carefully recorded in the foreign journal kept by him 'not to instruct or to inform but to recall to my mind at some future date the things I see now.'

HIS RESUMPTION OF WORK AT THE ROYAL INSTITUTION AND SELF-EDUCATION.

He returned to England in May 1815 and was again engaged at the Royal Institution as assistant on a salary of 30s. a week. He had his own apartments—a fixed abode where he was to be further educated for his great scientific work. He made such rapid progress in his self-education that in five years' time he wrote out and delivered lectures on the general properties of matter, chemical affinity, radiant matter, oxygen, chlorine, iodine, fluorine, hydrogen and nitrogen. His first paper on 'An Analysis of Native Caustic Lime' appeared in the 'Quarterly Journal of Science,' the organ of the Royal Institution, and encouraged by the public appreciation, he wrote a larger number of such papers and became one of its chief contributors, so much so, when Mr. Brande, the Editor, left London in August, the journal was left in charge of Faraday. He visited,

on a walking tour, the principal works and mines in Wales and improved his self-knowledge by every possible method including conversations, lecturing, reading, observation and study.

A description of Faraday is given in the 'Quarterly Night' by Mr. Dryden and it may be of interest to know what he was at this date :

Neat was the youth in dress, in person plain ;
His eye read thus, Philosopher in grain
Of understanding clear, reflection deep
Expert to apprehend, and strong to keep
His watchful mind no subject can delude
Nor specious art of sophists ever delude
His powers unbackled range from pole to pole
His mind from error free, from guilt his soul
A friend to mirth, but foe to vile grimace
A temper candid, manners unassuming
Such was the youth, the chief of all the band
His name well-known, Sir Humphrey's right hand.

His early progress can also be summed up in his own words :

'The philosopher should be a man willing to listen to every suggestion but determined to judge for himself. He should not be biassed by appearances, have no favourite hypothesis, be of no school, and in doctrine has no master. Truth should be his primary object. And, if industrious too, he may hope to walk within the veil of the temple of Nature.'

HIS MARRIAGE.

Though he regarded a wife as the curse of man and love as the pest and plague of human life, a nuisance to everybody but the parties concerned, a private affair which everyone but those concerned wishes to make public, the power that ruins man's firmest mind, yet his attachment to Miss Sarah Barnard was so great that he married her in 1820 and this was a source of immense happiness to him in later life,

III.

HIS RESEARCHES AND DISCOVERIES.

His higher scientific education may be said to commence with the appearance of his paper in the 'Philosophical Transactions of the Royal Society' in 1821 describing the preparation and properties of hexa-chloro-ethane.

HEXA-CHLORO-BENZENE.

Six months after, he discovered another compound of carbon and chlorine in hexa-chloro-benzene, C_6Cl_6 , a derivative of benzene discovered long before the parent substance itself. Faraday was much in advance of his times and had a broader outlook in viewing that organic compounds obey the laws of Nature just as much as do the inorganic ones. This was in opposition to the view of Berzelius who even in 1849 wrote that the elements seem to obey quite other laws in living nature than in the inorganic world.

ALLOYS.

At the request of Mr. Stodart, the surgical instrument-maker, Faraday investigated alloys of steel for the manufacture of cutting instruments with a view to avoid their tendency to rust. Nickel-steel and chrome-steel so extensively used now owe their origin to Faraday's researches.

LIQUEFACTION OF GASES.

Sir H. Davy had showed now that the supposed solid chlorine is really a hydrate of chlorine and Faraday determined its composition as $Cl_2 \cdot 10H_2O$. On sealing the substance in a $\cap$ shaped tube and warming the arm containing $Cl_2 \cdot 10H_2O$, chlorine was given off and was condensed in the other arm by its own pressure. He took out and opened the tube. Some of the liquid boiled off and the remaining, getting super-cooled

remained a liquid even at atmospheric pressure. Subsequently he used this process for liquefying nitrous oxide, ammonia, hydrochloric acid, sulphuretted hydrogen and sulphur dioxide. This systematic study of liquefaction of gases was continued later by Sir James Dewar.

DISCOVERY OF BENZENE.

The Portable Gas Company was making illuminating gas by dropping whale or cod oil into a furnace at red heat. This gas was kept under pressure in portable vessels. During the process of combustion, an oily liquid was deposited, each 1000 c. ft. of gas yielding one gallon of the liquid. Faraday examined this liquid and was able to separate from it a compound of hydrogen and carbon named by him 'bicarburet of hydrogen.' He made a detailed study of this and gave its composition as C_6H_6 . He prepared several derivatives, one of which was obtained by the action of sunlight on the liquid in the presence of chlorine, thus showing for the first time the catalytic action of sunlight in yielding halogen derivatives of the hydro-carbon.

Berzelius writes of this discovery : 'One of the most important chemical investigations which has enriched chemistry during 1825 is without doubt that of Faraday on the oily compound of carbon and hydrogen. With this discovery, a new epoch has dawned in organic chemistry.' Indeed a new epoch dawned. To quote the words from 'The Phoenix' of June 1925, 'Faraday was a wonderful man who enriched every branch of science he touched. The isolation of benzene was probably one of the least of his discoveries ; yet it was destined to place millions of pounds in the pockets of manufacturers, to provide employment for millions of workmen, and to place within the reach of everyone

materials which had hitherto been non-existent or had been obtained only by the well-to-do. For it must be remembered that by the discovery of benzene, Faraday not only prepared a substance which was destined ultimately to become the key-stone of numerous industries but also showed that a very unlikely material, namely, fish oil, could by suitable treatment be made to yield a pure chemical compound. By further investigation, it was possible to isolate toluene, xylene, naphthalene, anthracene and the large number of explosives and coal-tar colours. These colours constitute a tribute to the memory of a remarkable man who devoted his life to the pursuit of knowledge and who will doubtless be included among the greatest scientists of all times.'

OPTICAL GLASS.

At the request of the Council of the Royal Society, Faraday undertook a lengthy and laborious research on the manufacture of optical glass. He was able to obtain accurate data for making good 'heavy glass' with whose help his diamagnetic and magneto-optical researches were carried out. He also delivered in 1829 his Bakerian lecture on 'The manufacture of glass for optical instruments.'

COLLOIDAL GOLD.

Another piece of research work consisted in the reduction of metallic gold in aqueous solution, whose red colour is due to minute particles of gold spread throughout the liquid. The study of these apparent solutions of metallic gold in water was an obvious prelude to the classical researches of colloidal solutions published by Thomas Graham in 1861.

Faraday's researches are too numerous to mention in this short space. Yet we cannot

but refer to his experimental researches in electricity, electro-magnetism and electro-chemistry. Faraday's laws of electrolysis are too well-known to be elaborated.

By his overwork, there was a mental strain which necessitated complete rest for four years and although he continued his research later on electro-magnetism, 'the world began to disappear or became of little importance as death drew nigh.' Saying so, he died in 1867 in his chair, in the study and we feel we could desire nothing better for him than what has occurred.

We may now review Faraday's life from three stand-points; as a man, as an experimenter and as a lecturer.

FARADAY AS A MAN.

The first and greatest of his qualities was his truthfulness. His second great quality was his kindness to everyone, in thought, in word and in deed. His third was his energy—not a passing, transient one but a life-long lasting one. His fourth was his religion which produced what may be called his marvellous humility. He loved theatre though he seldom went but he loved music more as he played on flute and knew over 100 songs by heart. He read little except journals and books of science though when most exhausted, he turned to simple stories 'that had a thread to it.'

FARADAY AS AN EXPERIMENTER AND PHILOSOPHER.

Faraday was pre-eminently an experimenter and he worked all in isolation. Joint investigation was not to his taste. He worked always in the laboratory 'without a waist-coat, in a ragged old coat, looking for all the world like a 16th century savant. But one can see that he had great manipulative skill,

rapidity of perception, and quickness of decision—three qualities which lead almost instinctively to great discoveries. There is not a scrap of scientific conceit about him.' 'I could trust only a fact and I am nothing without experiment' said he often. His imagination rose sometimes to divination which led him to anticipate results that he afterwards proved to be true.

FARADAY AS A LECTURER.

Faraday's interests are world-wide. His letters to contemporary scientists like Schönbain, Lebig, Dumas, Wollaston, Gaylussac and a host of others bear this out. He was a learned lecturer. His lectures to children on the chemical history of a candle show him an unrivalled master of lucidity of exposition and a genius in the device of simple but convincing illustration.

Who will dispute the claims of Faraday if he was the recipient of 95 honorary titles and marks of merit—all spontaneous offerings of kindness and good-will.

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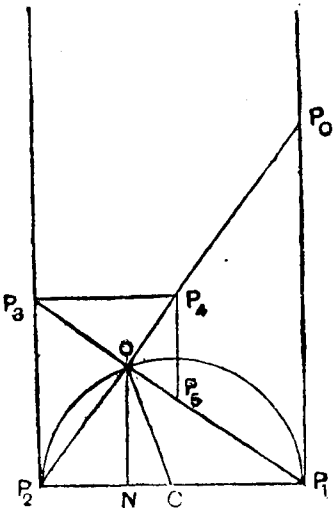
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THE ELLIPTIC COMPASS.
THE GRAPHIC EXTRACTION OF
ROOTS.

By Rao Bahadur T. SUNDARA ROW, I. S. O.,
Coonoor, R. S.

Let $P_1 P_2$ be the short edge of a ribbon of paper at right angles with the parallel long edges. Fold any two lines $P_1 O P_3$, and $P_2 O P_4$ at right angles with each other meeting the long edges in P_3 and P_4 . Fold also $P_3 P_4$ perpendicular to $P_3 P_5$ meeting OP_3 in P_4 and $P_4 P_5$ perpendicular to $P_1 P_2$ meeting OP_1 in P_5 .



Then the locus of O is the semi-circle on the diameter $P_1 P_2$ and $OP_0, OP_1, OP_2, OP_3, OP_4, OP_5$ are in Geometrical Progression.

$$\frac{OP_0}{OP_1} = \frac{OP_1}{OP_2} = \frac{OP_2}{OP_3} = \frac{OP_3}{OP_4} = \frac{OP_4}{OP_5} = r$$
$$OP_0/OP_2 = (OP_1/OP_2)^2$$
$$OP_0/OP_3 = (OP_1/OP_2)^3$$
$$OP_0/OP_4 = (OP_1/OP_2)^4$$
$$OP_0/OP_5 = (OP_1/OP_2)^5$$
$$OP_1/OP_2 = (OP_0/OP_1)^{\frac{1}{2}}, (OP_0/OP_2)^{\frac{1}{3}}, (OP_0/OP_3)^{\frac{1}{4}}, (OP_0/OP_4)^{\frac{1}{5}}, \dots (OP_0/OP_n)^{\frac{1}{n}}$$

If $OP_0/OP_n = a, a = r^n, r = a^{\frac{1}{n}}$

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2. For the determination of the roots, the corresponding position of O on the semi-circle has to be found.

3. The square root. The position of O is found by the constructions sanctioned by Euclid, i.e., by the use of the straight edge and compass. Take $P_1 N/P_2 N = a$ and draw NO perpendicular to $P_1 P_2$. Draw $P_2 O P_3$ and OP_1 . Then $OP_1/OP_2 = \sqrt{a}$.

4. The cube root. The ratio OP_0/OP_3 being given, the point O has to be found so as to satisfy the two conditions (1) that OP_0/OP_3 is in the given ratio, and $P_3 O$ and $P_4 O$ pass through P_2 and P_1 respectively. This cannot be done by Euclidean methods. But it can be done with the help of the Elliptic Compass.

5. Set the arms of the frame, which are pivoted in the middle, at right angles and move the pivot on the semi-circle passing two of the arms always through P_1, P_2 and keep measuring on the prolongation of the arms with the limb the intercepts OP_0, OP_3 until they are in the given ratio.

6. When $OP_0 = 2 OP_3, OP_1/OP_2 = \sqrt[3]{2}$, the ratio required for duplicating the cube, a famous problem of antiquity for whose history W. W. Rouse Ball's Mathematical Recreations and Essays may be consulted.

By the duplication of the cube is meant finding the edge of a cube which shall have twice the volume of a cube whose edge is given. Thus if l is the length of the edge of the given cube and x that of the required cube we have $x^3 = 2a^3$ or $x = \sqrt[3]{2} \cdot a$. In the present case $x : a :: OP_1 : OP_2$.

7. For the frame of the Elliptic Compass the following linkage may be substituted. Take a small strip of paper, fold it longitudinally in the middle and take two points on the crease at a distance apart equal to the radius of the semi-circle. Pivot one point at C the centre of the semi-circle, with a drawing pin, and at the other

(b) If $f(x)$ is continuous in (a, b) , it is also integrable.

(c) All finite functions that are discontinuous in a finite number of points in (a, b) , are integrable in (a, b) .

(d) All finite functions that are discontinuous in an infinite number of points of (a, b) , which, however, constitute a group of points having a finite number of limiting points, are integrable in (a, b) .

(e) A finite function which never increases, or never decreases in (a, b) is integrable in (a, b) .

6. Of course, I have not given here the proofs of the above propositions, nor are they necessary for those students whose ends and objects in following a University course are mainly pragmatic or utilitarian. Yet I think they should be given to the students of Pure Mathematics, lest their subject should become a mere machine for the solution of interesting riders—rather than a firmly established logical system.

Again, if their curriculum be modified in this sense, I think it will become a real help to those that wish to study Higher Mathematics—and will not unfit them for such an object, as I think is the case at present.

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EKALAVYA—

THE APOSTLE OF INDIVIDUAL WORK.

By Mr. M. R. PARANJPE, M.A., B.Sc.,
Poona City.

THE Bhils are a hill-tribe in Hindustan.

Strong in body, clever in look, faithful in their work but full of valour and daring, the Bhils are respected and feared. Loving freedom more than their lives, they have always dwelt in forests and away from the civilisation of the towns, supporting themselves as a rule by the shikar of wild beasts. Excellent bow-men though they were and have been, they found themselves much inferior to the Aryans that entered India some four thousand years ago. The Bhils were defeated and subdued by these invaders who had greatly improved the crude bow and arrow and used them in battles with deadly skill.

A few Bhil boys thought of learning this art and Ekalavya was one of them. He approached Drona, the well-known tutor of the Kuru princes (the Kauravās and the Pāṇḍavās), with a request that he be accepted as a disciple. But Drona never possessed the great heart of Shukrāchārya. Either he was unwilling to admit a non-Aryan pupil or he was afraid of losing his post at the court of Dhritarāshtra, and Ekalavya's request was rejected by him.

Dejected at heart but undaunted in spirit, Ekalavya returned to his forest home and decided that he would train himself. He had still great respect for Drona and he prepared his bust and placed it under a tree, which looked like the teacher in a subject laboratory in a Dalton school. Ekalavya began his lessons under the supervision of this Guru.

Self-tuition is always the best of tuitions. It is difficult to give a pupil's mind the ben-

suited to this kind of work, but when it is once done, the progress is both rapid and certain. Nothing is then too difficult, his attention is fully concentrated on one task and neither mind nor body is fatigued. Ekalavya made great strides. Assignments after assignments were completed, the progress graph showed only the maximum offer, and he was not a whit behind the Kuru princes who were being spoon-fed by Drona in his class-room.

There soon came an opportunity for Ekalavya to test his skill. The princes with their tutor had one day entered the forest, in which Ekalavya resided, for a hunt, and were after a wild boar. Arjuna, the cleverest of them all, shot an arrow and the boar was killed. The servants brought the beast to the tent, pulled out the arrow that had killed him and lo! the arrow did not bear the initials of Arjuna. The shikar was not hit by the arrow of Arjuna and a question went round "Who hit the boar?" The marksman was soon discovered. Seeing a boar running about, Ekalavya had sent his arrow almost at the same instant when Arjuna sent his, and being more

skillful he was able to judge the movements of the boar more accurately than Arjuna could.

A formal test of skill was soon arranged and self-taught Ekalavya beat hollow each one of the spoon-fed princes including Arjuna, the most favoured of the pupils of Drona. The story goes that Drona got irritated and ordered that thumbs of poor Ekalavya to be cut down. This may be a later interpolation in the story but Drona was probably mean enough to behave in this fashion. Extremely vindictive, self-opinionated, partial to some pupils, he was incapable of appreciating the worth of Ekalavya or his wonderful educational experiment. Although Ekalavya always revered Drona as his Guru, the Guru did not possess a heart magnanimous enough to delight in a defeat by his pupil.

The story is from the Mahabharat, the great epic of the Hindus, and it is given here without any change, but in a new perspective. There is probably much truth in the saying 'व्यासोऽष्टिष्ठं जगत्सर्वम्'; there is nothing in this world that has not been said by Vyas, the well-known compiler of the Mahabharat.

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THE CINEMATOGRAF IN EDUCATION.

By Mr. M. V. SUBRAHMANYAM, M.A., L.T.,
Lecturer in History, C. M. College, Tinnevely.

THE value of Cinematograph to education is now increasingly realised by the Western countries. Even so early as 1915 the French Government appointed a Committee to find out the relation of cinematograph to intellectual life. This Committee averred that the cinematograph might raise the intellectual level of humanity. Then the Swiss Confederation of Students appointed the International Committee of University Cinematograph Instruction which suggested the establishment of an International Bureau of Cinematograph Instruction for Universities, and the drawing up of an international catalogue of scientific films. Again, at the Imperial Educational Conference which met in 1923, at the suggestion of Mr. T. F. Tate, Director of Education, Victoria, Australia, the following resolution was adopted:—"That a Committee be appointed which should explore in concert with the leaders of the cinema industry, the possibilities of utilising the cinema in the service of public education, especially through the ordinary work of the class-room." And M. Luchaire's resolution adopted by the Sub-Committee on International Relations held at Geneva on July 22, 1924, speaks volumes of the recognition of the cinema as a potent factor in education. Thus reads the resolution: "The Committee recommends the organisation of an international exhibition of scientific pictures, and pictures for other educational purposes, both fixed and moving."

We thus see that of late years the relation of cinematograph to intellectual life has been grasped by the Occidentals. Now, the

question arises, "How best we can utilise the cinema in education." Here we have to be guided at first by the resolutions of M. Luchaire and Mr. T. F. Tate, that is, the League of Nations as an international body should arrange for the production of educational films with the leaders of the cinema industry. This is not a difficult affair, for the producers of such useful films are sure to find ready purchasers for their films. Supposing such films are manufactured, the question arises, "How to bring them within easy reach of the boys?" In the writer's opinion there are two ways of doing so. The counsel of perfection is that in places where there are two or more schools, a cinema theatre should be attached to one of them, so that the pupils of the locality might profit by the exhibition of educational films. But in places where there is only one school, the school should find the necessary money to provide for a cinema theatre. The proposal is a costly one, especially to India, where money is given with a niggardly hand by the Government for educational purposes. But it is not after all, an impractical scheme in these days when every school or college has a full-equipped laboratory. Another proposal is that the school authorities should encourage the manager of a cinema theatre—if there is one in the locality—to go in for historical, geographical, scientific and other useful films, and take the pupils to the theatre during the exhibition of those films. But in places where there are no cinema theatres, but where there are schools, the latter should provide themselves with cinema theatres. In either of these ways, the cinema can function as an efficient educative agent.

The question that next arises is: "Is the game worth the candle?" The answer is that

the advantages of cinematograph instruction are so many as to justify our spending a great deal of money on it.

In the first place, the cinema stimulates the imagination of the pupils, encourages their powers of observation, and awakens in them a keen interest in the subjects illustrated.

Psychologists tell us that visual impression imparts instruction in some subjects more easily, more vividly, and durably than many an oral lesson. In this connection it may be noted that the pupils should be allowed to see a film first and then instruction based on that film should be given. For instance, after the pupils had seen the life of the E-quoimo, the Red Indian tracking the bear, the camel moving in the desert, William I's march to London, in a series of moving pictures, they have a fairly clear idea of the subjects and when the teacher in the class-room begins to teach those subjects, he meets with ready response from the boys. Instruction after the exhibition of films, whenever possible, is bound to yield very good results.

Further the cinema is of special use indirectly in the teaching of English and vernaculars, by providing subjects of real interest for oral conversation and written composition. The teacher can choose any of the pictures which the boys had seen for oral conversation and written work. It is thus of value in the teaching of languages.

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education could not be denied, and the role of the cinematograph, provided it were well-directed, might be an excellent one." An educationist thus speaks of the value of cinematograph to education: "No teacher would go to the trouble and expense of installing a cinema unless he were convinced that the depiction of movement is a necessary feature of educational equipment. It may be averred that life is movement and movement is life. Since life is what the young really wish and ought to study, it would seem that the instrument which alone can depict movement might be an essential piece of school furniture."

This then is the claim of the cinematograph to be regarded as an efficient factor in education that it "shows life to beginners in the art of living."

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OUR PRESENT-DAY EDUCATIONAL PROBLEMS.

By MR. V. V. NARASIMHAM, M.A., D.LITT.,
PH.D., F.R.ECON. S., M.R.A.S. Ceylon,
Headmaster, Government Training School,
Vizagapatam.

I. ELEMENTARY EDUCATION—MY ANSWERS TO THE RECENT QUESTIONNAIRE.

Q. I. Whether the period of Compulsory Education under the Elementary Education Act should be 4 years or 5 years?

Ans. Only a period of 4 years, since a longer period would tell hard on the parents whose earnings are meagre.

Q. II. Whether, in future, there should be only one class of Elementary Schools governed by the Elementary Education Act and the rules framed thereunder, containing either Standards I—IV or Standards I to V only?

Ans. Two classes of Elementary Schools are desirable.

One of Standards I—IV for purposes of compulsion and the other of Standards I—V where the 5th Standard serves as a preparatory class for secondary education. In the latter schools also, education in Standards I—IV should be compulsory. In the IV Standard the study of English is optional, being intended only for those who want to proceed higher through the medium of the V Standard. For this purpose it would be necessary to give in the training course instruction in the direct method of teaching English to those students undergoing Higher Elementary Training, in case they once appeared for the S. S. L. C. Examination or otherwise strong in English.

Q. III. Whether Higher Elementary Schools as such should be abolished; if so, whether

local bodies and private educational agencies will be prepared to provide for the instruction of the pupils in the Higher Elementary Schools by the opening of Middle Schools in similar localities?

Q. IV. Whether in view of the higher rates of fees levied in Middle Schools if any special concessions are necessary in the case of poor pupils now receiving instruction in Higher Elementary Schools?

Ans. (One answer.) They should be abolished by providing cheap but practical Middle Schools. Managements would not feel it difficult to start cheap Middle Schools.

Poor pupils and those who would be handicapped by the abolition of Higher Elementary Schools would not on the other hand find it difficult to continue their primary education in these schools, provided the rates of fees in these classes are as cheap as

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2nd form	...	Re. 1-8-0
3rd form	...	Rs. 2-0-0

and education in these schools is reorganised to satisfy the vocational aptitudes and needs of these pupils so that they may be useful to their parents at an earlier stage than those who are now receiving secondary education are at present. A forecast of such schools has already been made by the Director of Public Instruction in his Pro. C. No. 974-D/25, dated 9th June '25. It may be argued that if cheap Middle Schools should be made to replace Higher Elementary Schools, it would not pay the Boards of Management to run them, should merely the teaching grants now assigned to secondary-grade teachers be given them as under the Elementary School system. This doubt might be cleared if the Government undertake to bear the

expenses relating to the rent, library and equipment. The furniture itself may be as cheap as in the Ramakrishna Mission High School, Mylapore, and the Theosophical Collegiate School at Guindy. This implies that the Department does not insist on furniture of the approved pattern if furniture grant should be made. If there be agreement on this point, even a private board of management like a mission body would not have any difficulty to encounter, with regard to the cost of the staff of such a school. Assuming that the strength of each class would be 40 (which is not improbable if education be rendered such that "the claims of education and the claims of life are at once reconciled" as the aforesaid Proceedings say since those that would have gone to the Higher Elementary School will have necessarily to resort here) the arrangement would work out thus: The average monthly income of each class, i.e., $40 \times \text{Re. } 1-8-0$ can be had for 8 months = Rs. 480, i.e., Rs. 40 for each of the 12 months in the year for each of the three classes, besides the grant of Rs. $180 \div 12$, i.e., 15 in addition to any increase that might be deemed necessary. Thus Rs. 50 to 60 on the average can be paid even by a private manager to a teacher of each of these 3 classes,* and it is needless under these circumstances to speak of the financial abilities of the Local Boards to run these institutions. In some cases they may be worked even for profit. But if the managements want to tack on to these institutions IV and V classes also, the present requirement that only secondary-grade teachers should handle them since they are situated in a secondary school

* Scholarships may be instituted for the sake of deserving pupils, with the financial assistance of the local public.

should be deleted. Those students of the higher elementary grade who appeared for the S. S. L. C. Examination and who are otherwise strong in English and who take the method of teaching English as optional in their training course may be deemed sufficient and they may be paid the rates of grant of the higher elementary grade teachers.

II. SECONDARY EDUCATION—THE PROPOSED RE-ORGANIZATION.

It is commendable that attempts are being made in this country to offer some satisfactory solution to the unemployment question from an educational standpoint also. While the Calcutta University has opened a chair for the study of this vital sociological problem of poverty, it is particularly gratifying to note that in our Presidency, the Director of Public Instruction has realised the responsibility of the Government in the matter, by inviting public opinion on his suggestions to re-organize Secondary Education in the light of the problem of the growth of unemployment. Such a scheme is all the more welcome since it seems to indicate a fundamental change in the angle of vision on the part of Government, for, their creed in the matter has along been—

- (1) that it is not their business to train students for vocations,
- (2) "that the function of the ordinary school is to provide a liberal education suited to the age and mentality of the pupil which will afford him the highest opportunity for development as a man and a citizen,"
- (3) that the utmost that they might do is the introduction of Manual Training or pre-vocational education in a school for general education,

and (4) that when there is actually a demand for them, such courses will of themselves arise as a result of private enterprise, since employers of labour would as a part of their business open institutions offering the requisite instruction.

In the decade between 1902 and 1912, in Government Technical and Industrial Schools, the increase of strength has been only ... 103%

In Aided and private technical and industrial schools ... 165%

In Government ordinary schools ... 81%
 „ private „ ... 47%

This indicates that the public demands technical and industrial schools and shows less interest in ordinary schools as at present constituted, and that the Government in no way adequately responds to this increasing demand.

There are always few swans and more geese and the Indian parent for want of a proper institution for his geese is sending them also, to the institution for swans, so that he might get something of a swan out of his geese rather than keep them as geese*. It is not his pathetic belief that all his sons are swans and none geese but the pathetic want of facilities for the education of the latter that is responsible for this state of affairs.

Now the only change that has been contemplated so far as the Lower Secondary stage is concerned is to make the optional course of

* Philology and semasiology however teach us that the Idg. word "Ghamsa," Skt. "Hamsa" has become in English "Goose" which now means a different species of the winged creation, while the English vocabulary has been enriched by the new word "Swan" to mean the original bird.

"Practical Instruction" in the present scheme of Elementary Education compulsory. Whatever pursuit that practical instruction may be about, it must afford the training more of a manual occupation than of vocational efficiency. The Government has always been against the introduction of vocational education in a school of general education but for the introduction of pre-vocational education in the form of manual training even as a compulsory course, it must be said in fairness that the authorities have not only never showed the least hostility but on the other hand have been warmly recommending its adoption *even in the upper secondary stage both in schools with vocational bias as well as in those with liberal bias*. "The most efficient method to adopt" said Mr. Fyfe, the Inspector of our Industrial Schools, recently, "is to start at the foundation of the whole structure by endeavouring to provide more facilities for Primary or Lower Secondary School education and by endeavouring to keep that education on as practical lines as possible." Again in another connection he is reported to have said: "This handwork or manual training is not intended to train the child for a definite trade or occupation but merely to accustom him to deal with concrete rather than abstract problems, to train him to use his hands and eyes and head in a logical, practical way, to train him to think straight so that he may work straight and to apply his book-knowledge to the practical difficulties of every day life in whatever walk of life he may pursue after he leaves the school room..... Manual Training as a part of general all-round, well-balanced education is necessary for the prospective surgeon or vakil as for the artisan, that it does not and never was

intended to turn up trained workmen but is merely intended to counteract the extreme bookishness of modern education and produce a well-balanced sound mind in a sound body."

The Director of Public Instruction suggests that at this stage a bifurcation of educational aims should be made, one type of High School education leading to vocational courses which would enable pupils by the time they now complete High School studies to get positions of all sorts, positions which the inadequate training which they receive at present does not fit them for and the other type in the same school if the funds of the management permit or in a different school, which might be one providing for those boys going to the University. It may be pointed out that Lala Lajpat Rai in his highly applauded book "The Problem of National Education in India" recommended this bifurcation even at the commencement of the Middle School stage. He says: "In my judgment English should be compulsory in the second half of Elementary School period or say in the last three years taking the Elementary School period to be eight years from 5 to 13; the object should be to lay the foundation of a working knowledge of the language as distinguished from its literary side. The second part of the Elementary Education might have two alternate courses, one for those who want to enter life on the completion of the course and also those who want to take higher courses in agriculture, commerce and technology; and the other for those who intend to pursue a general course of higher liberal education. English should be compulsory in both courses but only as a language and not as a medium of instruction. No one who wants to complete his education with the Elementary School or to pursue

higher courses in agriculture, commerce and technology should be compelled to study any classical language. He may learn another modern language besides English if he chooses but his chief concern should be a preparation for life." With this view, some eminent authorities on Indian Education like Biss and West agree, but in view of the wide impression that already exists as regards the stage of specialization commencing rather prematurely, the Director's suggestion might be adopted as a more modest and safe procedure. But one thing must be guarded against. We must first be sure that the material we are to work upon is a proper one and to achieve the end in view, the institution of a public examination like the old Middle School or Lower Secondary School Examination is a *desideratum*. There can be no good in having a boy even in the typewriting class of a commercial type, if he is weak in spelling. It would of course be absurd to recommend, in these days when an abolition of all examinations is the cry of the day, the resuscitation of a defunct institution but it may not be the exact copy of the old unwieldy examination. It must however cover the same ground though it might be made free from the odious features of the former test. This matter might be left to the jurisdiction of either the Secondary Educational Council of each district or of a group of districts in a linguistic unit.

The aim of the vocational type of school is to make the student as efficient as he would be if he should be trained in a vocational school and more efficient than he has been when he takes vocational subjects like commerce or agriculture as his C group subjects in the present S. S. L. C. curriculum. The Director of Agriculture once wrote to me that with the present requirement in agriculture as

a C group subject, it is useless to attempt to teach the subject. In this connection it must be said that there is a common part both for the A (vocational type) and B (liberal type) and this common part includes Elementary Science and Geography—subjects of the much-neglected present B or non-examination group. With the abolition of the much-abused self-government system of moderation in secondary education and with the restoration of examination in B group subjects, there is practically a reversion to the old Matriculation since owing to the costliness of the A type school, such schools would not be forthcoming in an appreciable degree. Without naming all the other practical pursuits the Director says that alternative arrangements might be worked out in them also. A large number of people seem to believe that there cannot be many such courses that might be, practically speaking, opened in Secondary Schools. On this point it is interesting to know what Sir M. Visveswaraiya in "Reconstructing India" has to say. "The practical subjects taught should include civil and mechanical engineering, technology,* agriculture, commercial methods, medicine, cabinet-making, pottery, hand-loom weaving, dress-making, metal-work, leather-work and other handicrafts and practical work-shop trades especially those connected with house-building." In the case of girls, music, cookery and needle-work might be had as has already been done in the S. S. L. C. curriculum. In other words all those courses in which the Government conducts Technical Examinations can be said to be suitable and one or more or all might be opened in the same High School or in a different school.

* Electrical and Sanitary Engineering, Metallurgy, Textiles and Chemical technology of bleaching, dyeing and printing, chemical manufacturing have all been included under 'Technology' as can be seen from the use of the term by the Manchester University College of Technology.

Though care should be taken to avoid duplication of courses, there should be as many schools as possible with every variety, in the important places of the district to meet the needs of the different bents of students. Though a large number of students have to resort to this bread-winning type of education it must be remembered that they cannot be trained indiscriminately for they have to be trained to meet distinct demands in consultation with employers of labour. As regards the allotment of pupils to the several courses of the A type school, it must be done on the basis of experimental psychological tests for vocational guidance as is being widely done in U.S.A. now and to some extent in England also. Anyway, the education which a lad is now having in the vocational school such as a commercial school after his S. S. L. C. should be available for him even by the time he completes his S. S. L. C. course with the quality of vocational training unimpaired. Then the question is whether there would at all be necessity for the vocational schools as such. There would not certainly be. As I have already said at the beginning, there are after all very few such schools if those of a purely professional character like the Engineering, Medical, Commercial, and Agricultural (none) be left out of consideration and they are all maintained by Government. In Engineering education of school grade, there is no adequate provision for Electrical and Mining courses. The continuance of vocational schools would be justifiable only if they should be transformed into the A type of High Schools by liberalising the vocational curriculum. Classes to give instruction in the common subjects should be opened in these pure vocational schools and thus the transformation may be effected. In view of their costliness it would be impossible for private managers to start such High Schools and it is idle to expect that Government would

ever undertake to open them judging from the theories that they have been putting forth on the subject from time to time, though at the same time it is only such type of schools that are needed for most of your young men. I quote here extracts from the Government resolution on the report of a Committee appointed by the Government of the Central Provinces to investigate into the possibilities of vocational education, for they say:—

"An ordinary High or Middle school cannot and should not attempt to produce trained workers such as skilled cultivators, carpenters, weavers, clerks or accountants. Such schools should not be institutions for the production of carpenters, mechanics, farmers. For the production of these, special institutions should be provided. In connection with institutions for the production of skilled workers one usually hears it said that Government should maintain schools of instruction. The Government is expected to cure all ills, real or imaginary. Government looks to private enterprise to assist in providing such instruction. It desires to see an expansion of the system by which boys learn their trades under actual commercial conditions. It cannot be too often repeated that the creation of Government or private schools cannot itself create industries or industrial employment. Industries do not spring up at the bidding of academies. Any vocational training must be subsequent to and not coincident with general education. The true line of development therefore so far as schools for general education are concerned, should be for such schools to provide a general education designed to produce men of character and intelligence, knowledge and capacity. Government finds in general agreement with recommendation of the Committee that schools for general education should not

endeavour to prepare pupils for special vocations while it is prepared to sanction (and has already sanctioned) the inclusion in the curriculum of such schools, of what may be termed non-literary subjects such as manual training, it is under clear understanding that such subjects are designed to promote the general development of intelligence and not to produce skilled workmen."

How then is this object to be achieved? The State aid in Secondary education must be confined only to such High Schools that can be classed as A type schools but under no circumstances should aid be extended to such High Schools that come under the B type. The education of the wealthy and upper middle classes being largely a "pen and paper" education is cheap while the education of the lower middle and working classes being technical is costly while it should just be the reverse. To maintain the balance high rates of fees should be collected in the former type and the latter should be made accessible to a large number of boys at merely nominal rates. So the B type school may be left to the patronage of the select few who can afford to give their mentally fit children the luxury of University education. The purely vocational schools that we have now, can, not only transform themselves into the A type High Schools by the inclusion of the common subjects in their school curriculum but also have the B type classes side by side under the same roof by opening courses for the B type in the allied subjects under the C group. Thus an Engineering school may impart instruction for the B course students in the two science subjects under the C group.

As regards the distribution of time, the Director reasonably suggests that 8 periods

out of 30 might be set apart for vocational subjects and instruction at this rate for three years is to be given if efficient training is to be had. Since it is a technical training it cannot be argued that the same kind of training can be had if the instruction be confined to two years at 12 periods a week or one year at 24 periods a week, for it is a matter of regularly habituating tactile muscles to a particular kind of work. It is not a matter of statistics but of habit and efficiency. Thus in an A. type school with agriculture as the vocation adopted, we would have 8 periods for agriculture besides manual training which is compulsory as has already been stated both in the type of vocational school as well as in the B. type school to overcome its extreme bookishness. In a corresponding school in England—not a vocational school but a secondary school with agriculture as optional—12 periods are allotted in the timetable for agriculture and science and 8 for manual training (workshop practice) and drawing in a week of 31 periods (*vide* Saidapet Bulletin No. 17, page 5). So an allocation of 20 out of 31 periods would not, as the Government apprehend, stultify the liberal side at all. Anyway, in our schools also, if the proposed reform should be adopted, agriculture and science come to 11 periods and manual training for about 2 consecutive periods which would not compare very unfavourably with the distribution of time in English schools.

III. OUR UNIVERSITY EDUCATION— SUGGESTIONS FOR REFORM.

I. The appointment of a Commission to survey the vocational needs of the country and submit a report on the kind of the student that the University has at present to train up

in the best interests of the economic and material prosperity of our country.

II. The admission of students into the vocational colleges should be in strict accordance with the recommendations of the Committee referred to above and controlled by the University Employment Board. Experimental psychological tests of vocational guidance might be largely employed for selection of the proper material.

III. (a) The transference of the control of Secondary schools and Second-Grade colleges to the jurisdiction of the Boards of Secondary and Intermediate Education, respectively.

(b) Abolition of the First-Grade colleges if they should continue to confine their instruction to the pure arts and science courses as at present.

(c) The affiliation of colleges which furnish vocational courses opening facilities for students to take their degrees in pure and professional courses simultaneously (instead of one after another) as in London, Edinburgh, Cambridge and Oxford. For instance, a student of Medicine or Agriculture can specialise in Botany or Chemistry and take on the completion of his course, his B. A. and B. Sc. or M. B. degrees simultaneously. At any rate, the type of student who specialises in a pure faculty without the opportunity to apply his knowledge, is to be strongly deprecated.

(d) The affiliation of colleges only for different vocational courses to prevent all unhealthy competition. Such colleges might in due course form the nuclei of vocational Universities (e.g. the proposed Technological

Institute at Cawnpore, the Inns of Courts, London, and the Royal Colleges of Physicians and Surgeons, London and Edinburgh).

(e) The temporary closure of the Law College for such period as the report referred to in Clause I recommends, and the re-organisation of the teaching faculty affording training to the normal under-graduates and graduates in the teaching methods of the secondary courses in Industrial Chemistry and Mechanical and Electrical Engineering.

IV. The organization of the Department of Extension Lectures to offer refresher courses so that the lower grades of scholars might be enabled to improve their prospects by qualifying themselves for the higher grades. An L. M. P. for instance, might be permitted to qualify himself for L. M. S. or M. B. The present anomaly of requiring a student who fails to secure pass marks in a

single paper to reappear even for the whole group should no more be allowed to continue.

V. For the same reason that the Law College should be temporarily closed, the qualification for admission into the College of Engineering might be lowered for an increase in number (so long as the Commission of Clause I suggests) and facilities in Mining, Metallurgy, Mechanical and Industrial Engineering, Ship-building, Industrial, and Electrical Technology might be given greater encouragement than Civil Engineering.

VI. The adoption of the Reformed System in English Spelling in our institutions. In this connection, the specimens of English Composition given in "Education in Japan," by Ross Mahamad, to illustrate the composition work of Japanese students, might be perused. A large amount of literature that is now being issued in the U. S. A. appears in Simplified Spelling.

DRavidian INDIA (VOL. I.)

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IS THERE A NEED FOR THE INSPECTING AGENCY?

By Mr. T. NARASINGA RAO, B.A., L.T.,
Headmaster, Municipal High School, Tadpatri.

OPINION is rife among certain circles of even the educated community that the Inspecting agency of the Government is unnecessary and superfluous. The idea seems to have originated from two schools of educational reformers, who have been at work ever since the Local Boards and District Municipalities Acts of 1920, and the formation of Educational Boards and Councils.

The first school which is against the continuance of the inspectorate consists chiefly of heads of local bodies and managers of institutions who are too jealous to allow an extraneous agency like the inspectorate to interfere in matters concerning the administration and working of their schools; and many of them came forward with the specious argument that the inspecting agency was doing no useful work, and that it was an unnecessary duplication of supervising machinery.

The second school which consists of zealous educational reformers and old and experienced educationists, advances the argument that the inspecting agency, shorn of its powers at present, may either be mended or ended. They say that the inspecting agency is more or less a recommending or advisory body whose recommendations may or may not be carried out by the local bodies. The inspecting officers must go to every school once or twice a year, and make their suggestions and remarks and be satisfied with them. They have neither powers of appointments, nor of redressing grievances of teachers under local bodies; even under trying circumstances,

they must observe a policy of non-interference in all matters concerning the governance of public schools. They exist only for the sake of a few Government schools even which are being rapidly handed over to the local bodies. So they complain that the inspecting body deprived of all its best powers, is leading on a dummy existence, and unless it is restored to its former glory and power, it may be abolished altogether.

There seems to be much reason in the second school of advocates of reformation of the inspectorate, inasmuch as it is an indirect cry for the restitution of its former rights, privileges and powers.

With due deference to these two schools, we can say with great confidence and emphasis, that no person who had something of scholastic education, who had tasted something of good discipline, who had seen at least in his old school-days what a good inspection meant for his school, who would above all forget for a while that he is this or that, could honestly belittle the value of inspection and conscientiously decry the inspectorate. Remove the inspecting agency; and you will find the demons of incompetency, inefficiency and ignorance holding their undisputed sway within our sacred temples of learning where you will have to sacrifice many a bleating lamb of innocence on the unhallowed altars of indolence, indiscipline, and inattention. Abolish the inspectorate; and you will find a darkness prevailing over these *sancta sanctorum*, with greedy spiders weaving their loathsome cobwebs in their corners, and bats holding their discordant conference and defiling their genial atmosphere, without a ray of light ever piercing through them to dispel their gloom, or to bring to light full many a gem of purest ray serene which could have adorned

the diadem of an emperor: impelled by circumstances, beyond their control, constrained by the love of the profession, and repressed by chill penury, how many brilliant teachers are there not in our schools, who could have sat in the Council of State, and lent the weight of their personality, opinion and knowledge to many a tangled problem of human welfare? How many flowers of intellect are there not blushing unseen in some humble school and wasting their sweet perfume in their desert air, without their scent ever being inhaled, without their beauty ever being appreciated? Are not those welcome visitors who go to their lonely spots at least once or twice a year, a balm to their lacerated hearts, a beacon-light of hope for them? Will not a kind look of appreciation, a genial word of encouragement gladden their hearts, and serve as a proper filip to them in the discharge of their sacred duties? Do away with the inspecting body; and you will have deprived the school of the light of its soul, and the very sun-shine of its existence.

Considering that at present, there is a clash of Western and Eastern cultures in this country, the inspecting agency is a very important cementing or reconciling factor: and in these days of L. S. G. where by election, anyone might succeed to the head of affairs, and where a good deal of experience and administrative capacity are required for the management of the school, the inspecting agency is fulfilling a real purpose and doing invaluable work in helping, guiding, and sometimes acting as a healthy check to the too rapid advances of the managing bodies. They are more or less impressing on the public, the priceless ideas of standardisation of studies, uniformity of

curricula and efficiency in methods of teaching. They are also greatly responsible for the proper equipment, accommodation and other suitable requirements of schools which if the managements are left to themselves, they may not care to provide, due to the financial stringency of the times. While observing a policy of *laissez-faire* in several matters concerning the management of schools, they are serving as powerful search-lights sweeping with the light of their knowledge and experience in every direction, and exposing to the view of the Government even the humblest school and its working in every nook and corner of this vast Presidency. They are also serving as accurate gaugers of the level of efficiency in our schools, and have been silent regulating factors in the efficient conduct of school-work. They being the pick of educational experts, highly qualified and trained and experienced, have been directing, regulating and turning the wheels of this complex educational machinery in various districts of this Presidency, and keeping the Government correctly and honestly informed about the working of every school so as to help the Government to turn its financial aids into such fruitful channels as may be conducive to the public good. The inspectorate, in short, is a real boon not only to managing bodies but teachers and pupils, and blessed is the district where harmony prevails between the managing and the inspecting bodies. While admitting that several wise heads of local bodies and private institutions are working as willing partners in the sacred task of educating the public, it is to be said that yet more co-operation and more real desire to have their advice should be engendered by local authorities in the administration of their schools.

At present it is a pity that such an invaluable agency like the inspectorate should, like the proverbial King Lear, divide most of its powers among the local bodies, District Educational Boards, and Educational Councils, and be satisfied only with its crown. This decentralisation of the powers of the inspecting bodies cannot be said to be a healthy sign and if the process is continued to its logical conclusion, the educational Lear may have to face many a Generil and Regan in his dotage. It may be quite possible to abolish these Boards and Councils, even without which the work of secondary and elementary education could be carried on most satisfactorily; and the powers of the same may be vested in the time-honoured inspectorate. Manned as it is by highly and technically qualified and experienced men, the inspectorate should have the sole powers of selecting, appointing, and redressing the grievances of teachers in all recognised schools. It is a well-known fact that at present the educational administration of the District is unevenly divided, and balanced between the inspecting and managing bodies, and weighted greater on the side of the latter. If the inspecting body should act as a healthy check to the other, the fulcrum of the administrative balance should be exactly located, and the beam of power should be poised accordingly. Now all is not smooth running since the educational machinery has one wheel bigger than the other.

Having regard, therefore, to the invaluable work of the inspecting agency it is high time for the Government to increase the same in every District and Taluk and give them larger scope and powers so as to effect greater supervision and efficiency in the educational institutions which not only directly belong to the Government but those which the Government recognises and affords its parental care. It is only then that we can expect a rapid growth of educational institutions, and a highly efficient education suited to the needs of the locality and the public at large.

COMMERCIAL SUBJECTS IN THE S. S. L. C. SCHEME AND ELIGIBILITY FOR THE UNIVERSITY COURSES OF STUDY.

By Mr. S. V. THIRUVENKATACHARI,
Commercial Instructor, D. H. H. School, Tirupati.

COMMERCIAL subjects, such as Book-keeping and Commercial Arithmetic, Commercial Practice and Geography, and Shorthand and Typewriting have been introduced as optionals in the S. S. L. C. course. Pupils choosing purely commercial subjects or a commercial subject and a vernacular or a non-University subject as their optionals have been denied the eligibility for University courses of study in spite of their obtaining good marks in their optionals and in A group subjects; whereas pupils choosing as optionals, one of which being Mathematics, Physics, Chemistry or History, enjoy the privileges of eligibility for College course under the recognition of the University.

When a pupil who has been declared eligible for college course gets admission into a college, he naturally chooses, or is ordinarily expected to choose, that group of optionals corresponding to those which he chose in the S. S. L. C. Examination. When he happens to get in his optionals just the marks required and consequently feels diffident of his progress in them in the higher courses of study, or if having got good marks, he is unable to get a seat for the particular optionals he wishes to take, he is allowed the choice of taking Group III as optionals in the Intermediate course. For example, if a pupil taking Mathematics and Physics gets very high marks in them he may take in the Intermediate class Group I; if he is a pupil of Physics and Chemistry with good marks, he

will have to take Group II; but as this Group is taught only in a few colleges and if the seats are closed he is allowed to choose Group III. The same is the case in the case of a pupil taking Mathematics and Physics, who gets bare minimum and feels diffident of progress in them in the higher courses of study, or is unable to get seats for those subjects.

Moreover the subjects comprising Group III of the University Intermediate course are taught from the *very beginning*. Even Modern History is taught from the *VERY BEGINNING*. They are *new* subjects to those that took Physics, Chemistry, or Mathematics in the S. S. L. C. Examination. While these students enjoy the advantages of college course by taking Group III, why should the students who take purely commercial subjects or a commercial subject and a vernacular or a non-University subject as optionals be denied that privilege without being declared eligible by the University when they get the required or more than the required marks in each of the subjects under Group A and in their optionals? So far as Group III is concerned, Commercial students too are on the same level with those that took Mathematics, Physics, or Chemistry, etc., in the S. S. L. C. course. The subjects in Group III are *new* to both. They are taught from the *VERY BEGINNING* unlike other subjects such as Mathematics or Physics, etc.

A brief consideration of the standard of Commercial subjects in the S. S. L. C. course is not out of place here. In the Book-keeping portion of "Book-keeping and Commercial Arithmetic" almost all that was required of the Intermediate grade has to be gone through. The Commercial Arithmetic portion is much higher than the portion in Elementary Mathematics. What is excluded from the Elementary Mathematics is taught in Commercial Arithmetic—namely, Present Worth and Discount, Exchanges, Stocks and Shares, Tare and Tret, etc. These formed the portions of the late Upper Secondary Examination and also the Matriculation Examination. Thus a Book-keeping student is more in the know of Arithmetic than his brother S. S. L. C.'s.

The Geography portion of "Commercial Practice and Geography" covers the whole of

the British Empire. The questions in it are of general nature as well as commercial nature as in the late Upper Secondary Examination. Map-drawing is always an important question. It is not in any way less than the Geography of the Matriculation Examination. In the Commercial Practice portion, rules relating to the Negotiable instruments, Rudimentary Laws of Marine Insurance, Bills of Lading, Letter Writing, etc., are gone through.

In Shorthand and Typewriting, pupils gain at an early stage the ability to take notes in Shorthand and reproduce verbatim in long-hand and typewrite manuscripts and statements and running matter. These are found useful in college course enabling them to take notes with ease as well as in life. In good many respects the knowledge of an industrious and intelligent commercial student is on a par with that of a Matriculate.

Incidentally it may be stated that those that passed the late Upper Secondary Examination are eligible for College course. The optionals are generally two Technical subjects of Intermediate grade.

In the light of the above facts, it is hoped that various Teachers' Associations, leading champions of Commercial Education, Journalists and other well-wishers will take the cause of commercial students who completed their S. S. L. C. course and make representation to the University for the award of eligibility to those that obtain good marks in them and in compulsory subjects. It is further hoped that the Senate will view the case of such students, whose optionals are purely commercial subjects or a commercial subject and a vernacular, or a non-University subject, most sympathetically and award eligibility to such of them, not only of this year and years to come, but also of past years, as have got the required marks or more than the required marks in the compulsory and optional subjects, in the light of the rules in force, as these students will, if admitted into colleges by allowing them to take Group III for their optionals, be on a par with Mathematics or Physics students that happen to take the same group to receive instruction therein.

THOUGHTS ON SIR V. M. COUTTS-TROTTER'S CONVOCATION ADDRESS.

By Pandit V. S. R. SASTRI,

Hon. Rector, Vedic Academy, Myslapore.

WHAT is Education? Let me reflect on its origin and import, as Sir V. M. Coutts-Trotter commends. I find such a survey enriches me with fresh ideas; that which tends to educe character is education.

Now each nation grows after its own genius; and the formation and delivery of Nature's masterpiece depend, according to the Syndicate of the Bombay University, on the recognition of the virility of education "by the public and Government as an organic part of national life, and the spontaneous material and moral support following such recognition."

The genius of India is speculative; its philosophy delights in abstractions; it is the land of men faithful in doctrine and practice to the idea of a deaf, unimplorable, immense fate; and it realises this faith in the social institution of caste.

The essential condition conducive to the growth of Indian nature to its highest form is that the State should follow the natural leadings of the Aryan race, Sanskrit language, and Hindu religion with wisdom and conduct in the rulers; for character is best made where no hands but Nature's have been laid on it.

In dealing with the State, we ought to remember that it is not superior to the citizen; that every one of its institutions is a man's expedient to meet a particular case; that they all are alterable for good or better; and that the State, therefore, must follow, and not lead, the character and progress of the citizen.

So, the form of government which prevails is only an expression of the culture of the population which permits it; and as fast as the public mind is receptive to more intelligence, the institutions of the State are seen to be brute and stammering.

If the State, therefore, is a rough sketch of national growth, what shall we say of the culture of the remote Hindu age whose productions certify a height of genius in several directions, not since surpassed—as the Vedas, the Institutes of Manu, the Puranas, and the Epics of the Ramayana and the Mahabharata!

The too narrow specialisation which ignores the inter-dependence of all branches of knowledge and their unity against which Sir Murray's address was a protest had no place in the indigenous system of education. It was possible to range over the whole field of extant knowledge, and the memory was so strong and tenacious that volumes were got by heart, and the pupils were literally moving encyclopædias. The Patasalas which turn out *purohits*, who have learnt by rote the requirements of religious practices only, are the solitary remnants of a by-gone age.

Yet there was specialisation; and almost every pupil had his own teacher. Specialists intermingled, exchanged ideas, and learnt the virtue of toleration. It is a well-known fact in history that the Hindus are famed even to-day for their spirit of catholicity, and the pages of their religious history are free from the taint of persecution.

Villages formed the heart of national life. Education was the highest form of State activity as well as national service. No community was more honoured and patronised than the Brahmin, who was a repository of all learning. Education was free as daylight.

Nor was this all. In later life when the pupils got settled, they rubbed their ideas together, and formed the nucleus of an intelligent public opinion on national questions of varied interest and importance, developing

at the same time their hobbies. They thus continued to the end of their lives what they began as students.

The bread problem was not a riddle of the sphinx, the people having had an all-round education.

But now the Imperial Britisher is so rank and aggressive as to be quite incompatible with India. He is active and creative, and resists caste by culture. He loves arts, sciences, inventions, trade and freedom. So he tramples down the spiritual genius of India with his taxed boots. His insular limitation would force his island by-laws down the throat of India. In his educational institutions, we are full of mechanical actions, and his propositions run out of one ear as they ran in at the other. Since intellect is limited by Nature, we find ourselves like fish out of water, and the economic problem of the sphinx tries to swallow us up alive.

The aim of education, according to Sir V. M. Coutts-Trotter, is the development of the critical spirit or in the words of Mark Pattison, "philosophical temper," which, if carried still further, will lead to the discovery that Nature is the symbol of spirit. So we say that the goal of education is the unfolding of man.

The Indian genius suffers from the danger of a too rapid unification, and the curse of the Englishman is an excessive application to particulars. The Unity of Asia and the Detail of Europe should be so synthesised as to enhance the energy of each.

Wisdom is the heritage of every intelligent being, and the facilities for education should be as cheap as air or water. Sir Murray admits the poverty of India, and yet offers no suggestion for cheap education.

A system of education to be rational must have a psychological basis. The Ideal Man is he in whom the three sides of knowing, feeling and willing are harmoniously developed.

In combining the excellences of Europe and Asia, the vernacular should be the medium. Sir A. P. Patro takes a bold step in this direction in the Andhra University Bill now on the anvil of the legislature. 'The

best method of acquiring one's own language is to learn another, preferably a dead language like Sanskrit,' says Sir Murray. 'Translation,' continues he, 'is a very valuable piece of education and teaches us exactness in the use of language.' Besides, Sanskrit means well-done or accomplished speech as opposed to Prakrit or primitive language. As a perfect instrument of thought it has the power to take men to summits of plain life and high thought much nobler than those possible for Prakrit. The relation between thought and word, how speech lags behind and lifts one up to the world of ideas or meaning is a revelation, and the secret of inner life. Are not the daily religious practices done in Sanskrit?

The Patasalas, if they be allowed to survive, should be radically remodelled, and the Sanskrit Colleges, which have sprung up of late, must widen their activities so as to include the faculties of law, economics, medicine, engineering, politics, etc. Knowledge of these branches should be acquired first-hand from original Sanskrit works, and the necessary supplementary aids from foreign tongues should in no way be discarded; the only condition being that these foreign languages should not be allowed to play a prominent part to the great detriment of national culture.

"Education," to quote Sir Murray again, "must be on the scientific side, some page or pages of the great never-ending book in which the secrets of Nature are told; on the arts side, some portions of the record of noble human deeds, or noble human thoughts or noble human words—such things as, in Bacon's great phrase, 'come home to the bosoms and business of men.'"

The sole object of such studies is to call in the aid of other powers against the dominant trait that arrests the growth of a nation, restore the balance, and enable it to manifest its consciousness, and find its place among other nations.

Such a broad-based education tends to bring into being a nation of friends, who share and obey, each with the other, the grandest and truest sentiments, even as a pair of lovers.

THE STATE OF EDUCATION IN INDIA AT THE BEGINNING OF THE 19TH CENTURY

By Prof. K. H. KELKAR, M.A.,
Deccan College, Poona.

(Continued from p. 226).

III.

THE INDIGENOUS POPULAR EDUCATION.

HISTORY tells us that the English came to India for the purposes of trade. In the beginning they had not the slightest intention of establishing a kingdom. But the anarchical political situation in our country gave these English adventurers a chance to found a kingdom in India. The corporation known as the East India Company was versed alike in trade and war. Its main object, however, was to increase its commerce and to make money. The Hindus and the Mahomedans were at daggers drawn. The ruling princes of both these communities sought the aid of the army which was maintained by the Company to protect its warehouses. It is, therefore, correct in a sense to say that it was Indians themselves who created the circumstances which enabled the East India Company to obtain control over India.

During the early years of its administration, the East India Company tried to restore the outward order. As gold was the watch-word of the Company, it was impossible that its rule, in the beginning at least, should be founded on justice and the benefit of the governed. We are told that every one of the Company's servants who came to India tried to enrich himself as quickly as possible. It was for this reason perhaps that these servants were sarcastically called 'Indian Nabobs' by critics like Edmund Burke. In these circum-

stances it was natural for the East India Company not to give any attention to the education of the inhabitants of its dominions. This indifferent attitude was defended partly on the ground that there was no State-system of education in England and partly on the ground that India had her own places of education—seats of Sanskrit and Arabic learning and also indigenous schools for the benefit of the common people. But as years rolled on it became obvious to far-sighted statesmen among the Company's servants as well as in Parliament that their dominion in India could not last long unless education, especially Western, was diffused among the people of Hindustan. The Directors of the Company, however, took some years to become alive to a sense of responsibility in respect of Indian education. Accordingly the earliest efforts, i.e., up to 1814, to introduce any form of education beyond the indigenous system emanated from missionaries, private societies and individuals.

The bad effects of the dire straits of the indigenous learning were first felt in courts of law. To remove this evil, Warren Hastings established the Calcutta Madrasah and the Sanskrit College at Benares. These institutions aimed at training Law-Pundits. This direction of energy was strongly re-inforced by the interest in Oriental studies which was awakened by the researches of Sir William Jones. As a matter of fact the revival and the encouragement of Sanskrit and Arabic learning remained the educational policy of the Company till 1835.

The efforts of the Christian missionaries date from 1659. In a despatch of 1659, the Court of Directors had declared their earnest desire to propagate the Gospel. Missionaries were allowed to embark on their ships. "The object of this missionary education was to establish mutual good faith, to enlighten the minds of natives and to impress them with sentiments of esteem and respect for the

British nation." It was only in 1808 that the Court of Directors declared strict religious neutrality, refusing to lend authority to any attempt to spread the Christian religion. Since then the British Government have never swerved from this position. This simply means that the government of the East India Company ceased actively supporting missionary efforts at conversion. They were not, however, prevented from carrying on their educational work. The missionaries in India, whether Roman Catholic or Protestant, did not regard Indian education as an end in itself. In the beginning at any rate, they tried to use education as a means to evangelization. They thought that India was one of those heathen countries where education, as it was conducted during the pre-British period, was mixed with error, superstition and false philosophy. They, therefore, thought it necessary to establish schools with a view to make Indians capable of understanding and appreciating the facts and evidence, the doctrines and duties of the scriptures. They wanted to show that Christianity rested on a rational foundation. But the most important advantage of starting schools was that it afforded the best means of making Christianity the subject of communication or conversation. In fact during the early years of missionary activity, school-houses were so many chapels under the control of the missionaries. Thus the missionaries engaged themselves in education, because they thought that education was not only the means of subverting superstition and idolatry but of diffusing sound religion which according to them was the Christian religion. It must be admitted, however, that the desire to educate as a means to conversion led then, as it has done ever since, to single-minded and whole-hearted labours in the cause of education in and for itself.

Before 1822 efforts in the direction of founding common schools of instruction in the vernacular have for the most part been put forth by the missionaries. In Bengal there were the Marshman's Schools for the people. May's Chinsura Schools numbered 30 with 2000 pupils in 1816. About the same time a Society for the Promotion of Popular Education was founded in Bombay. Then

again there were the Calcutta School Book Society and Calcutta School Society. These societies aimed at the diffusion of useful elementary knowledge. We also find that Rev. Bell, a clergyman of the Established Church, became the Superintendent of the Madras Male Orphan Asylum in 1789. In that school he started what was known as the Madras-method of the mutual instruction of children. On his return to England, he is said to have introduced this method in his school there. All these efforts received help from Government.

About 1820 agitation in favour of popular education became pronounced. Articles appeared in contemporary periodicals and Government were induced to make enquiries preparatory to undertaking fresh means of their own. They now seriously turned their attention to the villages and the mass of the people. An attempt was made to take survey of the state of education in different provinces. Sir Thomas Munro ordered an investigation to be made into the state of indigenous education in the Madras Presidency in 1822. Elphinstone's researches in Bombay were set on foot in the year 1823. The enquiry in Bombay lasted up to 1828. The results of the enquiry are embodied in the Minute communicated by Francis Warden, Member of Council, in 1832. The enquiry in Bengal was set on foot seven years after the completion of Bombay enquiries. It was the Government of Lord William Bentinck which appointed Mr. W. Adam, in 1835, to investigate the state of education in Bengal and Behar. He embodied the results of his enquiries in three reports, submitted in 1835, 1836, 1838 respectively. In consequence of the accuracy of their information, the candour, sense and statesmanship of their author, these reports are among the most valuable and interesting publications extant on education in India at the beginning of the 19th century. It is to these surveys that a student of Indian education has to go in order to obtain some clear ideas in respect of the indigenous popular education as it existed during the pre-British period.—*The Progress of Education*, July 1925.

(To be continued.)

UNIVERSITY OF MYSORE— CONVOCATION ADDRESS.

BY

The Rt. Hon'ble

V. S. SRINIVASA SASTRI, P.C.

BY the desire of the head of the University, who, by reason of his exalted station and personal qualities, is entitled to respect and obedience, I am now to do my part in this day's programme. Under the rules, an address suitable to the occasion has to be delivered by a member of the Senate or other person nominated by the Chancellor. Not being a member of the Senate, I come under the heading "other person." Not in itself an exacting or terrifying description, to be sure. Your predecessors listened to men who had scaled the heights of office or borne the burdens of University administration. In weighty and learned discourses, they dealt with high problems of education and educational organisation, and conjured up a vision of an ideal place of learning where courses of study, professors and scholars, physical conditions and mechanical appliances, were all as they should be and left nothing to be desired. I confess I have no such ambition. Nor do I feel competent to discuss the merits of the scheme of re-organisation which is now engaging the attention of local authorities. It were easy for me to endorse with a light heart the request for an assignment of ten lakhs a year for the upkeep of the University and of an undefined amount as capital outlay. Should the endorsement drag me into a consideration of Mysore finances and Mysore politics, I should only be shifted to my native element, for during a great many years now, politics has been as meat and drink to me. And if anybody were to remind me that I had not the

necessary local knowledge, I should reply exultingly that I had outlived the simple time when ignorance was considered a disqualification for the office of agitator. Unencumbered by accurate information of any kind and not having to answer for the consequences, what could be easier than for me to let fly a few random shafts which would hit ruler and subjects in tender places and leave behind a trail of mischief and embroilment? You may be thankful that the imp in me is not so highly developed. Mine be the homely task of an elder brother who seeks in confidence and love to give the benefit of his experience to the junior members of his family. Thirty-seven years ago, I left my *alma mater*, as most of you would presently leave yours, not without distinction. And although I cannot boast of having made fame or amassed a fortune or acquired a wide command over men, my life has enabled me to see some men and some things out of the ordinary; and it may be that, if you are attentive as well as silent for an hour or thereabouts, I shall impart some words of needed counsel and warning.

The most natural starting-point is the position in which we find ourselves at this present moment, I as the chosen guest, and—may I add without vanity?—the spokesman of the University, and you as the finished products upon whom the ceremonial just concluded has set its authentic seal. By the regulated life that you have lived here, by the careful discipline to which your minds and bodies alike have been subjected, you are fitted, as we trust, for the trials and duties of the world, for the proper use and enjoyment of the greater measure of freedom that awaits you. For always pupilage is the necessary prelude to the liberty of the adult, and no one can

ever command who has not previously learned to obey. Honour and cherish the University then as you would the mother that nursed and brought you up. Some of you will become its officers; some in time may wield great influence in shaping its future growth; others may be in a position to endow it or help in other ways; but all, high or low, distant or near, must watch its interests with anxiety and aid in the formation of that widespread public sympathy and public support on which alone a popular and successful University can thrive. You will be perplexed and distracted by conflicting views as to the proper aim of a University. Ability to earn a living, preparation for life and for citizenship, acquisition of knowledge and the power to add to it, formation of a good and virtuous character—all these, separately or in combination, have struck theorists as the fundamental purposes of education. If you do not care to be profound or philosophical, but will be content with a common and intelligible idea, you may regard a University as a place where personality plays on personality by the establishment of an intimate human relationship between teacher and taught. This way of looking at it has the great merit of drawing attention to the supreme importance of the teacher as a factor in University life. Well-planned curricula, fully equipped laboratories, large libraries, noble halls, and imposing recreation grounds,—these are good and useful things in their way. Let nobody despise them. But an able and zealous professoriate is the very life and soul of a place of learning. And in selecting its members the utmost care and circumspection are necessary. Unfortunately it is just in this part of the organisation of a University that irrelevant and unworthy considerations of race, religion or

sect come into play and impair efficiency and reputation at once. A word of caution may be appropriate here. Learning knows no narrow frontiers, and a really good professor is not always to be found within a circumscribed area. Jealousy of the outsider in this sphere is even more disastrous than in other spheres, and however it may gratify the popular whim for the moment, it will surely involve the sacrifice of large and permanent interests.

One platitude leads to another. Having got your staff together, the next thing is to give them what is called "academic freedom." Of this the professor is frantically jealous, and the layman who takes an intelligent interest in University affairs is often startled at the thunder and lightning which a casual and innocent remark may produce in the blue sky of the Senate. Usually academic freedom is in danger from the grasping hand of bureaucracy. A great writer on educational subjects has recently said, "Standardization, Government-made uniformity and bureaucratic regulation are not the allies of education but its mortal enemies." Tyrannical, deadening, soul-killing are the mild epithets in the vocabulary of the irate pedagogue when he wishes to characterise the control of the authority which bears a great part, sometimes, as here, much the greater part, of the burden of University finance. The maxim "he who pays the piper will call the tune" is summarily ruled out here. Government is to be like the postal peon, who delivers a money order, but cannot stay to see where the money is kept or how it is disposed of. The encroachment of the State, however, is encroachment by cultivated people and, therefore, mitigable by reasoning and negotiation. But in these days of expanding democracy the

sanctity of the temple of learning is subject to a greater danger from sudden inroads of popular clamour and prejudice, miscalled public opinion. That variety of politician whom we call by the disrespectful name of demagogue at times attains a tremendous influence which sweeps aside professor and professorial regulation. People uprisen have no use for the expert. Standards may be lowered, the medium of instruction changed, and discipline undermined, the teacher hiding his diminished head the while. To you, who have felt and can never cease to appreciate the tender and delicate relation of *guru* and *sisya*, and who know how an atmosphere of prejudice and passion is inimical to the scientific pursuit of knowledge, to you, I say, graduates of the University, scattered far and near, and able by your numbers and influence to control these turbulent squalls before they attain their fury, the authorities of the University have the right to look with confidence for energetic and timely interposition. In such moments of peril, do not, I pray you, stand looking on or mumbling excuses for the insurgents, but come round your *alma mater* and guard her like valiant and faithful sons.

After the University, but not below it in rank or precedence, I would mention your State as entitled to your homage and loyal service. In extent and size of population, in natural resources, in salubrity of climate, Mysore does not come behind many Indian States. In variety and charm of natural scenery and in possession of places of historical and architectural interest, believe me, who can speak with some knowledge, she has few superiors. The history of the areas comprised in her territory, so far as it has been studied, discloses periods of prosperity and

stable government, and is brightened by deeds of valour and episodes of romance, of which you may well be proud. The culture of her people, their aptitude for crafts and industries, their literature and their love of music and the fine arts, are not easily surpassed. As for her highly evolved administration and the extent to which personal rule has been superseded by the reign of impersonal and impartial law, for the high level of efficiency and purity of her services, and for the devotion displayed by the sovereign towards the welfare of his subjects and his keen desire to respect their wishes and such constitutional rights as they possess, why, by almost universal consent, Mysore is second to none among Indian States. Does not such a home deserve all the passionate love and filial devotion of which you are capable? It is a mean—one might almost say, monstrous—spirit which scans with cold precision the qualities of one's mother, and measures gratitude and service accordingly. On the most material calculation of the opportunities that Mysore affords for the full development of your faculties and the rewards which may be expected for high-class industry and enterprise in any sphere, the keenest wits and stoutest hearts among you need not feel themselves thrown away on this country and her advancement. Go out and spread into every nook and corner, leave the big towns where all the avenues to success are overthronged, and try what patient toil and scientific organization can do to make field and rock, forest and hill, yield their utmost for man's benefit. You have fine irrigation works, of which full advantage has yet to be taken. Let not jungle and malaria beat you back for ever. Jungle and malaria have yielded elsewhere to axe and fire, drainage

schemes and prophylactics. Lack of large capital in individual hands can at least in part be met by many-sided co-operation under the ægis of an indigenous and enlightened government, which will be only too glad to provide expert guidance and financial guarantees for any well-considered schemes by which the methods and appliances of science will be employed in exploiting natural resources. It has been truly said that the engineer, taking him in all his grades and kinds, is of all human agencies the most valuable, nay, indispensable, for the economic growth and material prosperity of a country. A State which produced Sir Mokshagundam Visvesvaraya need not suffer at any time from a paucity of engineering talent.

Do not infer from my recommending this course that I am trying to divert your attention from politics. Whoever might do so, I could not, unless I wished to stultify myself completely. By all means strive to improve your political status. Only let me entreat you to remember two things. You have cause to be thankful that you are subjects of the most progressive and well-governed State in India. Engrossment in local politics is apt to engender a narrow provincialism and even for full efficacy in its own sphere, may require to be corrected by study of Indian affairs.

Many of you will seek careers in the employ of Government. No inducement is necessary in the direction. On the contrary, you may have encountered in your reading several appeals, more or less cogent, against the general notion that in Government service one finds the most honourable scope for one's talents. I have never been able to join in this fashionable crusade. As the point is of some consequence, let me keep you a few

moments on it. In British India to a great extent and in the States to a much greater extent, the official class are a great power. Their prestige and authority were in former times unquestioned, and even now remain strong, far beyond what they would be if the men were private individuals. Sometimes when an officer was scrupulous and high-principled, this vast influence was used for benign purposes, and we have all heard of many foundations of charity and public utility which owed their origin either to their munificence or to the munificence induced by them. More often, however, I grieve to say, it was grossly abused, and the tyranny thus practised over a long period of our history has led to the popular saying that the official tyrant is one of the six scourges that our race has to suffer for its sins. Custom might occasionally be relaxed, laws and regulations could be evaded, drought and flood were occasional, dacoity was rare, but the pressure of the king's man, armed with tyrannous power and spreading everywhere, knew no sleep; it was heavy and harsh; it destroyed the self-reliance and initiative of the common people; public spirit, resistance to the oppressor were unknown. The submissive and servile nature of the people was so marked that in the famous resolution of Lord Ripon on Local Self-Government it was euphemistically described as our remarkable power of acquiescence. If this incubus weighing on the hearts of our poor folk is ever to be lifted, it must be through generations of conscientious officers drawn from those whose hearts have been trained to the appreciation of humane ideals. It is a commonplace of our administrative history that a great uplift in the standards both of efficiency and purity has been brought about by the appointment

of University men to places of control and authority. More and more as representative institutions are introduced, it is necessary to provide for them a stable and strong foundation in national character. Love of freedom and readiness to repel encroachment on it from any quarter, a keen sense of the rights of the private citizen as well as his duties, these elements have to be built into the very fibre of our people; and whom could we safely trust with this noble and benign mission if not the wisest, the noblest-hearted, and the most chivalrously disposed among you? The good work has happily gone on for some years, but it must continue for a long, long time yet, if the blighting effects of centuries of misrule are to be obliterated. Go then and take office; but in order to put it to this high use, look upon the ryots and the labourers as children committed to your care, whom you must bring up in the ways, to use big words in a small context, of self-reverence, self-knowledge, self-control. Treat them with consideration and courtesy; use polite forms of address; and give a sympathetic ear to their representations; so that they may learn that you are there to understand, to help, to serve. So would you truly and faithfully represent His Highness to his subjects. So would you, like a thousand well-trained hands, carry out in all corners of his realm his inmost wishes.

An important task rests on you as educated men and women to keep up the intellectual curiosity awakened in you by your varied studies and add fresh knowledge to the store here accumulated. Nothing distinguishes true culture from false so surely as this inquisitive spirit, the desire to keep abreast with the best thought of the world, to know things as far as possible in their essence and thoroughly.

Unfortunately many of us have heavy cares and duties, our posts are often in out-of-the-way places, where books are rare and congenial friends still rarer. We get little time for the exercise of our higher minds, so completely are we engulfed in the petty details and routine of daily duty. For persons in such desperate case may we not prescribe a well-thumbed classic or two as constant companions? Each has his favourites and perhaps changes them every few years. But to them he may return again and again and slake his thirst as at an ever-living spiritual fountain. The greater part of us, however, will live in more favoured spots, where our minds need not starve except through our own neglect. Alas, such neglect and starvation are too common. It would be ungracious to enlarge on this topic, but let any one mention half a dozen large towns where of a Sunday afternoon one might go to the local club or reading room with the hope of listening to an elevated conversation on the topics of the day, or to a public debate in which a subject was discussed so as to stimulate the mind, suggest fresh points or create a zest for further enquiry. Somehow after we leave college, a sort of mental exhaustion seems to set in from which only a few recover. Do you remember that famous story of Dr. Johnson? Once while he was recovering from an illness, some one proposed to send for Burke. "Don't!" cried the Doctor, "if that fellow were to appear now, it would kill me at once. He calls forth all my mental powers." Without having the excuse of physical debility, we seem to be in mortal dread of having to listen to a lively debate on a rousing topic, let alone taking part in them. In a certain measure this undesirable phenomenon occurs elsewhere as well. I was surprised, while

reading a book by Dr. Nicholas Murray Butler, President of the Columbia University, to come upon the following passage:—

"Speaking not long ago in the city of New York, Israel Zangwill paid us the compliment of saying that we Americans are the best half-educated people in the world. My impression is that he put the fraction rather high. If we measure our education by the expenditure of moneys, public and private, upon schools of every type and sort, then plainly these amounts are enormous. If we measure our education by the number of pupils under formal instruction for some part of each year, the numbers are certainly agreeably large. If we measure our education by the splendour of the school buildings which of late have been erected in a thousand communities scattered throughout the land and by the excellence of their equipment, then assuredly the impression is most flattering. If, on the other hand, we seek for those surer evidences of education which are marked by correctness and precision in the use of the mother-tongue, by refined and gentle manners which are the expression of fixed habits of thought and action, by the power and habit of reflection and the use of scientific methods in the approach to new problems of public and personal import, or by the power of intellectual and moral growth, then it may well be doubted whether the results are quite so flattering."

Some may feel a little comforted after reading this passage, but I fear it applies to the facts of India with much greater force than to those of America. It is the privilege of Convocation orators to formulate counsels of perfection to their bored audiences, and if I appear to tread in their path at this point, I can only plead in defence that I do not consider my suggestion a counsel of perfection. Outside the requirements of our profession, newspapers form the pabulum of our reading. But often-times an important topic comes up in which the interest is maintained for several weeks, and each man misses some-

thing or other necessary for full comprehension. Hardly a month passes without two or three such topics emerging. Suppose a fair-sized town in which twenty people joined together and procured access to a few magazines and newspapers. Let us imagine them to meet one specified day every month, at which it was the duty of one member or of two, as the case may be, to give a connected account of two selected matters from his reading. You could on such an occasion hear all about fundamentalism, the trial at Dayton and some of the arguments used on both sides, at least the Biblical passages relied on by Bryan. The discussion that followed might ramify in several interesting issues. The theory of evolution would naturally come in, and a member of wider reading than ordinary would perhaps outline the modifications that had been made since Darwin's day. Another would draw a picture of the personality of Bryan, so simple and yet of such vivid interest. You might hear of Bryan's visit to India and the violent antipathy evoked in Anglo-Indian society by the book in which he recorded his experiences. A member with a turn for practical speculation—pardon the paradoxical expression—might invite his audience to consider what would happen in some of our provinces in the extremely probable contingency of a majority passing obscurantist laws of the kind under which Mr. Scopes was convicted and enforcing them. The coal crisis in England, the Security pact, the Indian disability in Tanganyika with special reference to the British mandate, the questions involved in the reference to the Sken Committee—these are only some of the numerous illustrations that might be brought forward for proving the great intellectual benefit that such a league of

association would confer on the locality. By spending an hour at one of these monthly meetings you could learn a lot of interesting and useful matter which it would take much time and energy to find for yourself. This might seem child's diet to grave and reverend professors hankering after philosophical speculations and recent scientific advances. But the busy professional man whom I am thinking of would do well, at least in the beginning, to avoid strong meat. Whenever you hold such a meeting, go not, I warn you, too near the chess board or the bridge table, lest by heedless chatter you distract minds intent on vital and intricate problems. Nor should you allow any but a poor man's tea to refresh you; rich hosts have a captivating way of giving precedence to the body over the mind, and the discussion would shift its object almost entirely. One more caution, if you please, before I pass on. If the principal speaker appointed for the day happen to be a lawyer in good practice, do not forget to provide yourself with a handy substitute; for some witless client may remove him at the last moment to a more profitable debate, and not even allow him to give you due notice.

Even more than this mental alertness and elasticity, another attribute is distinctive of University culture—the balanced mind. Sad to think, it is also the rarer. I once had to speak to an association of graduates in Australia, and posed the query, "Do modern Universities aim at a balanced mind?" From the tenor of the ensuing conversation I could see that other minds had been agitated over the problem. Once upon a time the true mark of a completed course of education was the habit of proving all things before coming to a judgment, the disposition to look at a matter from all points of a view, the habit

even under exciting circumstances of bringing full and unclouded reason to bear on the subject at issue. Modern life with its hurry and whirl seems to have banished leisure, poise, serenity of outlook. The countless little details claiming our attention from moment to moment scarcely allow of the formation of a whole and harmonious picture with every feature in true perspective. The newspaper press, shouting and screaming the whole day long, keeps pouring into our minds a chaos of unrelated thoughts. Of any particular object or idea we seem only to catch a fleeting phase, an aspect of an aspect. And yet we have to make up our minds, to choose our sides, and to cast our votes. We could not hold our judgments in suspense if we would, and, for a wonder, most of us would not if we could. We do not seem even to care for justice, harmony, co-ordination. In the legislature we hear only partisan views of things, and, if we wish to count for something, we must give partisan votes. How the laws in such a dispensation can be just and suitable is no concern of ours. In the courts, clients, witnesses, advocates are all naturally for their own side of the case and make no attempt to disguise the fact. The result, as we all know, is that the Judge is often hindered from discovering the truth, not helped to do so. So in the public discussion of questions between conservatives and reformers, capital and labour, and so forth, the active spirits throw themselves heart and soul into one side or other of the dispute. Newspapers, instead of endeavouring to create a sober and healthy public opinion, are avowedly partisan and, while presenting their side in attractive colours, consider it no part of their duty to be equally generous to the other side and in many cases misrepresent,

suppress and run it down. So far has this evil grown that young and inexperienced readers, taught only by one set of papers, ascribe innate cursedness and moral perversity to the other school of thought and its advocates. Among us the situation is further complicated by the upsurging of the communal spirit, the various sects and factions demanding each its share and more than its share, and leaving the State altogether in the lurch. The modern machinery for striking the balance, commissions, and committees and assessors, are but imperfect and untrustworthy approximations. The personnel of these bodies, on which hang vital issues of equity and justice, is itself made a subject of acrimonious contention. Where all are tainted, few can be expected to hold the scales even. Do our Universities—let me put the question though I do not expect an answer—with their ever-increasing specialisation of studies produce of set purpose the type of mind necessary for discovering the golden mean, the safe middle course between opposing tendencies? Is there no use, even in these tranquil places dedicated to truth and wisdom, for the man who hesitates, who weighs arguments with care, who resists the sway of passion? A recent Governor of one of our provinces, who had been a radical in English politics, turned out to be unprogressive here. He

once explained the phenomenon to me. He sought advice from every quarter on a disputed issue, he read all the papers dealing with it. The rights and wrongs seemed to him so equally balanced that the case for change was never wholly made out. So, he said he left the old arrangement continue, it had answered so far. He was a typical conservative, a perfect Hamlet of politics. But surely deliberation is not indecision. It will lead to action quite as often as to inaction. And the action to which it leads will be safe and suited to all the attendant circumstances. I freely admit that the conscientious politician is not popular. His counsel of patience and moderation is irritating to eager and enthusiastic natures. Yudhishtira was called many ugly names by Bhima and Droupadi. But he did not allow himself to be hustled. "Unagitated like the sea, immovable like the mountain" he waited till the time arrived and then struck and struck home. The cross-bench is not beloved of his tribe, but the cross-bench mind is an ever-present and an ever-growing need. Believe me, it is no disease, no infirmity. On the other hand, it is the crown and summit of liberal education. It would be an evil day when it became extinct, and the high function of Universities is to foster it with tender and unrelenting care.

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EDITED

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THE THEATRE IN INDIA—ITS PLACE IN THE UNIVERSITY.

DRAMA IN EDUCATION.

By MRS. P. E. RICHARDS BANODRIE, *Punjab.*

IN December of the year 1923, I witnessed a French Nativity Play at the Hall School, Weybridge, in the southern part of England. Before the curtains were parted, the Principal of the school, addressing us, said that the play had been evolved by members of the staff out of a collection of old French carols. The making of the play had entailed painstaking research and many visits to the British Museum. She asked for silence until the end—no applause. What we were going to see was not a theatrical performance but a piece of school work. These last words were spoken with a depth of feeling that amounted to passion. The play that followed was pure beauty. I do not hesitate to say that it was the most exquisite presentation that I had until then seen upon any stage. The children of the chorus, boys and girls, were clothed in black eurythmic uniform tunics, with bare arms, legs, and feet. Those only who had parts to play were dressed in costume; simple in the extreme, but faultlessly contrived. The stage setting and the front curtain were made of unadorned hessian. The lighting was well thought out. Briefly, the theme was this. Joseph and Mary arrived at night in a fitfully lit street asking for shelter, but finding no hospitable roof they took asylum in a manger. To them came birds, flowers, and beasts, offering homage to the infant Jesus. The chorus in their short black tunics represented in turn birds, flowers, and beasts; on each occasion bearing in their hands brightly coloured symbols—cut-out cardboard flower, bird, or head of animal. These symbols were stage properties that the

children, under instruction, had themselves fashioned. Their movements were eurythmic, and full of acquired but unstudied grace. The scenes which followed of The Shepherds, The Angels, and The Wise Men, were contrived with austere simplicity and great imagination. The final adoration scene grouped around the Holy Family, thrown into relief, as it were, by the circular forward line of black garbed chorus was perfect in colour and composition. I do not mind confessing that I was moved to tears by the exquisite beauty and innocence of it all. I spoke with the Principal before I left, and she told me that she would not allow more than three performances, as after that the children would tend to become mechanical in their parts and the bloom would be rubbed off. "They may forget some things they learn here," she said, "but this they will never forget." I discovered afterwards that the children made a book of the play. They wrote it, illuminated it, and illustrated it; printing it themselves by the process of lithography, and they also bound it. Thus—drama, art, and craft, entered implicitly into their school activities. This is true education—a drawing out of faculty. A play, and a book of the play, is an annual occurrence at the Hall School, Weybridge—a piece of school work; in which eurythmics, language, music, singing, diction, art and craft, enter—all separate school subjects woven into a whole.

I have given a particular instance of what is being done in one enlightened school which is fortunate in having a Principal who is also a dramatic genius. Instances of such activity could be multiplied for many schools are realising the value of the Drama as an educative, creative, and incidentally, a disciplining factor. No one who has undertaken a

school play or taken part in one but realizes the very stiff discipline it is, and the team work that is necessary to see it through. It is, in fact, character-forming as well as being cultural in its effect, and it gives practical scope for many of the subjects in the school curriculum.

PLAYS IN COLLEGES.

Plays in colleges have not the same relation to the college curriculum that school plays have to theirs, except in the case of the study of dramatic literature. In Indian colleges this literature consists mainly of plays by William Shakespeare, prescribed as English Literature. These plays are often performed in our colleges and no doubt the students are helped thereby to get a fuller grasp of the play than they possibly could from expositions in the class-room, however clear and learned. But let not colleges imagine that because they perform plays by Shakespeare and perform them well that Drama has found its way into their midst. What the authorities have permitted, and wisely permitted, is a theatrical performance of a play by a great playwright, with educative intent, and cultural effect. The Drama is a subject in itself, and it is for the inclusion of the Drama as a subject of study and research in educational institutions that the new age is clamouring; not for theatricals. A theatrical performance is a display on the boards of a stage, attempting dramatic illusion for the entertainment of an audience. Some colleges openly go in for theatricals, which have no connection whatever with any subject studied, nor with intent to lift the theatre from its fallen position. Popular plays, performed in a popular manner in colleges justly come in for a good deal of criticism and censure from—shall we say?—the high-brow. Low-brow

and high-brow are quite convenient terms, and as long as they are not used satirically and with derision are legitimate. High-brow and low-brow are actualities and each perform according to measurement! In colleges we expect the high-brow to be in the ascendant.

When a college produces a play by Shakespeare in a theatrical manner, it does not mean that the play is a piece of college work as the Nativity Play at Weybridge was a piece of school work. Art and craft have no place in the Halls of Learning that compose a University, so if the play is to be produced with art and craft it must be produced by an expert—an artist of the theatre. If art and craft can be dispensed with and a play by Shakespeare be given as a reading or a recital without any attempt at dramatic illusion, then it might very well become a piece of college work. It must be remembered, however, that in India there are no opportunities of seeing Shakespeare acted, and therefore college performances are practically a necessity for students who have to study his plays.

For some years (1911-15), the Dyal Singh College of Lahore, was the scene of consistent dramatic activity. One of the plays of Shakespeare, prescribed for the University courses, was every year theatrically produced early in the session by students selected from the whole college. At the end of the session a lesser dramatic event took place in which only non-examinees were permitted to perform. I have called the second event a lesser one because it was not done on so grand a scale and it was not Shakespeare, but from the point of view of the development of Indian Drama it was more important. In April of

1912, "Spreading the News" by Lady Gregory, was performed with intent to stimulate original play-writing. A Play-writing competition had been inaugurated for a one-act play dealing with an Indian subject and written in a vernacular. Eventually the prize-play formed the bill of the 'lesser' dramatic event of the college year. In time a College Satire was added to the 'lesser' event, and very good fun it was. It also became customary to perform a prologue in Urdu (before Shakespearean plays as well) in which the Goddess Saraswati appeared. The traditional characters of the Saraswati Prologue are a Swami, a Student, a Flower-seller, and the Goddess herself. The scene represents a street in Lahore; the Swami, Old India; the Student, New India. The Swami is on his way to do puja at the shrine of the Goddess and the Student is on his way to the Dyal Singh College play. A clash of ideas follows the meeting of Swami and Student. Eventually they patch up their disagreement at the feet of Saraswati having realized that though they differ in their methods they both are paying her homage in their own way. This is the convention of the Saraswati Prologue as played by the Dyal Singh College. It admits of much variation.

The result of the play-writing competition was satisfactory. "Karamat," the first prize-play, had the distinction of being banned by the Censor, in the person of the Principal, as, being very modern in tendency it was feared that orthodox Hindu sentiment might be offended. The subject was the clash between scientific and superstitious methods in the treatment of disease. The writer of the play is now a D. Sc. and holds a high University post in the Punjab—Dr. S. S. Bhatnagar. The second play to win the prize was

"Dulhan," dealing with the subject of child-marriage, by Ishwar Chandra Nanda—now a Professor of English Literature in the I. E. S. This play was a gem. Prof. Nanda continues to write plays and a year or two ago sent "Subhadra," a three-act play, to the Punjab Text-Book Committee and won the literary prize of the year, thereby creating a precedent, for it was the first time that the prize had been awarded for a play. The following year the prize was won by Raj Indro Lal Sahni, for "Dina ki Barat," a play criticising wanton extravagance at marriages. This play won glowing tributes.

In November 1913, a pukka amphitheatre and open-air stage were built at the Dyal Singh College on the occasion of the production of "Coriolanus." The two preceding plays, "A Midsummer Night's Dream" and "As You Like It" had been played under trees on the flat with the audience raised upon temporary tiers of seats. For performances the amphitheatre and stage are surrounded by kanats and overspread with shamianas. Recently, for the production of "A Merchant of Venice" walls were built upon the stage of the amphitheatre, and the Dyal Singh College now boasts of what is very like a Greek Theatre.

In 1915, circumstances arose which led to the formation of an independent inter-collegiate society which was named after the Goddess Saraswati. Three performances were given under the new auspices: "A Midsummer Night's Dream" under the joint auspices of the Punjab University and the Saraswati Society, in celebration of the Shakespeare Tercentenary Festival in April 1916, a triple bill in which Lady Gregory's "Spreading the News" was revived, and also "Dulhan" and

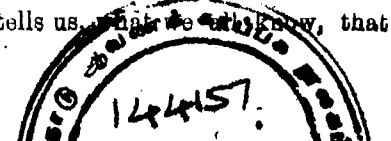
"Dina ki Barat." Then followed a production "Sati," an original mythological play, by the founder of the Society. It was not possible to continue the production of a play without the support of a particular college or the University, for though the Society had become inter-collegiate it was an independent undertaking. The Saraswati Annual was then inaugurated, a magazine dealing mainly with the art of the Theatre, and especially with the development of the Theatre in India. In 1920, the founder of the Society left India, having offered it to the University of the Punjab as a going concern. The Syndicate accepted it, and formed a Trust of three: Mr. A. C. Woolner, Dean of the University; Lala Kanwar Sain, then Principal of the Law College, now Chief Justice in the State of Kashmir, and Dr. E. D. Lucas, Principal of the Forman College. A subsidy was granted, the play-writing competition was continued, and the Annual was published. The University of the Punjab, in fact, accepted responsibility for the Saraswati Society and all that it stood for. This is a step in the direction of the coming together of University and the Drama.

CONTROVERSY IN "THE MASK."

A pretty controversy upon the subject of University and the Drama has arisen in the pages of *The Mask*, that remarkable Quarterly of the Art of the Theatre, inspired by the genius of Ellen Terry's son, Edward Gordon Craig. In the April issue of the present year, Prof. Allardyce Nicoll pleads for the inclusion of the Drama as a subject of study and research in the University. The main purport of his article is that the Universities might be creating the audiences of the future. "The Drama of every period and of every land" he writes, "depends ultimately upon

the audience. It was a great audience which produced Æschylus and Sophocles; it was a great audience which produced Shakespeare. . . . To help in the preparation of this intellectual and imaginative leaven among the audiences of the future I take to be the first great task of the University. . . . Let the artist come into the University, and let him take his place in the developing of that cultural side of academic work which, after all, is its chief task." That theatricals are not drama was implicit in Mr. Nicoll's mind when he wrote that it was useless for college dramatic societies to ring the changes on popular plays and modern farces, "but where attempts are made to perform hitherto unproduced works, or to revive forgotten masterpieces of the past, the service done to the theatre may be invaluable." But this is not all. The University may do a thing "unique and peculiar to itself; it may provide the materials upon which principles of the drama can be based." It appears that Mr. Nicoll himself is engaged with some twenty students in the preparation of a Dictionary of the Drama.

In the current issue of *The Mask* (July) a letter appears over the signature of C. G. Smith questioning the inclusion of the Drama as a subject. He asks, "How much stage betters a place of learning?" and attempts to answer the question. It would appear that Yale University has received a gift of 1,000,000 dollars for the building of a theatre, and Prof. Baker, a distinguished dramatic enthusiast, who has been teaching at Harvard for twenty years, has been transferred to Yale, evidently to carry on his work in the new theatre. In his letter Mr. Smith throws light upon that which lies behind the transfer. He tells us, "that he knows, that it



is in the nature of theatricals to inundate when it can, and further, that such an inundation was doing harm to the University of Harvard. Consequently Prof. Baker had been thwarted on all sides and not allowed to swamp the University with Theatricals—hence the transfer. “Yale, then” writes Mr. Smith, “comes in for a one million dollar gift to urge forward what Harvard had come to learn was best to curb.” Then he makes the following assertion: “Theatricals are not Drama.” That is evident, but it is a good thing to have it firmly stated. “If you could turn out, fabricate, artists of the Theatre by the dozen as assuredly as you can turn out educated men—men who will later on become doctors, engineers, barristers, historians, architects, and musicians, all would be much happier. But it is a miserable fact that at present there are no worth while laws of Theatricals, and so, strictly speaking, no one can be taught since there is nothing to teach.” Mr. Smith sees the day coming when “boat-racing will be no longer a sport but will have a new college built for the study of it in Oxford, Yale, and Cambridge, and a while later on, the pretty game, having become an art or a science, will be played on a table; rivers will be no longer necessary to it. . . . No, . . . keep your Theatricals to your Theatre; let the Theatre be a little world to itself. We like it best that way—it thrives best so.” Mr. Smith rather begs the question by the pre-occupation with the theatrical, to the exclusion of the Drama, but he makes a very good point when he implies that Theatricals are sport. As such, they surely are desirable in colleges—in moderation.

In the Editorial Notes of the same issue of *The Mask* occur the following lines under

the heading of “Drama not Theatre”:—“When we read of Universities and Colleges including the study of the Drama in their curriculum we fancy we understand the drift of the idea. But when we read of these same seats of learning undertaking the practice of the Theatre, we are puzzled. For we see no use in any but craftsmen becoming skilled in the Theatre game.”

THEATRICALS—A LEGITIMATE FORM OF COLLEGE SPORT.

All colleges have their athletic clubs and their debating societies providing healthy physical and mental exercise—physical and mental sport. Debating is a sport no less than the driving of a ball in a particular direction in the field. The game is on the mental plane, but it is a game nevertheless. There is no question about the desirability of physical exercise and athletic sport. There is no question either about the necessity of clear thinking, and the development of the faculty of expression by public speaking. “Think clearly” is the motto of debaters, and they get a good deal of amusement and fun out of their contests. But a man is more than body and brain. He is also heart. How about the feeling part of him, the emotional? “Feel rightly” is the motto of the actor. One of the great values of the acted play is that it “sensitizes feeling.” But quite apart from the psychological effect of the play, it is an emotional outlet and as such is as healthy and needful as the physical and mental outlet of the sports field and the debating club. Moreover, the acted play has a humanising effect upon every person concerned with it both behind and before the curtain. Neither a football match nor a public debate has the same power of removing barriers between man and man, individual and collective. There

is a happy feeling of release in the air when a play is toward. In this atmosphere of release men are drawn closer together, and though the drawing together may not appear to be lasting it will have made its indelible impression upon their personalities. Mr. Smith asks, “How much stage betters a place of learning?” The reply surely is (stage meaning theatricals): No more than is necessary for a frolic at the end of a session. That is, as a sports event. Drama is quite another thing, the amount of Drama that would better an academic institution being unlimited.

After all, men can be roughly divided into three types, corresponding to body, brain, and heart, and their separate dominance over the individual. The physical type becomes the doer, the man of action. He will naturally gravitate to the sports field and during his college days at least, he will be an athlete. The intellectual type becomes the thinker, the philosopher, the professional man. He will shine at debates. The emotional type possesses a temperament that will make him lover, idealist, or artist—it may also make him a scamp. He will be in his element in the dramatic club, and he it is who would become a student of the Drama. He may no more take to the dramatic profession than the student of literature takes to a literary one, but both the student of the Drama and the student of Literature will have had some enhancement of faculty peculiar to their particular types.

The emotional type is inclined to get his feelings out of hand and run wild if not harnessed and guided into right channels. Thwarted, suppressed, and unguided they may lead to dissipation and vice; and yet, the emotional is the characteristic nature of creative artists, and lovers of humanity. Art in some form is necessary as a healthy out-

let for these natures, it purifies their emotions, and gives them an objective. The Drama is the most suitable form of art for colleges. Obviously academic institutions cannot be turned into art schools. Special training for music and painting, and for arts and crafts, should be given to children in schools, and those who have exceptional talent, if they wished to specialise, could go to art schools or to musical academies, or they could place themselves under special private instruction. But the Drama is a branch of Literature and in practice includes all the arts; therefore it should be included in an Arts College curriculum, and theatricals should be recognized as sport, and as a healthy exercise and outlet for those who, possessing artistic tendency, would in various manifestations give of their own particular talent for the success of the play, to the joyful release of every member of the institution.

After the performance of a play at the Dyal Singh College, the Principal of another college in Lahore was heard to remark: “I should not like my students to do it as well.” He was afraid of theatrical inundation, I suppose. But this inundation is less likely to occur when the thing is done well, because nothing can be done well without the overcoming of difficulties by painstaking labour and concentration. To fling a play on to the boards without due concentration and forethought will no more do in a college than to allow collegiate sporting events to be an ineffective scramble lacking training and skill. In colleges, the intellectual element takes care of itself, and much stress is laid upon the necessity of physical culture as a healthy corrective of overmuch book study. But the emotional element is completely ignored until some scandal occurs in the college and the authorities are helpless in face of a terrific force that they knew existed, but for which college life provides no outlet,

Recognition and acceptance of man's emotional nature, and art as a purifying and directing medium of that nature will lead to the recognition and acceptance of the Drama as a subject and theatrical as a sport in academic institutions. Limit the theatric element but give the Drama full play.

LABORATORY NOT THEATRE.

The Drama would not manifest itself in display. It would need a laboratory for constant private experiment rather than a theatre for occasional public performance. There need be no audience and no performers, merely a group of students conducting researches, making experiments, and giving demonstrations. At no time would these workshop demonstrations take the form of entertainment, though of course, they would influence the theatricals at the end of the college year. The art of play-writing would form an important branch of endeavour and the group of Drama students would in the natural course of events provide original college plays and produce—possibly actors. The turning out of actors is not so certain. Actors are born, not made, though a certain amount of training will enable a non-actor to get through a part creditably. I prefer to think of the actors as raw material for the students of the Drama, selected from among the ordinary college students of artistic temperament.

The actor should not be concerned with more than his own relation to the whole and for this we need from him implicit obedience to the producer, who, if he is worth his salt, will not only welcome the actor's original contribution in talent, imagination, and personality; he will draw them out; but where the whole is concerned, implicit obedience is imperative. The actor should allow himself, to a certain extent, to be a human puppet in the hands of the showman—provided of

course that the showman knows what he is about, and he is most likely to know if he has made conscientious study and experiment. It is a disadvantage to an actor to have too many ideas about production. Once the actor becomes producer, he more or less loses his power of acting, for it is not possible to think of the particular and the general at the same moment. At any rate the actor-producer is an impossibility; he can do justice neither to himself nor to the play.

In the laboratory, model stages would be made and used for scenic and lighting experiments. A full-sized stage furnished with lighting apparatus would be needed for demonstrations. This stage would also be the scene of play readings for students of dramatic literature. Every play studied should be vocally interpreted at organized readings at which instruction would be given of the speaking of dramatic verse, and incidentally, of the speaking of English. Every play studied should also be seen, either by semi-costume recitals or by theatrical production. Practised readings and recitals of plays should be looked upon as Shakespeare periods and attendance compulsory. The theatrical would be strictly avoided at the costume recitals. I would suggest a conventional dramatic uniform, or vestment, with appropriate accessories, sartorial and featural, such as crowns, cloaks, beards, wigs, and so on.

A dramatic library, combining reading and reference room, would of course be attached to the laboratory. Research work in connection with the history of the theatre would be undertaken; old plays and folk songs, belonging to the province, would be collected; rules for the art of the theatre would be classified. I understand that India has what the rest of the world seems to lack—rules for the art of acting. It would be interesting to have a summary of these rules and to attempt to put them into practice in suitable plays. It might mean the development of an entirely new form of dramatic art, peculiar to India, so that the Indian stage might become as typical of India as the Japanese is of Japan. At present the Indian stage appears to be, neither Indian nor European, but a mixture of both, and not the best of either.

Reviews and Notices.

HINTS ON NOTE-MAKING IN SCIENCE AND MATHEMATICS, BY HUGHES. (G. BELL AND SONS, LTD., LONDON, 1925). *Price 2s 6d. net.*

The book gives good guidance to the students, and particularly to teachers of science in the art of note-making, whose importance is disputed by none. Science notes differ from History or Literature notes in that the latter are compiled as useful exercise in itself or as aids to memory while the former are intended to be records of the results of actual work and personal efforts in building up a sequence of essential facts. The author gives specific directions to avoid two common faults in notemaking, viz., (1) over-elaboration and (2) mechanical notemaking. Special emphasis is laid on English and Drawing to make the notes lucid, brief and simple.

The book consists of 132 pages with 8 chapters of which one chapter covering over 40 pages rightly deals with notes on practical work, another over 20 pages on theoretical lessons and a third over 10 pages on text-books. Chapters VI and VII deal particularly with biological sciences and mathematics. It ends with a chapter on general hints for the correct maintenance of the note-book.

The book can well be recommended for Science teachers under training as a handbook of note-making.

JOULE AND THE STUDY OF ENERGY, BY ALEXANDER WOOD. (G. BELL AND SONS, LTD., LONDON, 1925). *Price 1s. 6d. net.*

Messrs. G. Bell & Sons have undertaken to publish booklets of masterpieces of Science in the name of 'Classics of Scientific Method' under the general editorship of E. R. Thomas, Headmaster of the Royal Grammar School, New Castle-on-Tyne. The aim of this series is 'to meet the demand for a new literature of scientific appreciation by pro-

viding reproductions of the great masterpieces of Science in convenient form and by tracing the steps by which the human mind has passed from chaotic ignorance to ordered knowledge.'

The present book on the life and work of Joule, who spent a life-time in the study of 'Energy,' forms one of the series. After a brief historical survey of the search for the impossible perpetual motion and development of mechanical theory of heat in Part I, the author gives an account of the life and work of Joule with particular reference to his paper on the mechanical equivalent of heat and the law of conservation of energy in Part II.

The book will be appreciated by those who 'desire a wider acquaintance with the working of the scientific spirit throughout the ages.'

EXPERIMENTAL SCIENCE, PART I—PHYSICS: SECTION VI—SOUND, BY S. E. BROWN. (CAMBRIDGE UNIVERSITY PRESS, 1924). *Price 3s. 6d.*

The object of this little book on 'Sound' which with Part III on 'Electricity and Magnetism' by the same author completes a series to constitute an elementary text-book of Physics is 'to illustrate experimentally the production and transmission of Sound' and give the reader 'some graphic insight of the familiar facts of Nature.' The purpose of the author seems to be more than justified and the book can safely be put in the hands of the Intermediate class students who have not at present any good book on the subject.

ELEMENTARY ELECTRICITY, BY S. G. STARLING, (LONGMANS GREEN & CO. 1923). *Price 3s. 6d.*

The subject is treated logically, keeping in view its present-day aspect. To make the book lively and interesting, the author has added a few chapters on electric waves, wireless telegraphy and telephony, electrons and x-rays and radio-activity. The book will be found useful to those studying for electricity for the elementary test examinations.

1. "THE STUDENT," LAHORE—ANNUAL SUBSCRIPTION Rs. 5.

2. "THE NEW ERA," 11 NOS. TAVISTOCK SQUARE, LONDON—ANNUAL SUBSCRIPTION £4-6-0 net. (Post Free).

These are two of the latest recruits to the ranks of Educational Journalism. They indicate in a sort of way the general attitude to education in two great countries, India and England.

The former combines in its contents educational and general literary topics of interest, and perhaps the serious discussion of purely educational problems receives only a share of attention. The place of honour is given to a lament on the late Mr. C. R. Das, by the Editor, and this is followed by a fairly long and varied list of papers of different degrees of merit on educational, literary and other topics, mainly didactic or reflective in their character. The feeling with which one lays down this journal is that he has had a repetition of

quite a number of twice-told ideas on some of the commonest platitudes in education.

Not so with the latter journal. It is devoted solely to the cause of education, being the organ of the New Education Fellowship, which is a corporation whose main object is to train the child to desire the supremacy of spirit over matter and to express that supremacy in daily life. The table of its contents is a very modest one, but important and interesting. Educational Questions are seriously discussed, and from very practical points of view for the teacher and the parent.

An interesting feature of the number under review is that it gives a list of progressive schools in England and on the Continent drawn up for the benefit of students of the new methods of education, furnishing interesting information in regard to each school, including a brief indication of its special activities.

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Jones, F. W.: The status of the Kangaroo island Kangaroo. (Macropus Fuliginosus Dsm.).

UNITED STATES: GEOLOGICAL SURVEY.

Bulletins.

Erosion by solution and fill, by Willis T. Lee.

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Water Supply Papers.

Temperature of water available for industrial use in the U. S., by W. D. Collins.

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National Museum.

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Bossuet: Histoire des variations des Eglises Protestantes. 2 v.

Encyclopaedia Britannica, 11th. ed., 29 volumes.

Great Britain: Rolls series, Edward VI., v. 3.

Supplement to the Madras Code from Jan. 1925 to Aug. 1925.

The English Law Reports (Crown cases) v. 168.

Sorel (C.): La vraie histoire comique de Francion et notes par Emile Colombey.

Royal Society of South Australia—Transactions—Reprints.

Anthropometric and descriptive observations on some S. Australian aborigines, with a summary of previously recorded anthropometric data, by F. W. Jones.

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Aristotelian Society. Proceedings, New Series, V. 25.

Guns (J. G.), Yoga mimamsa, V. I. Nos. 2 and 3.

Report on the public instruction in H.E.H. The Nizam's dominions for 1921-22.

The great roll of the pipe for the 34th year of the reign of King Henry II., A. D. 1187-88.

The great roll of the pipe for the second year of the reign of King Richard I., 1190, ed. by Deris N. Stenton.

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EGMORE,
23rd Sept. '25.

The Educational Review.

It is with profound regret that we

The late Sir
Ramakrishna
Gopala Bhandar-
kar.

have to record the pass-
ing away of the great
Oriental scholar, Sir

Ramakrishna Gopala

Bhandarkar. He was almost the pioneer of Oriental research among Indian scholars and for several decades he rightly occupied a very high place in the world of scholarship. Sir Ramakrishna had the real spirit of research in him and was always actuated by an active zeal for the pursuit of truth, unmindful of other considerations. Besides his work as an Oriental scholar, Sir Ramakrishna had to his credit a long and distinguished career as a Professor of Sanskrit and more than one generation of students had sat at his feet. As Vice-Chancellor of the Bombay University for some years and as a member of the old Imperial Legislative Council at the time of the passing of the Indian Universities' Act of Lord Curzon, he rendered valuable services to the cause of education in India. The Bhandarkar Oriental Research Institute, Poona, which has already valuable work to its credit will be a worthy memorial to the great scholar and we hope that his illustrious career will inspire the younger generation of India to similar effort.

We congratulate His Highness the

Maharajah Gækwar

The Gækwad
Prizes.

Saheb of Baroda on his
giving one more strik-

ing proof of his anxiety to advance the

cause of literature and science in India. His Highness has just instituted a new prize fund from the proceeds of which prizes and medals will be awarded for Poetry, Literature, History, Scientific Research, Fine Arts, Social Reform and Social Service, one or more of these subjects receiving attention every year. Prizes will be of the value of a thousand rupees accompanied by an annuity up to Rs. 1,200 payable for a period not more than five years. His Highness has also instituted medals for temperance and social service, handicrafts, benevolence, statecraft and wisdom, justice, civil virtues, etc. We hope these medals and prizes will serve effectively the purpose for which they are intended and will be responsible for adding to the intellectual progress of our people.

The lot of non-gazetted educational officers in Madras has been unfortunate indeed and we should like to express our cordial support for the recent resolutions passed by the Association for the consideration of the Government. It is reasonable that the scale of salaries originally sanctioned for the non-gazetted officers should be restored. Rs. 100-5-150-10-250 is by no means extravagant for the very responsible kind of work done by officers of this class which sometimes is as important as that of the officers of the Indian Educational Service. The officers protest against the frequent direct recruitment to the Madras Educational Service, preventing the members of

the Subordinate Educational Service from getting chances of promotion when opportunities occur. It is easy to tyrannise over the lower ranks of official service and the system of keeping confidential reports about members of the subordinate educational service has often led to petty oppression. The Association makes the very reasonable request that the system should be revived of communicating copies of confidential reports to the officers concerned, wherever such reports are unfavourable in order to give them an opportunity of knowing what has been said against them. We wish some members of our Legislative Council take up the cause of these subordinate officers and do something to redress their numerous grievances.

The Tamil Districts of the Madras Presidency have been more ripe for many years now, than the

A Tamil University.

Telugu Districts for the formation of an independent University. We are therefore not surprised that a movement has started for the agitation of a separate University for the Tamil country. While sympathising with the aspiration of the Tamil Districts to have a separate University of their own, we should warn them against trying to have a mere imitation of the Madras affiliating model, with the only advantage of a smaller jurisdiction of administration. Nothing is to be gained by the formation of a new University of the type; on the other hand, there is the distinct dis-

advantage of an unnecessary duplication of machinery and the consequent increase of avoidable expenditure. If the Tamil Districts are to have another University, let it be one of a superior type, a real centre of higher learning, offering to its *alumni* facilities for study and research, and University life superior in every way to the conditions now obtaining in Madras. It is also necessary to mention that really high class Universities cannot be set up by mere requests to the Government to create new Universities. Private benefactions and endowments of various kinds must be forthcoming for the purpose. We find that a Committee has been formed in the Southern Districts for advancing the cause of a Tamil University. It will have done enough, if it got the Tamil Districts interested in the scheme and made the wealthy Zamindars come forward with financial support for the scheme pending action by the Government.

It was a very stimulating address which the Hon. Justice Sir Murray Coutts-Trotter delivered at the recent

The Madras Convocation.

Convocation of the University of Madras. In spite of Newman's vigorous protests against the merely utilitarian ideal of a University education in his *Idea of a University*, there are still people who are apt to condemn educational systems on the mere assumption that they do not train the students sufficiently for bread-winning purposes. Sir Murray did well in correcting this popular misconception. "What is the real case of those," he

asked, "who wish in their favourite phrase to make our education 'more practical?'" I conceive that the main consideration which weighs with them is the idea that a student should be taught things which will give him an equipment of knowledge that will enable him to enter forthwith upon a profession, or vocation, with the requisite technical knowledge of its details; in plain language, that the function of a University is to enable a student to earn his living directly he passes its portals by virtue of the vocational training he has received. The struggle for life is acute and is doubtless becoming increasingly acute, but a University ought never to become a mere breeding-ground of accountants and engineers and lawyers, studying their own particular subjects in isolation and dissociation from all other forms of knowledge. That would involve us in the conception of a University as a mere collection of technical training colleges housed for convenience in one building or group of buildings. I make bold to assume that you will feel instinctively, without argument, that that cannot be a true conception. Undoubtedly it is the duty of a University to fit a student to earn his living; but it has other not less important duties."

Sir Murray recognised the dangers of over-specialisation, but he rightly pointed out that the growth of learning in recent centuries has prevented effective acquaintance with more than one subject or sometimes even several branches of the same subject. "The time when every

one could be reasonably expected to know something of everything is gone for ever. We must be content each of us to delve only in a tiny corner of the vast field; if we try more we shall end by being in effective dilettanti with a smattering of many things and a grasp of none, and such people are for the most part as useless to themselves as they assuredly are to the rest of the world." He however suggested that the evils of specialisation should be minimised by the intense development of University life, members representing various subjects of study coming together in such organisations as University Unions and other Students' Societies.

The Mysore University has not been in existence for a long time and might have very well continued with the present courses and syllabuses of study for sometime more, so that they may be revised, if necessary at all, in the light of further experience. But there are already radical proposals of reorganisation pending before the Senate which must be examined carefully before they are allowed to be passed. Much was made at one time of the mechanical alteration of the periods of the Intermediate and B. A. courses into one year in the First Year Examination, followed by a three years' course for the B. A. But it is now proposed to go back on it reverting to the usual type of a two years' Intermediate course followed by a two years' B. A. course. We are afraid that the further reforms suggested

Mysore University Reorganisation.

in the Intermediate course are not particularly happy. The reduction of the English courses by prescribing only two papers instead of the present four and the prescribing of three subjects besides English and a vernacular are undoubtedly retrograde steps. We are not surprised that one of the members of the Committee has protested against this lowering of standards in English which becomes a very serious matter at the B. A. where only English Composition based on books prescribed for non-detailed study is sought to be made compulsory. The Intermediate courses are sought to be complicated by the arrangement of different systems to suit different higher courses which could probably have been avoided and in any case there seems to be the real danger of the absence of a minimum uniform standard of general culture at the Intermediate resulting from the adoption of these suggestions. It is true the Calcutta University Commission suggested the possibility of introducing some preliminary training for the vocation of teaching in the Arts courses, but we are afraid the Committee is not suggesting something practical in wishing to provide for a special grouping of subjects in Intermediate Science for those who wish to qualify themselves later for the profession of teaching. Educational Psychology and Educational History are subjects somewhat too advanced for the Intermediate student and this may well await treatment in the L. T. course.

A novel feature of these proposals of University Reorganisation is the introduction of Diplomas in various subjects with a vocational end in view, to be entered upon by those who have passed the Intermediate Examination. There is to be a Diploma in Applied Chemistry, a Diploma in Textiles, a Diploma in Agriculture, and Diplomas also in Economics and Commerce, Engineering and Technology and Teaching. We are pleased with these aspirations to make provision for extensive vocational training in the University, and hope sufficient resources will be forthcoming to make them really useful. It is no use disguising the fact that if effective training is to be given in these subjects, large sums of money would be required. We hope His Highness the Maharaja's Government will come forward in a generous spirit to help this real advance which will be so beneficial to the subjects of the State. There are also to be certificates for Licentiates in Medicine and for Public Health and Sanitation.

We do not approve of the proposal to increase the number of subjects at the B. A. examination, though they are grouped in accordance with definite principles of association. It is proposed to have a paper on comparative literature at the M. A. examination in English, a commendable idea indeed though it is perhaps difficult to introduce the comparative study of literatures at the M. A. stage. It comes more appropriately as post-M. A. work. In any case, we

would urge considerable caution in the adoption of these changes.

The authorities responsible for the administration of Pachaiyappa's College have issued an appeal for financial help for the institution. A deficit has been a normal feature of the institution for the last few years and encroachments have had to be made on the capital amounts. In these days of educational expansion, large sums of additional money are required for making the institution worthy of playing a successful and prominent part in the educational world of Southern India. We are afraid the administration of Pachaiyappa's College has never been particularly satisfactory. In the earlier years, members of the Trust Board blissfully ignorant of educational conditions interfered with the work of able Principals and rendered administration inefficient. In recent years, the institution has been the hot-bed of communal feelings and people have been preferred for various appointments over others, merely because of their being Non-Brahmins. The institution does not unfortunately make any appeal to *Hindu* religious sentiment as, strangely enough, while seeking support on the ground of being a Hindu National College, it has a Christian as its Principal and there is no Hindu atmosphere about it. Making allowance for all these failings, the college still deserves support, being the only indigenous institution devoted to higher learning in the city of Madras and we

hope that the appeal issued by the Trustees will meet with generous response.

We are glad that the Andhra University Bill has at last been introduced into the Legislative Council and it is possible to expect the Bill to pass into law in the next session. The note in connection with the Bill contemplates the introduction of many desirable things which, we hope, will materialise. The introduction of technological courses is welcome, though we are not sure if the Madras Government is now in a position to come forward with the large financial contributions necessary to make technological courses a success. An attempt is to be made at the gradual introduction of Telugu as a medium of instruction, an idea for which the Andhra country is particularly suitable, only one language being spoken over the whole area. The question of fixing certain towns as 'recognised centres' for the opening of Honours and Post-graduate classes is apt to give trouble, as almost every District is anxious to have a centre, and the main question of the location of the head-quarters has yet to be solved. The fact that the University is not a unitary one and is only of an affiliating type, does not however make the problem of the location of the head-quarters particularly serious. The opening of a Publication Bureau is another good idea. We hope that the Andhra University Act will soon be an accomplished fact and we

echo the Government's wish: "It is also hoped that the new Andhra University, as shaped by this Bill, will meet the needs and aspirations of all sections of the Andhra country and that it may, by promoting scholarship and research, by fostering high ideals of scholarship and by influencing the intellectual and social life of the people of the area, fulfil the proper function of a University in the life of a community." Much of course will depend on the financial support with which the scheme is backed by Government and the enthusiasm with which the people of the Andhra country come forward to make the University a success.

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The value of Child Study is twofold, first from the point of view of theoretical psychology, and second of education. Education along with psychology has much to learn from the science of biology which suggests to both of these sciences the unit for study, viz., a reaction which is a response to a stimulus. The mental life ought to be viewed as is the physical from this point of view. Further, biological science is showing the usefulness both as to method and content of the observation of development. The study of child-nature is in accord with the genetic method which characterises all the biological sciences. Educationally we have more to do with children than with adults in our schools and so from the practical point of view also the more that we can learn about the natures of educands the better for our work. Miss Gordon's book is thus a real contribution to our literature for it considers these questions with special reference to conditions in South India.

One of the most important of modern developments in this science is that made through the observation of individual differences. Although education is a social process and children are social in nature, yet we cannot deal with them too much in groups without doing great injustice to matters in which they are unlike. Studies made in Europe and America have their value for Indian teachers, but observations made in India, as Miss Gordon's have been, are of great value in enabling us to ascertain the similarities and differences with children of other countries, and the differences among groups and individuals here. Miss Gordon has not only given the result of her own observations but—what is even more important—she has shown teachers and others how they may observe for themselves.

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

Education (Allahabad), March 1925.

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

The Madras Christian College Magazine, January 1925.

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

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

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