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(முதல் பாகம்)

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Nov. 1928.]

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உறப்புதல்; பின்னங்களை ஒப்பிடுதல்; பின்னங்களின் கூட்டலும் கழித்தலும்; ஒரு சாதாரண பின்னத்தை ஒரு முழு எண்ணால் பெருக்கல்; சாதாரண பின்னத்தை ஒரு முழு எண்ணால் வகுத்தல்; ஒரு பின்னத்தால் பெருக்கல்; பின்னத்தின் பின்னம்; ஒரு பின்னத்தால் வகுத்தல்; ஒரு எண்ணை ஒரு குறிப்பிட்ட அனாமீனே டர் உள்படி மாற்றல்; பின்னங்களைச் சுருக்கல். IX. வாடிக்கை முறை. - பலமாதிக்க கணக்குகள். பரிட்சைக் கேள்விகள். விடைகள்.

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vide *Fort St. George Gazette*, Part I-B, p. 546, dated 1-11-27.

(இரண்டாம் பாகம்)

பொருளடக்கம்.

பரீட்சைக் கேள்விகள். I. டெஸிமல்களின் பெருக்கலும் வகுத்தலும்: ஒரு ஸ்தான டெஸிமல் எண்ணல் பெருக்கல்; சுமாரான பரிசோதனை; எந்த டெஸிமல் எண்ணலும் பெருக்கல்; டெஸிமல்களால் வகுத்தல்; சுமாராய்ச் சொல்லல்; சாதாரண பின்னங்களை டெஸிமல்களாக மாற்றல்; டெஸிமல்களை சாதாரண பின்னங்களாக மாற்றல். II. சாசு, டோஷியோ முதலானவை: சராசரி; ரேஷியோ; மாறுத ரேஷியோ; ரேஷியோவின், உபயோகங்கள்; பர்போர்ஷன்; லாப நஷ்டம்; வருமான வரி; கடன் மிகுதல். III. பாப் பளவு: பரப்பளவு; ரெக்டாங்கிள்; இங்கிவ்ஷ் பரப்பளவுகளும் ப்ரொஞ்சு பரப்பளவுகளும்; பரப்பளவு வாய்ப் பாடுகள்; பிளான் வரைதல், அதாவது அமைப்புருவம் வரைதல்; தராயின் பரப்பளவும் ஈர்சுவர்களின் பரப்பளவும்; கட்டக் காகித்தத்தின் உபயோகம். IV. பொது எண் கணக்கு -சமீகாலங்கள்: அங்க கணிதமும் பீஜ கணிதமும்; சில பெயர் வினக்கங்கள்; சமீகரணங்கள்; இன அங்கங்கள்; அடைப்புக் குறிகள் கீக்குதல். V. முக்கோணங்கள்: அவற்றின் பக்கங்களும் கோணங்களும்: முக்கோண விரிப்பு; முக்கோணங்களின் கோணங்கள் பக்கங்களுக்குள்ள சம்பந்தங்கள்; ஒரு புள்ளியிலிருந்து சிபர்தனைக்கிணங்க மற்றொரு புள்ளி குறித்தல்; இரண்டு புள்ளிகளிலிருந்து சிபர்தனைகளுக் கிணங்க மற்றொரு புள்ளி குறித்தல்; கொடுக்கப்பட்ட அளவுகளைக் கொண்டு முக்கோணம் வரைதல்; வட்டங்களின் சில தன்மைகள்; முக்கோணங்களின் வளைகள்; ஓர் புள்ளியிலிருந்து ஓர் கோட்டிற்கு பெர்பெண்டிகுலர். VI. கோடுகளையும் கோணங்களையும் இருசமபாகங்களாக்கல்: இருசம பக்க முக்கோணங்களின் சில தன்மைகள்; கேர் கோடுகளை இருசம பாகங்களாக்குதல்; கோணங்களை இருசம பாகங்களாக்குதல்; கார்ட்களையும் வட்ட பாகங்களையும் இரண்டு சம பாகங்களாக்குதல்; பெர்பெண்டிகுலர்கள் இழுத்தல்; ஸிம்மெட்ரி. பலமாதிரிக் கணக்குகள்; முதல் பாரப் பாடங்களில் புதிய கணக்குகள்:—கட்டல் கழித்தல்; பெருக்கல்; வகுத்தல்; பலவின எண்கள்; கோணங்களும் வட்டங்களும்; டெஸிமல்கள்; உயர்த்தபொது அளவும்; தாழ்ந்த பொது மடங்கும்; சாதாரண பின்னங்கள்; பலமாதிரி. இரண்டாம் பாரப்பாடங்களில் பலமாதிரிக் கணக்குகள். பரீட்சைக் கேள்விகள் அறுபத்தம். விடைகள்.

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(மூன்றாம் பாகம்)

பொருளடக்கம்.

பரீட்சைக் கேள்விகள் ; அத்தியாயம் I. நூற்றுக்குக் கணக்கிடலும் அதன் பிரயோகங்
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THE ALL-INDIA FEDERATION OF TEACHERS' ASSOCIATIONS.

WELCOME ADDRESS

OF

Principal P. SESHADRI, M.A.

Chairman, Executive Council.

All-India Teachers' Federation.

to the Fourth Session—Bombay, November 1928.

ON behalf of the Executive Council of the All-India Federation of Teachers' Associations, I extend to you a very cordial welcome to the deliberations of this Conference. It would perhaps have been more appropriate if this honour had been conferred upon some distinguished educationist of the Western Presidency who had taken a more active part in the preparations which have preceded this large gathering and who could exclaim with Rudyard Kipling:

'Of no mean city am I!

Neither by service nor fee

Come I to mine estate—

XXXIV—82

Mother of cities to me,

For I was born in her gate,

Between the palms and the sea,

Where the world-end steamers wait.'

But I can assure you that the entire organisation which I represent here this morning has a feeling of lively gratitude to all of you, members of the teaching profession or otherwise, who have made it possible to attend this Conference and add strength and inspiration to our efforts.

It was in the Christmas of 1925, that some of us, members of the teaching profession from various parts of India, assembled at the time of the Indian National Congress in Cawnpore, with the purpose of consolidating our profession on the lines of Associations formed in all progressive countries of the world, not merely for the advancement of our service-interests, but also for making such contribution to educational development in the country as is enabled by our special

knowledge and experience. We enunciated the aims of the new organisation in the following terms:—

1. To study educational problems with special reference to Indian conditions;
2. to work for the adequate realisation of the educational needs of India;
3. to co-ordinate the working of the various Teachers' Associations in the country;
4. to safeguard and advance the interests of the teaching profession in India and to secure for it its legitimate place in national life;
5. to act as a vehicle of representation at International Teachers' Conferences.

In pursuance of these aims we have held our annual Conferences at Cawnpore in 1925, Patna in 1926, and Calcutta in 1927, and have come down this year to the South, with a view to rouse interest in every part of India in the aims of this new Federation which, if worked with zeal and a high sense of national duty, should play no unimportant part in the educational advancement of this land. With provincial organisations already affiliated to us in the United Provinces, Bengal and Bombay and in the process of affiliation in Madras and Bihar and Orissa, we have been endeavouring to bring the members of our profession into one great brotherhood proud of its work and intent on the acquirement of the highest professional efficiency that it may be placed ungrudgingly at the service of the motherland.

An important step in the progress of the Federation was its affiliation last year to the

World-Federation of Educational Associations, a world-wide organisation of teachers which, though inaugurated only in 1925, has already acquired considerable power and influence in the educational circles of the world. We were represented by two delegates at its biennial Conference held in Toronto in July last and we are looking forward to similar participation at the next Conference to be held in Geneva in August, 1929. This Association, with educational effort all over the world and consciousness that we are all members of the same noble army fighting the forces of ignorance in its various forms everywhere, is an inspiration which ought to lift our lives to the heights of true duty and sacrifice. When it is noted that the World-Federation enunciates among its aims 'Educational co-operation among the nations of the world', 'the furthering of the spirit of learning', and 'the relief through education of national jealousies, racial hatreds and religious intolerance', it will be realised that there can hardly be loftier objects to work for among humanity.

II

One who has the honour of welcoming a national gathering of educationists of this kind in any other civilised country of the world will probably have a very cheerful and even exhilarating account to present of progress during the year; of striking statistics culminating in the practical obliteration of illiteracy; of novel educational experiments opening up new lines in the art and science of education and of achievements of various kinds tending to the increase of national efficiency and drawing the attention of the rest of the civilised world. But such is not my proud privilege this morning. It is only

a feeling of depression, on the other hand, which comes upon one who tries to assess educational progress in this country, though it is not my exact purpose just now to apportion the blame to the various parties concerned, the Government, the public and, perhaps to some extent, even ourselves.

The latest educational report issued by the Government of India—it is a pity official reports should be issued so late after the events—is only for 1925-26 and some of the figures are very discouraging indeed. The percentage of males under instruction to the total population rose from 6.0 to 6.5 and the percentage of girls under instruction rose by the magnificent figure of 1 per cent. from 1.2 to 1.3. The Government report derives some consolation from the fact that the increase in the percentage of males by .5 per cent. was the largest increase during the last ten years and the present figure compared favourably with the figure for ten years ago which was only 4.7. During the same period, the percentage of girls under instruction rose from 0.9 to 1.3. It is easy to calculate what period is required at this rate for bringing the entire school-going population within the benefits of instruction, taking it at the usual figure of 15 per cent. of the total population of the country. Much more than twice the number of boys attending school to-day and about twelve times the number of girls will have to be brought into the educational fold, before the entire school-going population can be said to be receiving even the rudiments of education. This does not of course solve the problem of illiteracy in the country at once, because another whole generation from that date will have to pass before almost everybody in the country can become literate, an ideal which has actually been achieved not only in the

advanced countries of the West, but also in an Oriental country like Japan. It is clear that something drastic will have to be done, if educational progress is not to be so slow and creeping in its pace and if India is ever to see the happy day dreamt for her by the poet:

"Where the mind is without fear and the head is held high;

Where knowledge is free;

* * * *

Where the clear stream of reason has not lost its way into the dreary desert sand of dead habit,

Where the mind is led forward by Thee into ever-widening thought and action."

If the figures with regard to the progress of education are so discouraging, there has been no lack of Commissions of various kinds dealing directly or indirectly, in whole or in part, with some of the problems of Indian education. One may perhaps look for some useful activity as the result of their recommendations, though past experience in the matter has not always been very pleasant. A Government Commission's report is often a Dead Letter on which no useful action is taken; either it is too costly and impracticable to be of any real help, or it only succeeds in creating some comfortable jobs which are a heavy burden on the tax-payer. Not often it flits into the limbo of oblivion, or rests on the dusty shelves of record-rooms, to be mentioned occasionally in Government Despatches by some painstaking and conscientious Secretariat official.

A whole chapter is devoted to education in the recent Report of the Royal Commission on Agriculture in India. The Commission are

rightly impressed with the interdependence of the progress of education and the advancement of agriculture and have made a number of recommendations which deserve the study of an educational organisation like ourselves. They have lent the entire weight of their support to compulsory primary education without which they have no hesitation in saying that the problem of illiteracy cannot be solved at all in the country. Of special interest are their observations on the supreme need for women's education. They are firmly convinced of the great importance to rural development in India of the spread of literacy among women. They make the interesting suggestion that a definite effort should be made to impart literacy to a certain number of young mothers to demonstrate the difference between a family presided over by a mother who is not literate and another which is guided by one who appreciates the benefits of education. More extensive training of teachers, the employment of women to teach young children and the abolition of the single teacher school are also other measures upon which the members of the Commission are keen. The addition of agricultural classes to selected High Schools in rural areas where there are facilities for a farm or a garden is another step recommended. Apart from the institution of a Central Research Council for fostering and co-ordinating scientific research in the subject in the country, the Commission are of opinion that the Universities may also play a prominent part in aiding agricultural advancement, by making their science-teaching more intensive and by instilling in the youth ideas of rural service and development. "We wish strongly," write the members of the Agricultural Commission, "to press the claim of the rural areas upon the

time and interest of the best of India's youth. It is upon the homes and fields of her cultivators that the strength of the country and the foundations of her prosperity must ultimately rest. We appeal to both past and present members of Indian Universities to apply themselves to the social and economic problems of the country-side, and so to fit themselves to take the lead in the movement for the uplift of the rural classes. We trust that the authorities and teachers of Universities will do all in their power to encourage the study of those most important subjects. The opportunities open in India to men able and willing to play a selfless and patriotic role in the field of local leadership and of service to the public are unbounded."

It is unfortunate that the educational enquiry now being conducted by the Committee presided over by Sir Philip Hartog should be an auxiliary to the Simon Commission, an arrangement which has brought it into considerable disfavour with the public of India and which threatens to deprive it of any prospect of useful service of which it may be capable. Hustling through the entire continent of India and Burma, at a speed which can only be compared to the lightning rapidity of an American globe-trotter, limited in the terms of reference only to considerations which have got a bearing on political development and thus somewhat subordinated in its aims to things other than educational, it would be surprising if the Hartog Committee produced any report of great value to educational advancement in spite of its possessing such seasoned veterans on its personnel as Sir Philip Hartog and Sir George Anderson and such an excellent Secretary as Mr. R. M. Statham from Madras. It may be noted in passing that as usual with the

Government of India, this Committee to consider Indian educational development during the last ten years, does not possess a single Indian educationist, the Indian members having been chosen from every profession in the country other than teaching. There has not been any adequate enquiry into the various branches of Indian education since the Educational Commission of Sir William Hunter and let us at least hope that this Committee will bring together some facts which will be of real value and guidance to the solution of the numerous educational problems of this land. The methods of finding more money for the advancement of elementary educational programmes on a large scale, so as to make a determined effort for the wiping off of illiteracy; the reconciliation of democratic interest in and control of education without impairing its efficiency; helpful suggestions for the introduction of adult education so as to fit the people for the growing responsibilities of citizenship; the devising of means for co-ordinating educational effort in the provinces without interfering with provincial autonomy and the laying down generally of measures for making the educational system of India 'self-contained' so as to eliminate the real or supposed need for migrating to other countries for completing one's education—here are a number of directions in which we look for help from the deliberations of this Committee and let us hope we shall not be disappointed.

Reviewing educational conditions in India during the year, reference must also be made to the report of the Indian Cinematograph Committee which has dealt with the Cinema in relation to education. The resolutions passed at the last session of the All-India Teachers' Federation included one condemning the total

exclusion of representatives of education from a Committee intended to examine the influence of the Cinema on the country and suggest measures for its further advancement and regulation. The presence of an eminent educationist on the Committee might have made the recommendations relating to education more valuable and suggestive, but one has to feel thankful for the Committee's recognition of the great part the Cinema can play in the educational world of India as in that of other countries. The Committee draws the attention of provincial governments, local self-governing bodies, and public-spirited citizens to the desirability of providing for school and college students facilities for seeing suitable films of educational value as frequently as possible. The Committee is even more struck with the vast potentialities of the use of the Cinema for general mass education and suggests concerted action in the matter on the part of the Government, local bodies and the public. Travelling cinemas on well-equipped motor-lorries have been tried very successfully in rural areas in the Punjab and there is no reason why they should not be introduced elsewhere, except that educational authorities in this country are often sleepy and have no eyes to see what is happening even in other provinces in India, not to speak of educational efforts beyond the seas.

III

Hardly has any attention been drawn in this country, to a valuable report on Public Libraries, presented some time last year by the President of the Board of Education in England to the Parliament. The Committee enquired into the adequacy of the Library provision already made under the Public Libraries Acts, and the means of extending and completing such provision throughout

England and Wales, regard being had to the relation of the libraries under those Acts to other public libraries and to the general system of national education. It is time that a similar enquiry was conducted in India also and the various educational authorities, Government or local, realised that the provision of library facilities was one of the integral aspects of sound national education. The sporadic efforts which have till now been made in Indian States like Baroda and largely under non-official auspices, should be co-ordinated and a system of public libraries established with no less appreciation than the opening of educational institutions of all kinds.

This reminds one of a useful contribution to the available literature on adult education in India, just published as an Occasional Report of the Bureau of Education with the Government. It is entitled "Rural Education in England and the Punjab" and is written by two European members of the Indian Educational Service who made a special study of the subject in England. It may be said that we have as yet even attempted to tackle only one part of the educational problem in India, that of the children of the school-going age and the rest of the entire community is there—except for a small percentage of educated people—steeped in the densest ignorance and left absolutely uncared for. Well may one say with the poet:

"The hungry sheep look up and are not fed."

It is hoped that in the fulness of time, the All-India Teachers' Federation may develop sufficient power and resources to be able to publish valuable studies of Indian educational problems and its annual proceedings may be looked for with eagerness for educational guidance not merely by the teaching profession, but also by the Imperial and the various

Provincial Governments in the country. We can claim to have made a better effort in this direction this year than at previous sessions of the Conference. Thanks to the efforts of local organisers, particularly my friend Prof. M. R. Paranjpe of Poona, to whose indefatigable exertions this Conference is largely due, it will be noticed we have drawn up an interesting programme of lectures and papers on pedagogic subjects which should be highly useful to all members of our profession. Arrangements are under contemplation for the regular annual publication of our proceedings, apart from the Handbook of the Federation, and the volumes should throw useful light on many an educational problem having a special bearing on India.

IV

The meeting of the brother members of one's own profession hailing from every part of the country cannot but be of the highest educational value, affording opportunities for the exchange of notes and experiences, but there is a special inspiration to teachers of certain subjects in these all-India pilgrimages to which I may be allowed to refer. There is nothing more stimulating to the teacher of History and Geography than a course of travel and it is doubtful if anybody can visualise effectively the varied historical vicissitudes of this ancient land or appreciate its wonderful geography without having surveyed the entire country with his own eyes. In fact, it would not be improper if a rule were made that every teacher of Indian History and Geography in our Secondary Schools should have seen a good part of India before beginning to teach the subject, provided of course adequate financial facilities were given to him for the purpose. Waiting to catch the Express to Cawnpore last Monday,

after attending a meeting of the Agra University, I met a Secondary School teacher from Bengal on the railway platform—a graduate let me remind you—who had once met me at an Educational Conference and made the usual kind enquiries about my welfare and impending movements. On hearing that I was leaving for Bombay in the course of the week for attending this Conference, he enquired if I was not travelling to Bombay *via* Calcutta, which he apparently thought was the proper route from Agra. I ventured to hope he was not a geography teacher and if he was, may God bless the taught and the teacher!

I can never forget the vividness with which the geographical facts of India have impressed themselves upon me on various occasions of travel in this country, lending new life as it were to the dry details memorised by me in boyhood from uninteresting and dry-as-dust manuals on the subject, taught by people who had hardly travelled beyond their own districts. If you wish to make your pupils understand, for instance, the glories of the Himalayas, never hope to be able to do it without having gazed yourselves on her spotless eternal snows, rising range upon range standing upon some point of vantage on the roads of Simla or Darjeeling. I can always remember the sensation of wonder which overwhelmed me when I went to the other extreme of India and stood on the furthestmost inch of space at Cape Comorin, surrounded by the mighty ocean on three sides and looking towards the great Indian continent spread out in imagination before my vision. If you wish to have an adequate knowledge of the geography of India, take advantage of these occasions to see the varied aspects of this country. Wander on the banks

of the mighty Ganges: hear the ocean roar round the coast: stand stupefied before the great mountain-ranges; ply the boat along the palm-girt lagoons of Malabar and see the millions crowding the ancient cities of Hindusthan bathing in her sacred rivers, or worshipping at her time-worn temples.

The lesson is brought home even keener in the department of Indian History. Having seen most places of historical interest in the country, I now long to go back to the subject in a spirit very different from that to which I could be worked up by my teachers at school. The various incidents and periods of Indian history have now a new meaning for me—now that I have stood under the Bodhi-tree at Budh Gaya, spent a whole moonlight night under the very shadow of the great stupa at Sanchi, wandered at will over the extensive ruins of Vijayanagar and Warangal, mounted the steep granite steps of the citadel at Golconda, gazed at the mountain-fastnesses of Shivaji, paid repeated visits to the Taj and the marble palaces of Agra and Delhi and greeted with joy the splendour of the rising sun from the lofty Buland Darwaza of Fatehpur-Sikri, without seeing which nobody can realise the vanished greatness of the Moghul Empire in India.

V

I am afraid I have detained you very long standing between you and the Presidential Address which I am as anxious to hear as yourselves. Let me now conclude with the prayer that the All-India Teachers' Federation may be the means of bringing you a new message of joy and hope and you may feel every time that you come to our annual Conferences like the pilgrims of old who went periodically to some shrine and carried some of its sacred fire to their distant homes.

PRESIDENTIAL ADDRESS

By the REV. G. S. ARUNDALE, M.A., LL.B.

EDUCATION.

FIRST let me say quite frankly that I wonder how you came to think of me for so distinguished an office as President of the Fourth Session of the All-India Federation of Teachers' Associations. Naturally, I am much honoured at being dragged forth from what I feel is well-deserved obscurity; and I hope it is unnecessary for me to say that I am profoundly interested—in my own way and according to my lights—in education, in which field I have spent some of the most interesting and certainly some of the happiest years of my life. But it is no mere figure of speech, such as in pretended modesty many speakers employ, for me to say that I wish you had been able to induce someone worthier than I to speak with an authority I do not possess upon some of the immediate problems confronting you in your everyday work, someone who has had recent practical experience of the problems of Indian education. Perhaps other choices have failed you and at length you came to my name on your list of possibles. At any rate I am thankful to be here, and I can only hope that what I have to say may be of some small interest.

I am going to be straight with you. I am going to tell you just what I think about education. I am not going to quote authorities. I am tired of authorities. I am going to be my own authority, my own ancestor, as it were, as regards my educational principles. Of course, the labours of others in our educational field may be of deep interest, may be of no little value; but the supreme gift of a teacher to the vocation to which he has been called is to be his very best and

biggest self, and not a lifeless imitation of someone else, however wonderful that someone else may be. We may profit from the fact that some others have contributed to the growth of education some very unusual, striking and meaningful selves. But we only do profit in so far as we become ourselves all the more quickly, all the more definitely, because of the example they have set.

We must travel along our own roads. We must come to our own conclusions. Our educational lives must be full of our own life, of first-hand life, and not of second-hand life or of third- or fourth-hand life. We may agree with others, but then we must make that which we accept part of our own lives. It must become part of us. It must be ourselves. It will not even matter if we forget its origin. Emphatically has the teacher to be himself to the utmost of his power, even though he must needs live within the confinement of a system. The best he can give to his pupils is himself, not someone else, is what he himself says, not what someone else says. He must not be a gramophone record. He must not be an imitation. He must not be a parrot. He must be himself. The pupil needs his fire, his light, his life—his own fire, his own light, his own life. Nothing less. The teacher must be positive, definite, eager, full of ideals, full of endeavour to bring them down into the actual. This is why the vocation of the teacher is so onerous. He must be worth sharing with his pupils. There must be in him the power to inspire his pupils to become all that they will desire to be. There must be nothing small about him, nothing dead, nothing indifferent, nothing automatic or machine-like, nothing of hopelessness or despair, everything of joy and of assurance. He must be a fire so that his

pupils may catch fire. He must be a Light, so that his Light magically summons to shine the Light which is in his pupils. He must be as our Lord the Sun, shining more and more unto the perfect day, unto his own perfect day and unto the perfect day of those temporarily entrusted to his care. What indeed is a teacher but a Sun in miniature? What is his duty but to shine upon his pupils as the great Sun Himself shines upon us all? What is any subject of the curriculum, every aspect of the whole science of education, but Light? What is its teaching but the causing of its light to shine? What is a school or college but an abode of sunshine in which those who enter it shall find their own sunlight, shall know themselves to be as suns, and shall learn to shine with ever-increasing power and splendour? What should a home be but this? What should an office be but this—though you will laugh at me for saying this? What should a Nation be but this? What should the world be but this? We differentiate between suns and planets, but there is nothing in heaven or on earth which does not shine. Even that which appears dullest, this table and this chair if you like, shines as it can and treads to the measure of its own appointed *dharma* the Way of Sunlight. When a teacher veritably glows with his Light and Life and Fire, when he shines in all possible brightness, when he radiates himself in such majesty as he is able to achieve, he is fulfilling his mission; and what he teaches, the subjects he presents, are naught but the channel whereby his Light and Life and Fire radiate out upon his pupils that in them may be awakened, stimulated, stirred the Light, the Life, the Fire, that is theirs. As a teacher shines he achieves. The more he shines the more he achieves.

What then is the object of education? A definition that suits my purpose for the present address is that its object is to enable the individual more and more to absorb such Light as there may be without so that his own Light may gain in brilliance, so that he too may shine upon his surroundings, bring Light to his, to the, world. Education is to the end that he may shine more and more abundantly. In truth, there is no essential difference between the Light within and the Light without. There is naught but Light. All is Light. Light is the substance of Life. But just as in the case of an electric arc light the two poles must approximate in order that the hidden may appear, so must come together the Light without and the Light within that the Radiant Unity may manifest in glory. Is not, then, the mission of the teacher to help to make these contacts, bringing nearer and nearer the splendid goal of Unity becoming self-conscious and self-expressed throughout diversity? Our subjects of the curriculum, all our elaborate paraphernalia and methods and plans and systems, all our technique whatever it may be, our examinations, our orthodoxies and conventions—all are fundamentally to this end in fact, though I fear we often lose sight of the splendid picture-to-be as we muddle about with the paints. The wood is obscured by the trees.

To these exalted ends I would venture to demand much from the teacher, even though I know full well that all too little is given to him. I demand in the first place Truth. I demand that he shall be true to himself above all else. I demand that he shall not be a slave but a master. I demand that he shall stand upon his own feet fair and square, and not lean upon others, whoever those others

may be. If he do so stand, if thus he be true, then my next demand will of a surety be satisfied. I demand that, knowing his own truth, he realises in immeasurable intensity that a teacher's supreme gift, if one can call it a gift, to his pupils is abundant facility to discover their own truths for themselves and to rejoice in them. The teacher's truth by no means necessarily fits his pupils, is the truth for them, their truth; and the true teacher is well aware of this fact. The true teacher will say: "I am myself. Be yourselves." He will not say: "I am myself (or possibly an imitation of somebody else). Be like me (or like that which I try to be like)."

I demand that the teacher shall fully realise that every part of the material of education is a means to Truth, is a step in the direction of Truth, *and nothing more*. History as we have it to-day is not the last word in history. It is at best true so far as it goes, and to no small extent it is not true even as far as it goes. Geography, mathematics, science, literature, philosophy, and all other aspects of the great Evolutionary Process, are not as we have them the last word, are in many cases little more than a lisp, are all inadequate and partial, are more or less untrue, or at best are but aspects, shadows, of the Truth. They may be the best we have. They may be good in their way. But we must not declare them to be ultimate Truth. We shall say that in such and such a science we have got so far, and that the so-far must be known in order that we may go farther, but only in order that we may go farther, not that we may stay where they are. No science dogmatizes. It only suggests, and says "as at present advised." Hence the dogmatic must be left out of education, for it interferes with the Truth. I am afraid that our

methods of teaching and our whole system of education tends to establish something in the form of a Procrustean bed. We are far too bumptious and cocksure. We do not illumine with our light, such as it is. We blind. We say: "Fit this Procrustean bed, or be damned to you. This is the light. It shall enter you and become your light, for you have none of your own. If it enters, well and good. If not, so much the worse for you. You remain in darkness. If you show that that which we declare to be light has entered your system—this is done by means of an examination whereby you exude that which has been poured in—then you deserve well of us, and we will alphabetise you at the end of your names. Either you can reproduce what we record upon you or you cannot. If you can, you have succeeded. If you cannot, you have failed, and God be with you, for we shall not." There are, of course, some whose gorges rise at being fattened for the examination market as chicken are fattened with forcing pumps for the corpse-eaters' tables. There are some who "fail." And among these, while many may go under, crushed by the pitilessness of conventional uniformity, a few will live to thank God they failed, to thank God they rejected the system and all its evil works. Now please do not go away with the impression that I condemn all systems. I know well the part systems have to play in educational life. We cannot altogether do without them. But let us ever be on the alert to subordinate the system to the end, to subordinate the form to the life, ever to honour independence, originality, freedom, above all that is slavish, unfree, subservient. I infinitely prefer intractability, provided it be constructive and original, to weak-kneed fawning docility. We

may be committed to mass-production, but let us be more than thankful when something tears itself away from the mass and develops to its own exclusive, and, I would hope, revolutionary, pattern. Nay more. Let us be watchful for any material which shows signs of departing from the beaten track, however it departs and, I will venture to add, whatever the havoc it creates by the abandonment of the broad road that leads so very slowly to salvation.

I demand that the teacher shall be tentative about the truth he may know for himself, that he shall always keep open a broad loophole for the escape of the adventurous from the fetters of the *status quo*. I demand that he shall not demand belief, compliance, but rather enquiry and challenge. I demand this from the teacher especially in those subjects which tend to tryannise—in history, in philosophy, in religion, in ethics. I demand that the teacher shall only suggest that at best dogmas and doctrines are working hypotheses, to be accepted or rejected, of course after due enquiry, as may seem wise to each individual. No true teacher will say: "This is true. That is false. This is final. That is unchallengeable. You blaspheme if you reject this. You are lost if you assert that." He says: "This is as far as we have got at present. I am sure it is full of personality and prejudice and ignorance, but there is nothing else or better to offer you for the moment." We cannot help teaching even the utterly inadequate, as we know much of our teaching to be. The pupil comes into the world from, we may not perhaps know, where. He must be put *au fait* with, wise to—as our American brethren so graphically say, the kind of world into which he enters. We must acquaint him with all that has been

going on during what we will call his absence. We must bring him up-to-date, however poor the date may be. But we must make very clear the fact that we know little enough, and that the more we learn, the more, as a rule, we find we have to unlearn or at least modify. Education is not a standard to which pupils have to conform but an inspiration to which it is hoped they will reach. And please note the word 'inspiration.' I demand that pupils shall inspire, and to this end they must surely be inspired.

We must never lose sight of the fact, the supreme fact above all other facts, that our educative process is to help our pupils to find their own truths whatever these may be, however different these may be from conventional truths, from the truths which are ordinarily current in the world of men and women. A teacher may hold up his own ideals. He may hold up the ideals commonly accepted by the majority. He may ask that these be looked upon. But better, far, far better than another's ideals are one's own ideals, even if it be obvious that these fall very far short of these other ideals. Far, far better, a rebel than a slave. And, will you allow me to say, far, far better a devil than a fool. Your own best is so much better for you than any other best. The work of the teacher is to encourage, and perhaps to accompany, his pupils in their voyages of self-discovery, and all his teaching is to this end and to this end alone. What he teaches is to this end. His personal service is to this end. And the pupils must discover themselves, not their teachers or anything else. Their teachers, and all that their teachers bring, is to help them to discover themselves.

For this, I demand that the teacher shall take infinite pains to relate every subject of

education to the pupil himself. There is no subject which is not related to the pupil, which does not form a part of his own individual growth, which sooner or later he will not need. History is part of his own growth. Geography is part of his own growth. Science is part of his own growth. Religion is part of his own growth. Philosophy is part of his own growth. Mathematics is part of his own growth. They are intimately connected with him, help him—as part of his very being—to discover himself. And this is their splendid and wonderful value. This is what should make each one of them tremendously fascinating to each pupil. It is only when they are left unrelated that they become dull and lifeless. The teacher must have the magic to achieve what to some of you may seem little short of a miracle, though in fact, it should be an educational commonplace. If each pupil sees himself reflected, expressed, in all he learns, learning will become a matter of personal joy and delight.

I demand further that the teacher shall realise to the full that in so far as a pupil is helped to enter into his own inheritance of glory, in so far, that is, as he is helped to become all that there is of him to become, so far is all being done that can be done. There is no failure where a pupil walks steadily forward, no matter how, to His supreme Self. He may walk through what the world may call failure, defeat, disaster. Yet if he is walking to Himself there is triumph at every step. The object of education is not to shield from difficulty and trouble, from defeat and failure, but to vitalise in all possible ways the will to walk forward at whatever cost. I am a believer in that old Spanish proverb which says that God sends us walnuts when we have no teeth to crack them. I do not mind the

walnuts so long as they produce the teeth. Indeed I welcome the walnuts within reasonable limits. I demand that the teacher, therefore, shall avoid the word "ought" to the utmost of his power, that he shall avoid the word "must" as he would the plague, that he shall be infinitely chary of the word "duty." Let him fulfil his own "ought" if he has one. Let him have his own personal "must." Let him have a sense of "duty" if he must, though I think I would rather he didn't. Let him be his own example, and leave it at that. Coercion is the absolute negation of education, as is punishment, as are orders. Rules, yes. And I leave to the thoughtful the task, which need not be so very difficult, of reconciling the absence of coercion *et hoc genus omne* with the need for rules and certain limitations. In other words, I leave to the thoughtful the duty of recognising the truth that order and freedom are complementary terms. A teacher who has to fall back upon the crutches of authority, of whatever kind, for the effectiveness of his teaching is, to my mind, no teacher at all. He may be a hammer. He may be a straight-waistcoat. He may be a prison-warder. He is not a teacher. He is only a teacher if his teaching compels all that it should compel—I am a little nervous about this word, yet it is right—by reason of his obvious sincerity, of a divine blend of self-fulness and selflessness.

I now go a little further in my demands from the teacher than some perhaps would venture. I demand that he shall recognise with the fullest possible implications that his pupil is an immortal soul, with a past of perhaps infinite magnitude stretching behind him, with a present leading to a future the glorious nature of which can but dimly ap-

prehend. The science of Astronomy justifies this demand. The life in which he finds himself to-day is but a step on his pathway, is but a partial consummation of his past and a dim foreshadowing of his future. The child is not a child save in body. He is an immortal soul, no less majestic, perchance far more majestic, than those who have the poor advantage of years. I demand, therefore, real reverence from teacher to pupil, from pupil to teacher—though the latter cannot, of course, be a matter for insistence. The child should not remain childish longer than is necessary, though I rejoice in childlikeness in us all. Let the teacher be above all else the friend of the soul and the adjuster of the body to the requirements of the soul, if he has the intuition to be able to find these out. Let us by all means have regard for the age of the body, but let us have equal regard for the age of the soul. And let us realise that the body is but a vehicle for the soul, a means to the soul's great ends. The teacher thus becomes the link, the most important link, between the age-old soul and the vehicles which take the soul once more into this outer world. He is the soul's ambassador, the soul's friend and comrade; and because he is this he may have sometimes to annoy the body for the sake of the soul, provided he knows the soul, and takes care that he is not annoying the body for the sake of his own soul, to force it into line with his own standards of rectitude. We talk of freedom in education. There is only one true freedom—the freedom of the soul, which is the purpose, as I understand it, of evolution. The freedom of the body—it would, of course, be a false freedom—may well be the imprisonment of the soul. And I am prepar-

ed to deny the body for the sake of the soul, if I am sure of what the soul demands. And because I may often be quite unsure, I will deny freedom as little as possible to the body, though relentlessly where the voice of the soul speaks unmistakably into my ears. I am concerned with the soul, and with the need, the urgent need, that the soul shall gain with the least possible delay complete control over the body. That is what I am a teacher for. I supply what otherwise would be, but for parents, of course, the missing link. The teacher has to know souls when the rest of the world is content to know bodies and probe no further.

I demand that the teacher shall not hesitate to encourage his pupils to set out on a voyage of discovery both as to their Whence and as to their Whither. Let imagination, intuition, reason, all help. Let hypotheses be formed and temporary conclusions be reached. Let the Whence be a source of inspiration. Let the Whither be a source of inspiration. Let the Present be urged on into the Future by the propulsion of the Whence and the attraction of the Whither. Education must really help its subjects to know all there is to know of themselves under existing circumstances, to become acquainted with things as they are at the present stage of evolution. If education and the teacher cannot offer a suggestion or two, through the medium of the material at their disposal, as to the way in which the nature of the Whence and the Whither may be sought, just as they lead us to a knowledge of the Now, they fall lamentably short of their duty. At least they must encourage enquiry and must take care that crystallised dogma does not stand in

the way. Let the pupils know, no matter what they know. Let them establish schemes of things. Let them meet problems with solutions. Their schemes may be faulty. Whose are not? Their knowledge may be poor. After all, whose is not? Their solutions may be inadequate. But whose are not? To be groping, to be aspiring to know, to be discontented with what for the moment passes for knowledge, to be dissatisfied with stock answers and conventional reactions, fearlessly, even, to pass beyond the barriers of the proprieties in search of the Real, infinitely to prefer Truth to conformity—these are signs of education successfully at work leading out the soul to become master of its kingdoms.

Examinations, professions, careers, difficulties, obstacles, defeats, disasters, the cramping effect of the inevitable planning of the educational system to fit an average size of pupil, with the result that there must be more misfits than fits—all these we must, I fear, take in our stride. They must not be ends. That at least I feel I have a right to demand. When they are ends they are mischievous. When they are means they may perchance be helpful. I hate examinations. I hate the way in which pupils are kneaded and compressed into careers and professions. I hate the cramping effect of the generalised system of education especially upon those who might have become leaders and pillars of Fire but for the system, or who will have to become leaders and pillars of Fire in spite of the system. But one must take things as they are, at all events for the present, hoping, of course, that pioneers are at work throughout the world cleansing such parts of our educational stable as may partake of the nature of its Aугean prototype. Let nothing, how-

ever much supposed to be an end, be taken by the wise teacher as anything more than a mere beginning, as a mere means. Let him work in the light of larger and nobler vistas, taking the lesser things as they come in the justifiable assurance that a pupil who is full of life will probably be able to pass examinations in the third class even though one who is full of facts may achieve the first class. Life will stand him in infinitely better stead in the future than facts which are more often than not the antitheses of life. Moreover it is not unknown that failure, even in examinations, has been the open sesame to great achievement in after-life. And is it not far more important to be able to answer, to one's own satisfaction at any rate, the problems of life rather than the problems of the question-paper to the satisfaction of the examiner; though I admit that the latter seems very much more paying than the former?

If education were for living and not merely for livelihood, if education were for joy and happiness and not merely for temporal success, if education were for self-expression and not so exclusively for imitation, if education were as much for eternity as it is for time, if education were as much for service as it is for self-seeking, if education were as much for wisdom and truth as it is for so-called facts, if education were as much for the soul as it is supposed to be for the mind, then indeed would the younger generation be well-equipped for Life. But education tends to be static. Only here and there, and now and then, is it dynamic. It makes its pupils far more respectable than real. By reason of the fact that this is an age of Mind, education, concentrating on the mind, has practically forgotten, if it ever knew, the emotions, and is only now remembering the

physical body. Yet of infinitely greater importance are the emotions than the mind, and of no less importance than the physical body. Were the emotions educated as they should be educated, many of the world's acutest problems would cease to be. The problems of war, of sex, of poverty, of disease, would, I make bold to say, be far nearer to understanding, and therefore to solution, than they are to-day. The right education of the emotions is the direct route to brotherliness, to the spirit of unity, to all that makes for generosity and compassion, to happiness and peace. To neglect the emotions is to leave brotherliness to its fate, to grow as best it can untended, to make unity the slave of individuality, to exalt competition above co-operation, to cause self-sacrifice to yield to self-seeking, to force happiness and peace to make room for worry and anxiety. Without the co-operation of the emotions the mind becomes hard and narrow, just as without the co-operation of the mind the emotions tend to become aimless and uncontrolled. Freedom I demand for mind, for emotions, for physical body, that true freedom which is ordered because it is loftily purposeful; and that these may be thus ordered purposefully they need education, that is unfoldment, wise nurture, noble direction from within aided by understanding sympathy from without.

May I now turn to education in India? No more splendid background is there in the world for education than India, where is the true home of education, where the deepest principles of education lie imbedded in her eternity for those to find who seek for the Real in regions eternal rather than in regions of time. I look over the world and I see education everywhere in the melting-pot. I

see everywhere problems, everywhere plans and methods, schemes and projects. I see education extending sway over the pre-natal, delving into psychological temperament, penetrating almost up to the very soul itself, specifically in the works of Mr. Edmond Holmes. But is it not all largely tinkering? Is it not all largely taking the child as he is, as a child, as an emptiness, more as a vase to be filled than, as Madame Montessori so truly wishes him to be, a spark to be fanned into a flame? What is really understood to-day of child's eternal nature, of the great pilgrimage of life at a particular stage of which he stands before us? What is known of the many-coloured spectrum of human diversity as the manifestation of the white Light of Divine Unity? Who is able to assign to a child his individuality-colour with all its wondrous significance? What is known or surmised as to the reason why a child is born in this country or in that, in this faith or in that, in these surroundings or in those? What is realised as to the differing notes of the various faiths, of the various nationalities, of the various temperaments, in the great harmony of Life Universal? What is perceived as to the true relationship between the various kingdoms of Nature—human, non-human, super-human, and as to the need of recognising the obligations of such relationship for co-operative and therefore for mutually helpful living? How little do we realise that education is everywhere, is the universal process of Life, is the very expression of Life itself, and that there is no isolation in education, that education at one point affects education at all points, that education here or there is affecting education everywhere. Do we not need to realise that just as all life must grow together, and does grow together,

so should all life as far as possible be educated together, so that it may grow beautifully together. That word 'Together' might well be a watchword of modern education. How long shall we be before we realise that where the younger kingdoms of Nature are neglected, the human kingdom must inevitably remain stunted. Nothing can grow at the expense of, apart from, other things. Nothing can grow through tyranny, through cruelty, through neglect, through indifference. And the suffering of one member of the family is the weakness of the rest. You may, if you will, carry the implications of what I am saying to what you will regard as ridiculous lengths. But short of caricature, there is no limit to the length to which you may not carry the implications of that universal brotherhood which enfolds all Life. You and I are one with the trees, the flowers, the shrubs, the very weeds themselves. We are one with the woodwork, the bricks and the stonework of this hall. We are one with the rocks, the earth, the stones. We are one with the waters and the seas. We are one with Gods and Angels and men. For all is Divinity in process of achieving self-consciousness, and the ladder of growth is unbroken from unconsciousness in the mineral kingdom to wakefulness in the human kingdom, to full consciousness in glorious regions beyond the human. Oh that education could give us, thrill us with, such truths as these through its facts and figures, through its subjects and schemes! Oh that education could put its votaries in the way of understanding the major problems of life, instead of leaving them most carefully alone! That it could strengthen its votaries against all fear, evoking in them their natural heritage of courage! That it could take away from them the fear

of death by disclosing to them the true nature of death. That it could take away from them the fear of failure by demonstrating all absence of failure where effort still remains! That it could make life more than endurable, delightful, by showing that pain and suffering are but the birth-pangs of power and joy! That it could draw the veil which separates present from future and disclose the splendour of our Destiny! Why should not education do these things, or at least move in the direction of doing these things? Not perhaps, so much education of the mass variety, but certainly education in the hands of pioneers, visionaries, fanatics of the right kind. Let books be written on education's larger issues. Let public opinion be aroused to demand from education that it shall show the way to wisdom as well as travel on other roads of lesser import. Education needs to be idealistic if it is to be wisely practical. Education needs to be full of beauty if it is to be true. Education needs to be full of vision and Eternity if it is to serve the true purposes of time.

What an opportunity you have here in India, an opportunity that I am afraid the existence of an alien spirit in education causes us most terribly to miss. In very truth you have but to lift up your eyes unto the hills whence cometh all help to know of what nature Indian education should be. I am guilty of no flight of fancy when I say that in the glorious Himalayas, the root-base of eternal India, we have the keynote to the whole of Indian life, and therefore to the soul of Indian education. Does not India draw from these mighty mountain Beings much of the faith in which a large majority of her peoples live? Does she not draw from them almost

her whole science of art and of beauty? Does she not draw from them her protection? Does she not draw down from them much, very much, of her material well-being? True, we have among us our Mussalman brethren whose life immediately came from Arabia where their great Prophet stood out in such unique magnificence. True, we have our Parsi brethren whose life is more immediately traceable to Persia, and our Christian brethren who come as it were from Palestine. We have our Buddhist brethren, but they are of our own land. Yet will not all surely reverence the Himalayan Mountain Brotherhood for a grandeur which, though physical, must come from some inner power of which the Brotherhood is the outer form? For what do the Himalayas stand so far as regards education? Above all, they stand for Power, for Unity, for Lofty Purpose. They are a very embodiment of all these, and because of these India is. Because of these India has endured. Because of these India like the phoenix is rising to-day from the ashes of her past, those glorious ashes yet smouldering which the devotion of her children shall fan into a Fire more splendid than has ever been. And our education, therefore, must be Himalayan education. We do not look, we need not look, let us not look to the West for power in our education, for unity in our education, for lofty purpose in our education, for truth in our education. Let us cease to believe that the education of the West is the ideal for the East. Far from it, let us look into the India of bygone days, let us look into the splendid culture of our Mussalman brethren, itself the father of much of the culture in the West, let us lift up our eyes unto the Himalayas, and we shall find ourselves listen-

ing to the song India has ever sung, the song she shall sing to-day, the song her children must learn to sing with all their hearts. For some parts of the *body* of our education we may well go to the West. But for the *soul* never. Indeed, I boldly and emphatically say that the soul of all education throughout the world is to be sought and found in this ancient land of ours, and that only as our educational brethren of the West gain the wise humility which will turn their eyes to the East shall they begin to find the solutions of many of the problems which perplex them to-day. But if great things are to be done in the educational field in India there must be, I am sure you will all agree, unrestricted freedom. Under a foreign system of education no youth of any land can truly grow. Only with an education full of Indian ideals, full of Indian spirit, full of Indian power, full of Indian unity, full of Indian simplicity, full of Indian purpose, full, that is, of Indian life, can Indian youth grow into Indian manhood, can India be herself. You ask: "Where are these Indian ideals, where is this Indian spirit, where is this Indian unity, where is this Indian purpose, where is this Indian life?" I say it is everywhere; overlaid by foreigndom, but there. And I say that you have but to look up to the Himalayas, the Guardians of India, to know that all these things still live, are at the worst asleep, are to awake once more to the glory of the Mother of all lands and to the peace and happiness of the world.

For the moment we may only be able to aspire, to hope, to dream. For the moment all these splendours may be beyond what is called the region of practical politics. You may have thought my address to be hope-

lessly impractical. But unless we dream, unless we aspire, unless we long, we shall not achieve. Therefore do I long. Therefore have I dreamed with you this morning. As our Conference proceeds, we shall deal adequately with education in point of time. I pray I have not been grudged my glimpse into education in point of the eternal, in point of the Utopian. If you and I will dream to-day, though we find our dreams but dreams, others shall come after us who, because we have dreamed, shall realise our dreams, or dreams more splendid still. In the midst of time, then, let us dream of what shall some day be. Perchance a shadow from our dreaming shall bring somewhat of the future down into the very present.

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TRAINING COLLEGES AND EDUCATIONAL RESEARCH.*

By Principal H. B. HAMLEY, M.A.
Secondary Training College, Bombay.

IN recent years notable contributions have been made by Indian men of science to the world's scientific knowledge. A glance at modern scientific journals will reveal the fact that the output of Indian Universities in scientific research is growing year by year, not only in quantity, but also in quality. The names of Bose, Ramanuja, Saha, Raman and others are known to all serious scientific workers in the West; some of these names will be known as long as the study of science continues. The same claim can hardly be made for educational research. It has to be admitted that, compared with other countries and compared with what might have been, very little has been done in India. There are many reasons for this state of affairs; lack of teachers with the necessary training, lack of funds, lack of incentive and lack of organisation. To these may be added an insufficient appreciation of the value of educational research and perhaps a *laissez faire* attitude engendered by the almost overwhelming production of America and other countries. It must be admitted that the casual educationist has every right to feel distrustful of modern educational research, since much of it seems to have so little practical bearing on life, and the technique is often so imperfect. As a matter of fact, educational research up to the present has been in very much the same position as physical research was a century ago, when the physicist ignored the bearing of his work on practical life and when the technique of experiment was somewhat crude. In recent

* A Paper read at the Fourth Session of the All-India Teachers' Federation at Sir Cowasji Jebangir Hall, Bombay, on the 5th November 1928.

years a great change has come over research in education. What our American friends call 'life-situations' are being stressed more and more. Our technique also is in process of development but, when we remember that Kelvin obtained memorable results with crude apparatus half a century ago, we need not wait until our instruments are perfect. A great deal can be done with a knowledge of Spearman's Rank Rule.

In speaking of educational research it is usual to separate those subjects that are outside from those that are inside the experience of the teacher in the class-room. Among the former we find such psychological subjects as transfer of training, memory, imagery, imageless thought, intelligence, general ability, instinct, fantasies, nervous and mental disorders and many others. Then we have specific educational psychology giving us such subjects as the language and thought of the child, stages of development, adolescence, emotion in the child, suggestibility, the measurement of temperament and character, the mental images of school children and many others.

There are, again, problems connected with the home and society, industrial problems, problems of vocation, of abnormal children, of heredity and environment, discipline and freedom.

Turning to the subjects that lie within the experience of the teacher and the school administrator, we find an equally long list of problems awaiting solution, problems connected with the teaching of ordinary school subjects, methods of class management and school organisation, examinations and so forth.

For example, we want to know how to teach the mother-tongue, whether by symbol

first or by the sentence, how to teach a foreign language, whether by the direct method or by some other method, how to memorise poetry, whether by the whole or by the part process, how to teach the fundamental processes and concepts, the essentials of Geography, History, Nature Study and Science. Then there are such subjects as individual and social plans of school organisation, methods of testing attainment, intelligence and aptitudes, the effect of games on school work, children's natural interests, vocabularies, and so on. There is hardly a subject among those mentioned which is not receiving some attention at the hands of teachers in India. In the common room, in Teachers' Associations, and even on public platforms, these subjects are being discussed. Teachers in their daily work do, to a greater or less extent, experiment and observe, but it has to be acknowledged that in many cases with regard to the statement of their results that there is a great deal more assertion than statistics, more prejudice than proof. Most of us are sure that our methods of instruction are an advance on all others but few of us can back up our contentions with facts. It is only by thorough-going scientific investigation that we can expect to persuade the sceptic with improved ideas than his own, that our methods are based on firm foundations.

Sufficient has been said to show that there are many educational problems in need of investigation and the question naturally arises—With our limited resources, are we not faced with a hopeless task? Research is admittedly an expensive business. We cannot hope to compete with other countries better endowed; let us leave the task to them? We may answer in reply that there are many

problems which cannot be left to others, they are our own and must be solved by us or not at all. Some of these are in urgent need of investigation. No one, as far as I know, has made a thorough investigation of the problem of adolescence in India. Then there are problems like bilingualism, vocational guidance, community characteristics and many others. These problems cannot be solved from a distance. Then, again, we are rather prone to exaggerate the cost of educational research. Compared with scientific and medical research, upon which large sums are spent in India every year, the cost of educational research is insignificant. What is needed is a wider appreciation of the value of research and moderate endowments for material and scholarships.

THE NEEDS.

In ascribing causes for the small output of educational research in India, reference was made to four main deficiencies:

1. Lack of qualified research workers,
2. Lack of incentive,
3. Lack of funds, and
4. Lack of organisation.

1. For research workers in the field of education, we naturally turn to the Training Colleges, where the majority of our teachers make their first acquaintance with educational problems. Year by year teachers are being sent out of our colleges, with a certain amount of equipment for their life work. They are what we commonly designate 'trained teachers.' Unfortunately they often carry with them the impression that they are finished products and that, as far as they are concerned, there is nothing more to be done than to apply, as well as they can, the methods they have learned in the Training College.

It would be a great gain, if the term 'trained teacher' could be put aside altogether. The primary function of a Training College is not to inculcate methods or to perfect technique, but to stimulate and inspire, to vitalise and quicken the spirit. But not only must our teachers get the spirit of enquiry, they must also be equipped with the technical training for research, at least our graduate teachers. For the past five years, the students of the Secondary Training College, Bombay, have been presented with the elements of Statistical Analysis, and for the past two or three years they have also received regular and systematic training in research methods and statistical calculations (*e.g.*, frequency and variation formulae, correlation and so on). Many of them are now able to assist in investigations initiated by others; a few of them are capable of initiating and carrying out work for themselves. I commend this procedure to other colleges which may not have considered the teaching of research methods practicable during the college course.

The materials of the research worker are books, magazines, journals and facts derived from the material under experiment. It is absolutely essential, not only for the needs of the research worker but also to stimulate independent enquiry among young teachers that all Training Colleges should be equipped with the latest educational books and the best educational journals of the world. These books and journals should be accessible to the students under training and references should be made to them from time to time in college lectures. Our experience in Bombay has been that modern educational literature in the form of books and journals has had a marked stimulating effect on the student. He realises two important things; first, that his

own work is up-to-date, and that there are many problems left for him to solve. The objection may be made that journals and magazines are expensive but it is surprising how much can be obtained for two or three hundred rupees a year. May I, in concluding this part of the subject, commend the practice prevailing in some colleges of stating, at the end of a series of lectures on a particular topic, some of the problems that are still awaiting investigation in that sphere.

2. Again, our teachers lack incentives. There is much to be said for the old ideal 'Knowledge for its own sake,' and 'Research for the sake of truth,' but after all most of us are human. We need incentives in our work. Such incentives are given in other countries in the form of University degrees, department recognition, and so on. Some of the best research work of recent years has been turned out by candidates for Master's and Doctor's degrees working under research professors. It would be a great incentive to educational research in India, if Master's degrees in Education were instituted in all the Universities. It would also be to the good of education if it were known that, when higher appointments in the Educational Service are being considered, those who have behind them a record of achievement in research would get the preference, irrespective of whether they are Government officers or not. There is a general impression abroad that questions of seniority and expediency are allowed to take precedence over efficiency.

3. Our third disability is lack of funds. In thinking of the question of funds there is a danger lest we should allow our minds to become paralysed by the reports of educational expenditure in the United States of America and elsewhere. From one not very

large city in America, we have the following report:—'Educational research is carried on by some fourteen departments, each with a responsible head and each with research and clerical assistants.' We further find that this school of research ranks about 20th among the educational institutes of America! But, in spite of such, to us, depressing reports, it may be asserted with conviction that very valuable results could be obtained in India from an expenditure well within our means and that even, if only a few thousands of rupees a year were available in some provinces, a substantial return for the money expended could be anticipated. Every University in India should have its department of educational research even though it may not be very pretentious. Much could be done by a single research professor with half-a-dozen research workers and a moderate amount of equipment. We may even go as far as needs be as to eliminate the special research professor altogether and place the research workers under the general guidance of the Training Colleges. With an expenditure of about Rs. 1,000 a year per student for scholarships and about half that amount for material, results of considerable value could be obtained. But we must not give the impression that we exclude the practical teacher from the work of research. The success of the scheme that I have in mind is dependent on his co-operation. We shall need funds not only for the full-time research worker but also for the teacher who is able to assist us in his own school.

4. We come, finally, to lack of organisation. Lack of organisation has been responsible not only for a great deal of waste in educational research but also for inefficiency. When research workers are so few, and re-

sources so meagre, there is danger lest otherwise valuable results should become dissipated and lost sight of. In any co-ordinated system of doing work there is always a centre of force. It is essential for the proper co-ordination of educational research in India, that there should be not only centre of force in each chief educational centre but that these centres should themselves be co-ordinated. Organisation implies 1. Co-ordination; and 2. Co-operation.

In those provinces in which University Schools of Education exist, the co-ordination of research will naturally fall on the professorial staff or on a small educational Committee of the University. In other places it could be done by Committees of the University or of the Educational Department. These Committees would co-ordinate the work, suggest lines of enquiry, recommend grants to deserving works and arrange for the publication of results. They would also arrange for the supply of the latest books and Research Journals and for their distribution to the workers concerned. They would also constitute the agency through which the research workers of their own province would communicate and co-operate with other workers and departments.

Co-operation is necessary not only between professional research workers in various centres but between the research worker and the practical teacher. Close co-operation between the research worker and the teacher will be desirable for many reasons. Firstly, it will remind the research worker that he must keep to 'practical politics,' and the teacher that there is value in exact investigation. It will also stimulate the teacher and make his professional life more interesting, and incidentally, more effective. It will also

lead to greater sympathy between the University and the teacher.

This co-operation can be obtained sometimes by giving the teacher a definite bit of work to do and sometimes by getting him to share in a work being carried out in many centres.

Finally, co-operation is necessary between the provincial educational centres. This can be obtained partly by Conferences such as this, and partly by a Journal of Educational Research. May we not look forward to the time when India will have her own Journal of Educational Research, which will be looked for as readily in other countries as their Journals are in this? There is no greater stimulus in Education than self-expression.

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(Continued from p. 563).

"THE THIRD SANGAM."

I

THE commentary on *Iṟayaṇār-ahapporuḷ* describes the so-called Third Tamil Sangam in these words: "The following were, they say, the members of the last Academy and made researches in Tamil: Śendam-Pūḍaṇār, Aṟivuḍayaṇār, Peruṇ-kuṇṇūr-Kiḷār, Iḷan-Tirumāṇan, the Madurai-Āsiriya Nallanduvāṇār, Marudaṇ-Iḷavāṇār, Nakkīraṇār, the son of Kaṇakkāyaṇār, and others forming on the whole a collection of 49. Including them, they say, there were 449 poets. The poems sung by them included the *Neḍundohai* 400; *Kuṇḍohai* 400; *Narriṇai* 400, *Puṇāṇūru*; *Aiṅṇūru*; *Paḍirupattu*; *Kali* 150; *Paripāḍal* 70; *Kuṭtu*; *Vari*; *Pēriṣai*; *Śirriṣai*; and other works. Their *Nāl* consisted of the *Agattiyam* and the *Tolkappiyam*. It is said that they formed the Academy and wrote Tamil works during a space of 1850 years. They were patronised by 49 kings from Muḍa-tirumāṇa who lived at the time of the destruction of the 'Second Academy' to Ugra-peruvalūdi. They say that they held the Academy in North Madura. There were three Pāṇḍyans who were included among the poets (செய்யாக்கேறினார்)—so they say."

The *Āsiriyaṇṇā-ahaval**, a later work, which was apparently based on the authority quoted

* The *Āsiriyaṇṇā* uses the expression *Aṟivuḍayaṇār* as the epithet of Peruṇkuṇṇūr Kiḷār. In this case we have to drop Aṟivuḍayaṇār in the list of poets and translate the passage as the wise Arar (Hara ?) alias Peruṇkuṇṇūr Kiḷār. The *Āsiriyaṇṇā* is given in Mahamahopadhyaaya Svaminatha Aiyar's Edition of the *Śilappadhikāram*, p. 7, footnote. I have also seen the word *Aṟivuḍayaṇār* (instead of *Aṟivuḍayaṇār*), in which case we shall have to translate as Peruṇkuṇṇūr Kiḷār the

above and which reproduces mostly the very expressions of it, adds the names Śiṅu-māḍaviyār, Kīraṇ-Korṇāṇār, Kīlartēṇūr-Kiḷār, the Āsiriya of Maṇatūr, Peruṇṣeadan of Nallūr-Puḷiyāṇai; Śellūr-Āsiriya Muṇḍam-Peruṇ-Kumara; Muṣiri-Āsiriya Nilakandāṇār; Śittalaichchāṇār; Uppūrikuḍi-kiḷār who was an expert in *Muppāl* (i.e. the three *purushārthas* धर्म, अर्थ and काम); Rudraśarma; Dāmodaraṇār of the four lores (i.e. the four *Vēlas*); Korṇāṇār; Peruṇjuvaṇār; Kapi-lar, the world-famous, and Paraṇār; Nannābar; Kallāḍar, the commentator of the *Tolkappiyam*; Māmūlaṇār and Nachchellayār. Amongst the works it adds *Muttollāyiram* and *Ahanāṇūru* (which is called *Neḍundohai* in the version of the *Iṟayaṇār-ahapporuḷ* commentary). It gives *Paripāḍal* the epithet of *perum* or big and to *Kali* 150 that of *kuṇṇu* or short.

The first eight works mentioned in the *Iṟayaṇār-ahapporuḷ* are generally known to Tamil scholars as *Eṭṭuttohāi* or eight collections. They seem to have been given this corporate unity and title after the commentary of the *Ahapporuḷ*; for the latter does not use that expression. From the fact that the majority of them have got an introductory verse from the pen of Perundēvaṇār we have to suppose that they were put together as one collection by this scholar. Now, this scholar is traditionally (cf. the *Tiruvalluvamālai*) said to have belonged to "the Third Sangam"; but it is known from epigraphy that he lived in the latter part of the 8th century and the earlier half of the 9th century, as the contemporary of the Pallava king Nandivarman of the Tellāṅṇu fame. We can argue from analogy that the other collections traditionally associated with "the Third Sangam"

wise. The *Āsiriyaṇṇā* gives epithets to the places or persons it mentions, which are not given above. Some of the names given above may not be different if we are to take the probably inaccurate punctuation in the original.

were compiled by him. In this case, these other works must be presumably later than the time of the composition of the commentary on Irayaṇār's *Ahapporūl*; for they are not named in the latter. But to make such an inference would be incorrect. To give only one example in proof of this contention, Tiruvalluvar's *Tirukkural* has, we have already seen, to be attributed to an age previous to most of the works generally assigned to the so-called Third Śāṅgam and so must have been included in the *Ahapporūl* commentary. But it is not; and we find it among the 18 moral poems or *Kiḷkanakku* as they are collectively called, many of which are insignificant when compared with the *Kural* and most of which are known to be distinctly later in date.

Next to the *Eṭṭuttohāi*, the *Pattuppāṭṭu* or collection of ten poems is generally associated with the so-called Third Śāṅgam. We do not find the individual poems of this collection, much less the collection as a whole, mentioned in the commentary on Irayaṇār-*ahapporūl*. Some at least of the individual poems must have existed before it; for we find that these were either composed by the same scholars or they refer to the same kings. But some of the poems at least, we have reasons to believe, must have been later compositions and included with the earlier ones in a single collection by a general compiler who might or might not have been Perundēvaṇār. A very detailed study of each of the poems alone can enable one to fix their relative chronology.

Next to the *Pattuppāṭṭu* should be mentioned the poems included in the *Paḍiṇē-kīḷkanakku*. Now, we positively know that some at least of the 18 moral poems are very late in date. The *Nāḷadiyār*, for example, was apparently the work of the 8th or 9th century. One of the authors, Poygai, might be identical with the Ālvār of that name in the sixth or more probably the seventh century. On the contrary some of the poems are decidedly archaic in style, character, and in

authorship. Some of the poems in the name of Kapilar were probably comparatively old. The *Muppāl* of Tiruvalluvar was, as has been already shown, decidedly old. It is clear from this that in regard to the *Paḍiṇē-kīḷkanakku*, though parts of it may have belonged to the age of the Śāṅgam, others must have been later and included in the general compilation by the general editor whoever he might have been.

One more item remains to be mentioned in connection with the traditions of the so-called Third Śāṅgam; and that is the composition of the five epic poems *Śilappadhikāram*, *Maṇimēkalai*, *Ohintāmaṇi*, *Valayūpati* and *Kuṇḍalakēśi*. Of these five poems it is acknowledged by all modern scholars that the first two alone were composed during the Śāṅgam period. This contemporaneity is apparently maintained on the grounds of the alleged contemporaneity of the authors and of the kings figuring in the poems themselves. The introductions to the poems clearly dwell on this feature. But there are difficulties in accepting this view. The introductions may be, and probably were, later. The works are practically the only Buddhistic works in 'the Śāṅgam period' and indicate further certain features and facts which do not reflect the same age as the vast majority of the other poems. The whole question will be considered later on.

Such are the works generally associated with "the Third Tamil Śāṅgam." There are also various other traditions which are decidedly untrustworthy and have to be mentioned only to be rejected as valueless. The story of Vamsaśekhara Pāṇḍya, for example, and his foundation of the Śāṅgam as given in the *Tiruvīlayāḍal-purāṇam* is not consistent with the story given in traditional classical literature. The expression *Vamsaśekhara* or *Kulaśekhara* reminds us of some later Pāṇḍyan king of that name, in whose time apparently the work was compiled. The story of the foundation of Madura may also be a later

invention in the Paurāṇic age. The stories of the Ālvārs figuring in the Śāṅgams, of Nāthamuni and Kamba also distinguishing themselves therein, are all clearly later concoctions unless we suppose that they were members of Academies of their own respective times.

With these preliminary remarks, I shall now pass on to analyse the works of the period so that an attempt may be made to fix their relative chronology as far as it is possible and to depict the civilization reflected and described therein. In doing this I do not propose to deal with the various poems as parts of the general collections in which they are traditionally included; for, as has been already said, owing to the late age of the general compiler or compilers, poems of different ages were put together to form the groups by which they have ever since been known. We shall therefore study the poems individually. Such a method is bound to be helpful in the settlement of their chronology as well as their authoritative in reflecting the culture and civilization of the Śāṅgam age.

II

The *Narrai** contains 401 verses, each of which ranges from 9 to 12 lines in the *Ahaval* metre. Its theme is love and it was compiled at the instance of a Pāṇḍyan king named Paṇṇāḍu-tanda-Pāṇḍya-Māraṇ-Vaḷudi (பன்னாட்டுத்தண்டன் மாறன் வழுதி). It contains the works of 175 poets. There are 28 verses on *Mullai*, 32 on *Maruḍam*, 107 on *Pālai*, 103 on *Neydal* and 120 on *Kuruṇji*. No ancient commentary on this work is available. The late Pinnattūr Nārāyaṇasāmi Aiyar has edited it with a beautiful commentary of his own, a monument of scholarship and industry (1914).

* For alternative readings and some valuable criticisms of this by Pandit Kandasamiyar, see *Sentamil*, Vol. XIV, pp. 185 and 338 ff.
XXXIV—85

The *Kurundohai* (literally the short collection) is so called because the 402 *Ahaval* verses which it contains range only from four to eight lines each. Its theme also is love. It is the work of 205 poets. It was compiled at the instance of the chief named Pūḷikkō, the chief of Pūḷi which has been identified with North Malabar. The work was, except in regard to 20 verses, annotated by Perāśiriyar; but the commentary has been lost. Nachchiṇārkkkiṇiyar has written a commentary on the remaining 20 verses. The work has been edited by Pandit Rangasāmy Aiyangār of the Madrasa at Vāṇiyambādi, with a commentary of his own. As the panegyric verse on God in the introduction to this anthology is said to be by Perundēvaṇār, the translator of the *Mahābhārata*, we have *prima facie* an evidence to prove that it was edited in the close of the 8th century. Of the 400 verses about 45 deal with *Mullai*, 46 with *Maruḍam*, 94 with *Pālai*, 70 with *Neydal* and 145 with *Kuruṇji*.

The *Aṅṅurupūru* (literally the short five hundred) contains 500 verses in the *Ahaval* metre, divided into five equal sections of 100 verses on each of the five *tiṇais*. The first 100 on *Maruḍattinai* (fertile land), was sung by Ōrampōhiyār; the second on *Neydal* (maritime tract) by Ammūvaṇār; the third on *Kuruṇji* (hilly region) by Kapila; the fourth on *Pālai* (sandy tract) by Ūḍalandaiyār; and the fifth on *Mullai* (pasture) by Pēyaṇār. The anthology was compiled by Pulatturāi Muṇṇiya Kūḍalūr Kīḷār (புலத்துறை முத்திய குடலூர் கிழார்) or simply Kūḍalūr Kīḷār. The king who caused it to be compiled was Yāṇaikkaṇ-Sōy-Māṇḍaraṇ-Chēral-Irumpōrai, i.e., the Chēra Irumpōrai of the elephant's eye. No commentary on this work has been discovered. Each verse ranges from 3 to 6 lines.

The *Paḍiruppaṭṭu* (literally the Ten Tens) is a celebrated collection, entirely devoted to the celebration of a number of Chēra kings, their

virtues and their achievements. It consists of 100 songs, divided into ten books, each of which consists of ten verses by a different poet. The first and last of the books are lost. The authors and the themes of the other books can be best expressed in a tabular statement.

BOOK.	AUTHOR.	THE KING CELEBRATED.
I.	Lost.	Lost.
II.	Kumattūr Kaṇṇaṇār.	Imayavaramban Neḍuñchēralādan. 58 years.
III.	Pālai Gautamāṇār, the sacrificer.	Palyāṇaichchelpuḷ Kuṭṭuvan (brother of Imayavaramban). 25 years.
IV.	Kāppiyāṇṇu-Kāppiyaṇār.	Kaḷaṅgāyakkanni-nārmuḍichchēral. 20 years.
V.	Paraṇar.	Śeṅkuṭṭuvan and his son Kuṭṭuvan Chēral. 38 years.
VI.	Kāḷkaipāḍiṇiyār Nachchellaiyār, the poetess.	Nāḍukōṭṭpāḍu Chēralādan. 50 years.
VII.	Kapilar.	Śelvakkāḍuṅgōvāḷi-ādan. 20 years.
VIII.	Arisilkiḷār.	Tagaḍūr-eṇḍa-peruñchēral Irumpoṇai. 17 years.
IX.	Peruñkuṇṅūr-Kiḷār.	Kuḍakkō-Iḷañchēral Irumpoṇai. 16 years.
X.	Lost.	Lost.

It is not known who compiled this collection and under whose patronage it was done. It has been, together with an old glossary on it, edited by Mahāmahōpādhyāya Svāminatha Aiyar. It is highly valuable as a record of the then civilization, archaic vocabulary, etc. It is said that Sanskrit words are very scarce. The poets are said to have been rewarded by their royal patrons with thousands of *pons* and *kāṇams* and large areas

of land, sometimes even parts of the kingdom, which indicate the large prevalence of the *Brahmadāya* system, the performance of sacrifices, etc. Trade, industries, food, housing, castes, funeral customs, ornaments, warfare, temples, and various aspects of the Tamil culture in Malabar are amply illustrated.

5. The *Pāriṇāḍal* is so called on account of the peculiar style called *pariṇāḍal*, in which its 70

stanzas are composed. Eight of these verses are devoted to the praise of Tīrumāl (i.e., Viṣṇu), 31 to God Subrahmaṇya, one to the sea, 26 to the river Vaigai and 4 to the city of Madura. The compiler and his patron are unknown. Only twenty-four verses are now available; and these, together with an old commentary, have been printed by the same pandit.

6. The *Kalittōhai** (called also *Kali* and *Kuṇṭkalittōhai*) is a collection of 150 stanzas on the five *tiṇais* in illustration of *Aham*, in the *Kali* metre. The poem is a special favourite of scholars on account of its beauty and style. A commentary on this work by Nachchinārkkīṇiya exists. It has been edited by Dāmōḍaram Pillai. There are 35 stanzas on *Pālai*, 29 on *Kuṇṭji*, 33 on *Neydal*, 35 on *Marudam* and 17 on *Mullai*, respectively, by Kaḍuṅgōn, Kapilar, Marudan Iḷanāga, Chōla Nallurtiran and Nallanduvāṇār. The last was apparently the compiler of the whole.

7. The *Ahaṇāṇṇūru* is a collection of 401 verses of different lengths ranging from 13 to 37 lines and in *Ahaval* form, devoted to erotics. The first 120 verses go to make one book called *Kaḷiriyāṇai-nīrai* (கலிரியானை நிரை), the next 180 form the *Muṇimidiṇipavaḷam* (முனிமிடிபவளம்) and the last one-hundred form the *Nittilakkōvai* (நித்திலக்கவை). There are 145 poets. The compiler of this anthology was Rudrasarma, the son of Uppūrikuḍi Kiḷān of Madura. The king who was instrumental in its compilation was the Pāṇḍya Ugraperuḷaḍi, who is also mentioned, wrongly as has been mentioned in connection with the *Kuṇṭai*. The work is also known by the names of *Aham*, *Ahappāṭṭu* and *Neḍundohai*. It has been edited by Mr. V. Rājagōpālaiyaṅgār (with introduction by Pandit Rāghavaiaṅgār). Of the 400 songs, 200 are

* For a short account of the poem and its verses quoted by the commentators of the *Tolkappiya*, see *Sen-Tamil*, Vol. XV, pp. 1—17 and 115-6.

devoted to *Pāḷaittiṇai*, 80 to *Kuṇṭjittiṇai* and 40 each to the other three *tiṇais*.

The *Puraṇāṇūru* (known also as *Puraṇ* and *Purappāṭṭu*) is a collection of 400 verses in *Ahaval* metre, written by a number of poets, on *puraṇ* or objective topics like heroism, etc. It is not known who compiled it and at whose instance. From the fact that it has been left out in some versions of the *Iṇṇaṇṇūru-ahapporuḷ* and from the inclusion of Poygai among its poets, it has been contended that it was compiled later on. But as the name is found in the other versions of that work and as the *Puraṇāṇūru* is only the counterpart of *Ahaṇāṇṇūru*, it has been maintained that it was not a later collection. The work has been edited by Mahāmahōpādhyāya Svāminatha Aiyar. Some of the poets of the so-called first two *Sāṅgams* occur in the collection, the rest belonging to the 'Third *Sāṅgam*.' The poem is of priceless value in throwing light on marriage and funeral customs, scholastic life, Sati, the modes of royal life and amusements and insignia, industries, vehicles and conveyances (including the aerial), food, temples and deities, society, etc.

III

The *Tīrumuruḥāṇṇuppaḍai* of Nakkīrar is a poem on the way in which God Muruha should be worshipped. It contains 317 verses and is a series of prayers addressed to God Subrahmaṇya in His manifestations at his six hill-shrines, Tīrupparaṅkuṇṅam, Tīruchchigalāvāy, Tīrūvāiṇaṅkuḍi, Tīrūvēragam, Kuṇṅutōṇḍal and Pāḷamudirōḷai. The circumstances under which the poem was composed are peculiar. Nakkīra is said to have defied Śiva himself in a literary contest at Madura, as a result of which he was thrown into the golden lily tank as a leper. To get rid of the disease and the disgrace, we are told, Nakkīra proceeded on a pilgrimage to Kailāsa. On the way he was caught by a Brahmarakṣas which had been in search of a thousandth devotee

of Śiva for his food. Nakkīra is then said to have addressed Lord Muruha in this poem and secured, through the grace of that God, not only his own freedom but that of his 999 co-victims! As a holy poem it is read even to-day by the devotees of Subrahmanya. What the *Rāmāyaṇa* is to the Hindus in general, this poem is to the adherents of the cult of Muruha. It has been annotated by Nachchiṇārkkīṇiyar. The poem is not only of great paurāṇic interest but of high value as a work illustrative of the Brahmanical customs and habits; of the dress, ornaments, etc., of the people; of the Vēḷa dancer; of the festivals of Kuṇava girls in order to propitiate Muruha; of the notions about Muruha's heavens, etc. The poet's descriptions of the appearance and achievements of the six faces and 12 hands of Muruha (lines 91—117), of the adornments of young girls (20—37), of hermits (126—35), of the Yavaṇa traders, etc., are singularly charming. The poem raises, on account of the extreme paurāṇic feature in it, interesting chronological problems.

The *Poruṇār-ārūppaḍai* is a poem composed by Muḍattāmakkaṇṇiyār in honour of Karikāl Chōla, the son of Iḷaijōṣeṇṇi. It is in the form of one poet, who has tasted the munificence of that king, addressing another in search of a patron. It contains 248 lines and gives highly vivid descriptions of the birth, the administrative genius, the munificence and the valour of Karikāl Chōla as well as the fertility and glory of the Kāveri-flooded Chōla kingdom. The battle of Veṇṇil (lines 130—48), the agricultural and economic conditions of the Chōla country and many popular customs and habits are described in the poem in a manner at once charming and picturesque.

The *Śiruvāṇārūppaḍai* of Iḷaikaḷiṇāṭṭu-Nallūr-Nattattāṇār (i.e., the poet of Nallūr-nattam in Iḷaikaḷi-nāḍu) contains 269 lines and is in praise of a chief of the Ūviyar clan named Nalliyakkōḍa of Erumā-nāḍu. It is put in the form of one

poet who has tasted the chief's generosity addressing another in search of a patron. The poem gives valuable information about the cities of Eyil, Vellore, and Amur, which belonged to this chief, as well as the capital cities (Vaṇji, Koṅkal and Uṇḍai) of the three great kings of the peninsula. It further throws considerable light on the exploits of war and peace (lines 216—19, etc.) with which Nalliyakkōḍa and his contemporaries—Pūhan, Pāri, Kāri, Āy, Adigan, Nalli and Ūri—distinguished themselves. Lines 47—50 of the poem refer to Kuṭṭuvan's planting the bow emblem on the Himalayas and Vaṇji of flooded gate. (முனல் வாயில் வஞ்சியும் வந்தே.)

The *Perumbāṇārūppaḍai* is a poem which was sung by Kariyalūr Rudran Kaṇṇāṇār (the author of the *Paṭṭiṇappālai*) in honour of Teṇḍamān Iḷaiḍiṇiyan, and contains 500 lines. As usual, it is in the form of one poet who has been patronised by the chief praising him to another who is in awful poverty and who is in search of a patron. It gives the story of the chief of Kāūchi, the origin of his kingdom, with realistic pictures of his rule, his people and their manners and customs. It describes the four types of land in the area between the Chōla and Teṇḍa countries and the popular occupations of the chase, dairy-forming and agriculture. It describes the articles of trade in the seaport, the different kinds of food, the streets of Kāūchi together with Tiruvehkā (the site of Tirumāl's temple). The lines (60—65) describing the salt merchants going from one part of the country to another and the grazing of flocks by cowherds playing on the flute (169—82), are of singular beauty. Many incidental references are made to popular habits and institutions.

The *Mullaiṇṇāṭṭu* is a poem in 103 lines by Nappūlarār of Kāvēripūṇṇāṭṭam on love, supposed generally to be sung on Nedūṇjeliyan of Talaiyālaṅgaṇam. It gives beautiful descriptions of the feelings of a lady who has been separated from her lover in the battle-field, the

characteristics of the rainy season, of the valiant soldier, etc. The descriptions of the way in which the soldier lived in the tent, the current notions about auspicious and inauspicious signs, the indigenous clock, etc., are of great interest.

The *Maduraikkāūchi* is a poem in 782 lines by Māṅguḍi Maruda. It is addressed by the poet to the Pāṇḍyā Talaiyālaṅgaṇṇattu-Cheṇuveṇṇi Nedūṇjeliyan in order to teach him the transient character of worldly life. It is of incalculable value in throwing light on the early greatness of the Pāṇḍyan line, the prosperity of the Pāṇḍyan kingdom, the valour of the Pāṇḍyan kings, the administration of the Chēra and the achievements of minor chiefs. The description of the Pāṇḍyan king's character, towns, army, battle, trade centres, festivals, ports and sailing vessels, pearl fisheries, Yavaṇas, Brahmans, ministers, occupations and various other things, is of incalculable value for the construction of the cultural history of the Tamil land.

The *Nedunālvaḍai* is a poem in 188 lines by Nakkīra. It is in honour of the king who is also the theme of the *Maduraikkāūchi* and *Mullaiṇṇāṭṭu*. It is a consolation addressed by a maid of the palace to a lady love of the king, who is depressed and anxious on account of the king's absence in the battle-field. The consoler dwells upon the heroism of the soldier-king and his sure return with the victor's laurels on his brow. The poem is full of beautiful pictures of the winter season (*Āippasi* and *Kārttikai* months), the condition of the yearning lover in the palace, the heroism of the king in the battle, the harem, the royal camp, etc.

The *Kuruṇjippāṭṭu* is a poem in 261 verses composed by Kapilar in order to give the picture of the Tamil country and its life and glory to an Aryan king Brahmadatta. As is usual with the Tamil poets, it is done in an indirect method. A beautiful and simple virgin is sent, together

with her maid, to watch the millet-field. A tremendous rain overtakes the girls. They enjoy themselves by cool baths, love-songs and collection of flowers. The poet here describes as many as 100 flowers. Just at this stage, there comes a mountain chief in pursuit of a deer. He falls in love with the girl, rescues her from a wild elephant which bursts in at this stage and from the floods of the stream, and then enters into the *gandharva* form of wedlock with her, each drinking a mouthful of water from the river in token of the bond. The maiden returns to the village, and the chief to his mountains. They meet stealthily every day, the hero braving difficult hills and wild beasts to get to her. The lady grows emaciated with anxiety at this state of things. This excites the mother's anxiety. The girl's maid then tells the whole story with a view to secure the union of the two lovers. As a picture of love and village life, of the hill scenes and beauties of nature, the poem is unrivalled. "The young tender calves bellowing for their absent mother cows, the rustic cowherds collecting their scattered flocks with sweet, melodious strains from their flutes, the busy housewife lighting her evening lamps, the lovely dove cooing for absent mate and the saintly people offering their prayers to God and a thousand and one incidents are most gracefully and tellingly described." Kapilar is, par excellence, the poet of nature and mountain scenery. The description of the Tamil land, its hills, its people, its plants, its flowers and its women is of unsurpassable beauty and charm.

The *Paṭṭiṇappālai* is a poem in 301 verses by Rudran Kaṇṇa of Kariyalūr. Its object is to celebrate the splendour of Kāvēripūṇṇāṭṭam and the glory, wealth and justice of King Karikāl Chōla. The language is supposed to be that of a lover just leaving for foreign parts, addressing his own heart which is sore at the prospect of leaving his sweetheart. Karikāl Chōla is said to have been so much gratified by the beauty of the poem that he

gave a reward of 16 lakhs of *pons* to its illustrious author. The poem is remarkable not only for its literary excellence but the substantial knowledge it gives us of the popular culture, the domestic life and customs, the pastimes and occupations, and various other things. It gives a realistic picture of the import and export trade, the busy market, the unceasing tour of the customs officers, the honest dealings of the dealers, the co-operation between the indigenous and foreign merchants, the condition of the masses, the character of the administration, etc.

The *Malaiṇṇadukudāṁ* (also known as *Kur-nārruppaṭṭai*) is poem in 583 lines by poet Perun-Kausika of Perunkunṇūr in Iranyamuttam. It celebrates the glory of a chief named Nannan who ruled over Chengannā in Palkuṇṇakkōttam who was different from Nannan of Konkanam. As usual, it is supposed to have been sung by an author who had received rewards from that chief to one who is on his way to him for the same purpose. Opportunity is thus created for describing the region through which Nannan's country is to be reached, its mountains, gardens, forests, its chief and his court, ancestry and achievements. Light is incidentally thrown on the Śaivite deity Kāri Uṇḍi in the Navira hill which was in Nannan's land, watered by the Cheyyār. The poem is called *Malaiṇṇadukudāṁ* on account of the fancied resemblance of the hills to *Kaḍūm*, a serpent, to which the poet compared the mountain.

IV.

The *Padinen-kil-kaṇakku* (the 18 moral poems). Next to the *Ḫittuttohāi*, the *Padirruppattai* and the *Pattuppāṭṭu*, the eighteen moral poems are traditionally associated with the Third Śāṅgam. The poems might range from 50 to 500 lines, though some do not come under this rule. They have for their themes virtue, wealth and love

and form a splendid mirror of early Tamil civilization. The 18 poems* are:—

- (1) The *Nālaḍiṇṇār*. It consists of 401 stanzas in *venḷā* metre in 40 chapters. It was composed by a number of Jaina writers and put together as an anthology by a certain Padumanār. From the references to the chiefs called Muttarayās in lines 200 and 296 it has been inferred that the poem really belonged to the 9th century and included wrongly by traditions with the works of the 'Third Śāṅgam.' It contains 13 chapters on *Dharma* (அறம்), 25 on *Ariha* (அரசன்) and 1 on *Kāma*, each chapter containing 10 verses.
- (2) The *Nānmaṇikkadigai*, in 101 *venḷās*, each *venḷā* dealing with four things or 'gems.' It was written by one Viḷambi-Nāga. The poem is rich in reflecting the world-experiences. The references to Tirumāl in the first two verses indicate the Vaishṇavite cult of the author. The references to Brahmins, doctors, tanks, etc., are interesting.
- (3) The *Iṇṇiyavai-nārpadu* of Pūdam Śendaṇār, consisting of 40 *venḷās*, each verse speaking of three (or sometimes four) sweet things in the world. On the whole there are 126 sweet things in the world—e.g., learning by even begging; living without debts; regard for public opinion; etc.
- (4) The *Iṇṇā-nārpadu* of Kapilar, a counterpart of the above and dealing with the harmful things of the world. Each verse speaks of four such things. On the whole there are 164, e.g., imprudent speech; unfaithful wife; desertion of the mother; living near the wicked; life in a city

* There are some differences in regard to the names of a few of the 18 works, but what is given below is generally accepted now.

without wealth; getting angry with the inferior; etc.

- (5) The *Kār-nārpadu* of Madurai Kaṇṇan Kūṭṭaṇār, which describes in 40 *venḷās* the despair of a lady who, separated by fate from her lover, expects his return in the *kār* (rainy) season. The poem is full of fine sentiments and beautiful descriptions of the season and the psychology of the lovers.
- (6) The *Kaḷavaḷi-nārpadu* of Poygayār, a pathetic elegy on the Chēra Kaṇakal Irumporai who had been defeated at Kaḷumalam and put in Guḍarāyil prison by the Chōḷa Śēṅgaṇān, a work of charming description and beautiful similes. It has been maintained by some that Poygai might be the Ālvār but disputed by others. The work can be placed in the 6th century. It is of high value in throwing light on armies and the art of war of those days.
- (7) The *Aiṇḍiṇai-aiṁbadu* of Māraṇ Poraiyaṇār, which describes the *tinai*s of love in 50 *venḷās*. Corresponding to the *Mullai*, *Kuṇḍi*, *Marudam*, *Pālai* and *Neydal* are depicted the sentiments of company, combination, pleasure, separation and longing. Some popular customs are incidentally described.
- (8) The *Tiṇai-moli-aiṁbadu* of Kaṇṇan Śendaṇār on the same subject as the above, 14 *venḷās* being devoted to each theme.
- (9) The *Aiṇḍiṇai-ēḷupadu* of Mūvāḍiṇṇār on the same subject in 70 verses, 14 verses being devoted to each theme.
- (10) The *Tiṇaimālai-nūrraiṁbadu* in 150 verses, by Kaṇi-Mēḍāviṇṇār on the same subject. The different kinds of land are beautifully depicted incidentally.
- (11) The *Mupāl* or the *Tirukkupāl* of Tiruvalluvar in the form of *Sūtras* on the three aims of mankind. The work is divided into 133 chapters of 10 decades each. The *Sūtras* (*kural*s) are so terse, pithy and pregnant with meaning that they are rightly regarded as literary marvels and fit themes for commentaries.
- (12) The *Tirukaḷikam* of Nallāḍaṇār, a poem of 101 *venḷās*, each of which speaks, as the name signifies, of three things. The initial verse is in favour of Viṣṇu. The three things referred to are the medicinal articles of *சக்கு*, *யிசு* and *கிப்பி*, and the things are compared to these wholesome medicines.
- (13) The *Āchārakkōvai* of Muḷḷiyār of Peruvāyil, in 101 *venḷās* on the rules of conduct as promulgated by ancient sages. The introductory stanza is on Śiva. It was apparently a translation from a Sanskrit work of the name. It deals with morning ablutions, food, evening worship, hospitality, relations-between teacher and pupil, etc.
- (14) The *Paḷamoli-naṇuru* of the Jain poet (apparently a chief) Mūṇṇarai-Arayaṇār, each verse of which embodies a proverb in the end. The work has been edited by Pandit Tiruvāṇyana Aiyangār with an old commentary in the *Sen-Tamil* (Vol. XV). An independent edition by Pandit Chelvakēśava Mudaliyār, of the Pachaiyappa's College, also exists. It gives very valuable references to old stories, and is therefore of great value for the historian. Some of the proverbs are in vogue even to-day.
- (15) The *Śirupaṇchamūlam* of Kāri Āsān, in 104 *venḷās*, each of which speaks of five things necessary for man's happiness.

(16) The *Innilai* of Poygayār, which was compiled by a Madura scholar Pūlarār and which consists of 45 verses on the four *purushārthas*.

(17) The *Mudumolikkāñchi* of Madurai Kūḍalār Kūlār in 10 chapters, each of which embodies ten old sayings

(18) The *Ēlāli* of Kāṇi Mēḍavīyār, a poem in 80 stanzas, each of which speaks of six

truths or experiences, based on the life of householders and hermits. (*Ēlādi* like *Tirikaḍugam* is a medicinal term, meaning compound of 6 medicines).

It is certain that some of the poems included here were very archaic, some belonged to the Śāṅgam proper and some to the post-Śāṅgam period.

(To be continued).

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MANUAL TRAINING AND VOCATIONAL TRAINING IN SECONDARY SCHOOLS.

By Mr. V. K. RAJAGOPALA IYER, B.A., L.T.,

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THERE are two questions which agitate the minds of all men in the educational world of to-day. The first is how best to improve the system of education now obtaining in the country and make it attune to the psychological and physiological conditions of human growth, and the second is how to render the same education more useful and better fitted to serve the practical needs of men and thus to minimise the evils of unemployment so highly prevalent all over the world. Manual training has reference to the former and vocational training to the latter of these two questions.

Manual training means literally the training of the hand but it includes the training of the other senses as well. For, the senses are the gateways of knowledge. They are the means by which impressions of external objects are conveyed to the mind. Each of the senses has its own function to perform and all help to fill the pupils' mind with knowledge. The softness of the velvet cushion is felt by the sense of touch as the sweetness of the mango by the sense of taste. Impressions of the Cinema show are conveyed through the eye while those of the music in an opera by the ear. Each of the senses may be trained to perform its function best and also to supplement the work of another, if not quite to supplant it. The eye, for example, may be so trained as to render eye-measurements quite as exact as those of the hand, while the hand may be trained to be susceptible of the

most delicate touch and it is because of the high subtlety of the power of touch that it is possible for the blind to read by the hand. It is possible also for one sense to be so much over-wrought as to get thoroughly impaired. As a matter of fact, it is the eye which is often thus over-taxed and victimised in the school-world of to-day, and artificial means have to be resorted to, as a secondary aid to vision. It is necessary therefore in a healthy course of instruction that everyone of the senses should be employed and made to receive its due share of training without at the same time being over-taxed or unduly strained.

The study of books which is often so much resorted to, while it helps the pupil to gain knowledge, offers no good training to the senses—even at least to the eye which is so much used. This sense, instead of being trained, is often much strained and sometimes even injured as was just observed. As to the knowledge gained, it is only knowledge gained second-hand. For, books are only the record of the experiences of others—of what others have seen, felt and heard which the pupil reads and commits to memory. The knowledge gained thereby has no direct relation to his own senses and hence, secondary. Where however, a pupil is made to study nature by himself, he finds ample scope for the employment and training of all his senses. The forests of beautiful trees that he sees, the sweet songs of birds that he hears, the fragrance of sweet smelling flowers and a thousand other things which adorn and enrich the whole landscape, form dainty food to his senses and wholesome first-rate knowledge to his mind. The importance of the direct employment of all senses in the imparting of knowledge has so much been

emphasised upon, that Dr. John Browne characterises the school where the same is neglected, more as a cemetery than as a house of knowledge.

It is not sufficient however to employ and train all the senses but the right sense should be made use of in conveying right impressions to the mind. For each of them is peculiarly fitted to transmit only one type of impressions which the others are not. Whether the grape is sweet or sour, the tongue alone can tell just as the touch alone can say whether the skin is rough or smooth. These are therefore the senses that should be called into aid in conveying these impressions to the mind. It is possible however, for the same impressions or set of impressions, to be conveyed by different senses in different ways. A story, for example, may be told or it may be represented in the form of a picture appealing to the eye or it may be enacted in the form of a play by the pupils themselves—such as that of the monkey and the cats. Of these three, as everyone of us knows, the last is the one by which the story best impresses itself upon the pupil's mind, and it is psychologically the best. For the mind, says the psychologist, is the seat of several centres or instincts. One of these is the instinct to act. It is because of this instinct that there is such an abundance of physical energy in the child tending to keep it ever active. When this tendency to be self-active is turned and applied to the acquisition of knowledge, knowledge is best learnt. Hence it is that learning by doing has been so much insisted upon, especially in the early stages of instruction. The whole Kindergarten and Montessori systems are based upon this psychological principle.

Manual Training also claims the same psychological basis for its introduction as a part of the school course. When the pupil is kept engaged in the making of an object, not only is his hand well-trained, but his knowledge of the object is also well-impressed in his mind. When he is asked, for example, to make a kite, he gains a better knowledge of it than when he is simply told about it or made to see it. Similarly ideas of other objects also are best implanted in the mind of the pupil when he is kept physically active by any work done by his hand. The idea of a square is best put in his mind when he is made to cut a square on paper and that of a cone when he is asked to make a fool's cap. The training of the hand naturally results from the work done. When the pupil is thus kept active, it is not the hand alone that receives training; but the other senses also come into play. What the senses are, is to be determined only by the nature of the work done. Sometimes it is the hand, the ear and the eye as when the pupil makes a musical box or a toy gun and sometimes it is the hand, the eye and the sense of smell as when he makes a garland of flowers. But the hand and the eye always go together whatever may be the work in which the pupil is employed and both work in unison. Hence it is that Manual Training is otherwise called Hand and Eye-training.

There are also other advantages which flow from the manual work done by the pupil. It is a known fact that anything that draws out the pupil's own natural instinct, draws forth his interest as well. When the pupil is engaged in manual occupation of some kind, such as the making of a box, his own natural instincts find free play and as his mind is thus kept wholly absorbed, his power

of concentration develops. As the work proceeds, his creative instinct is aroused and he thinks of giving a new form and a new feature to his model, thus developing a power of originality. His keen desire to give it an artistic shape appeals to his aesthetic sense and he employs all the skill of his hand and his eye to make it as attractive as possible. Further, as the work demands great patience, perseverance, self-will and self-reliance, he acquires all these qualities gradually in the course of his training. Habits of care, accuracy and neatness are also engendered in him as he aims to approximate his work to the standard or pattern set before him. A genuine love of what it cost him so much time, labour and skill to perform, gradually finds place in his heart and he ceases to think low of his work which, till now occupied his hand and his eye. He comes to see that labour has its own dignity while it brings him true reward. As the work generally involves quite as much physical as mental strain, there is sufficient exercise to his body and his limbs and he grows quite strong and vigorous.

Manual Training has much to recommend itself even from the point of view of the framers of the modern educational methods. There are two important things to be cared for and observed in education under the Dalton Plan, *viz.*, self-activity on the part of the pupil and individual attention on the part of the teacher. Both these things are secured in manual training. In the first place, the pupil always works with his hands or his tools and by the employment of his own senses and the mind, without in any way being hampered by any external agency. The teacher ever keeps himself in the background and acts only as a safe friend and guide. Secondly, the very

nature of the work demands individual treatment, and instruction by the mass, to be of any advantage to the pupils, can never be thought of. For the errors to be pointed out and difficulties to be faced are as many in number and as unlike in nature as the pupils themselves are and all these appear in visible form in the models which they individually make. So the teacher has to deal with each model by itself and address himself to each pupil in person for instruction to be really fruitful. The protagonists of the Project Method always insist on purposeful knowledge being imparted to the pupil, and the pupil being engaged in purposeful activity. It may be thought, and perhaps with some reason too, that no knowledge worth having is ever imparted without any purpose and there is no kind of activity which has not an aim of its own. But what these educationists mean is that no mere abstract knowledge or knowledge which has only a remote purpose or end is of any value. Not even the practical kind of knowledge imparted at the laboratory is, they say, of much use. In their view, only knowledge which serves some immediate practical purpose in life, is knowledge worth learning and the pupil's activity in connection with the gaining of such knowledge is activity which is of real value to him. It is no good, therefore, according to them, for a pupil to be told that energy is capable of being transformed from one kind to another, nor is it for him of any good purpose to know by actual experiment how electricity, one form of energy, is transformed into another, *viz.*, that of light. But when the pupil actually makes himself an inmate of the power-house and after accumulating and storing the necessary electric power by handling the machine, converts the dark parlour into a hall

of bright radiance, then alone he is said to gain knowledge of the right purposeful kind and then alone he is said to be purposely active. It is possible to do all this in manual training. When the pupil is kept engaged, not in making a toy or tinsel, but in making an article of use, such as a coat-hanger, or a hand-towel, he becomes purposely active and so is in a position to derive all the benefits that will follow from the method, thus newly projected.

The importance of manual training can also be viewed from the standpoint of the pupil's own future career. In life, the work that a man has to do is not only intellectual but also physical. In fact it is more physical than intellectual in the case of many. The farmer, the manufacturer, the artisan, the mechanic, all these live more by physical than by intellectual labour. All these work either with the hand or with the tools they employ. All these are guided by the senses at every stage of their work. A quick hand, a keen perception, an acute hearing and taste, a ready power of application of all the limbs, all these are qualities which are needed whatever be the work in which they may be employed. A certain amount of mental alertness, resourcefulness and a bias for practical work are also necessary. A pupil who undergoes some kind of manual training acquires all these qualities gradually in the course of his work and soon finds himself well-equipped either for any technical course he may follow or for starting in life as a professional workman.

Looked at, therefore, from every standpoint, manual training satisfies all the aims of education as severally set forth by experts in the field. It improves in the first place the power of the senses. It leads to the harmonious

development of the mental, moral and physical qualities of the pupil. It helps to form good habits and improve his character. It serves to supply him with useful knowledge by keeping him engaged in some kind of purposeful activity. Last but not least, it gives the necessary equipment to fit him for his future professional career. In short and in the words of Mr. Legge: "It is invaluable as a means of intellectual development, invaluable as a means of self-expression, and invaluable as a means of keeping the individual in touch with life." As such it has a well deserved place in any scheme of general education followed in the country.

It may now be considered when and where manual training should begin and what form of training is necessary for the pupil. Generally speaking, manual training should begin at an age when the pupil can use his own hands and limbs and also some tools. The work may demand the employment of some physical energy and the pupil must be in a position to put forth the same. He cannot be made to work beyond his powers, nor can he, unless he reaches a certain age, be trusted to use the tools like knives and scissors with safety. Moreover it is only after reaching a certain age, the pupil gains the power to discipline and control his senses. A child cannot. At one time he is drawn by one sense and at another time, by another. He is ever active without a purpose; but not so the grown-up boy. When he keeps himself engaged in making an object, sweet both to the eye and the ear, he does not allow himself to be overpowered by the one or the other. If he does so, he cannot succeed in the making of the object. Further he should be able to co-ordinate the work of the hand with that of the eye or of any other sense and

this he can do, only when he comes to a certain age. Usually, the age of 9 or 10 is the age when he may be said to acquire all these powers; and that is the age when the pupil begins his Secondary School course.

As to the form of the work to be done by the pupil under manual training, in the first place, it should bear some relation to the other subjects of the school curriculum. For education is a composite process; so many factors go into it; so many agencies come into play and unless one is connected and correlated with another, the necessary composite result cannot be produced. The manual occupation in which the pupil is engaged, should therefore partake something of the character of the pupil's other activities at school and help him to understand other subjects as well. Modelling in clay, card-board work, and gardening are some of the occupations which form valuable aids to the study of Geography, Mathematics and Natural Science. Secondly, the work given to the pupil should be a familiar kind of work—something which he has seen others do and which he may do himself later in life. It should be a useful kind of work too. Then only he will be interested in doing it, and interest, as everyone of us knows, is an important factor in all kinds of educational activity. Every pupil has seen a box made either of wood or card-board and box-making is an interesting and useful kind of occupation. Thirdly, the work should be such as will engage all his powers and give him an all-round training. In this respect there is much difference between one kind of work and another. Spinning and rattan work engage only the hand and the eye. There is not much variety and the work is likely to be felt as monotonous. But carpentry is not so. It calls into play all the

powers of the pupil and gives him an all-round development. Lastly, the work should neither tax the pupil too much nor tax him too little. It should be suited to his growing age and powers. A syllabus may be framed and the work being selected and standardised may be taken up every year, in succession. It may begin with paper-folding and the pupil may be engaged in making models of paper or card-board in the first three Forms. Wood-work may be taken up in Form IV and the pupil may be asked to make simple models. More difficult models may be tried in the Fifth and Sixth Forms. Gardening is another kind of useful occupation. It may be begun even from the lowest forms and the pupils may be asked to do such simple work as weeding and harrowing. It is possible to select and include many more useful occupations, but a multiplicity of the same will simply overload the syllabus and will not be of much help in securing either uniformity or certainty of progress.

The time to be devoted to manual occupation, accommodation, supply of tools, furniture and stationery—all these are other important items to be well-considered and provided for, when the course is first introduced in the school. Much depends on the knowledge, tact and skill of the teacher in charge, who, besides being a man of versatile tastes, should have a broad practical outlook of life with a keen insight into the nature and possibilities of growth of the pupils' mind and body and the success of the course, in no small measure, depends also on the active sympathy and support, not only of the school management, but also of the parent public.

Manual training has not yet been introduced in many Secondary Schools of the

Presidency. But we cannot, on that account, conclude that its importance has not been recognised. The present-day school curriculum consists of a number of subjects with varying degrees of importance. Some are fit for a public examination while others for school examinations only. Some are declared optional while others are compulsory. Manual Training being such an important subject as it is, deserves to be classed with those that are declared compulsory. Unfortunately it is not a subject in which a public examination can be conveniently held and in a country where examinations are the sole tests of efficiency, anything which cannot be subjected to a common universal test is often much neglected, if not quite ignored and is thus made to lose its importance. It is not impossible, however, if the authorities should so choose, to put a practical test in manual training as is done in the case of some subjects of the (C) Group and raise it to a position of importance. A subject which is capable of altering the general character of the instruction given and making it more scientific and less theoretical, certainly deserves an honourable place in the general school curriculum.

VOCATIONAL TRAINING.

Vocational Training, which is the next important subject, now claims our attention. People often confound vocational training with manual training and regard the former as quite identical with the latter. But manual training is as different from vocational training as general education is different from professional education. Manual training forms no doubt the basis of vocational training, but is never identical with it. It may be that the nature of the work done is the same in both; but the aims are totally different. The pupil

under manual training makes a box like a carpenter or one learning carpentry. He uses the same tools and follows more or less the same method. But the box which is made is not so much the thing he cares for as the training it gives, whereas all that the carpenter cares for is only the box. To the pupil under manual training, bad workmanship implies bad training or bad skill. To the carpenter, it implies bad pay as well. To the former the article made has an educative value; to the latter, only a money value. Hence economy of time, economy of labour and things like these count a good deal in the eyes of the latter, whereas they count little to the former. Even if the article made is burnt or destroyed he suffers no loss. Again vocational training is always for the few only, for those who follow a particular trade or profession; whereas manual training is for all whatever may be the profession which each may follow. Manual training is the general foundation, while vocational training is the special fabric put upon it. The two are therefore quite distinct, and different time, different place and different agencies are necessary for running each of the courses.

Vocational training is the training given to a pupil to practise a particular calling in life. It is to teach him the technique of the art by which he hopes to maintain himself and his family. As such it usually follows a course of general training to which the pupil is subjected. For, a certain amount of physical and intellectual development is necessary on the part of the pupil before he can follow the course successfully. He has also to be supplied with a fair amount of general knowledge. Vocational training is, however, more important than general training or the acquiring of general knowledge, and if a choice is to

be made between the two, preference should certainly be given to the former. For, it is possible for one to remain without knowing to read or to write. But it is quite impossible for one to remain without feeding the stomach. Everyone therefore has to find some fair and honest means of living if he is not to run about and hunt like a beast in the forest. The demands of the stomach are more imperative than those of the brain or intellect.

Hence it is that a large part of the world's population, especially those who live in villages, the husbandman or farmer, the blacksmith, the carpenter, the washerman and everyone of the inferior craftsmen pick up some sort of vocational training and begin to practise the craft which they traditionally follow. Everyone of them learns his trade from his parent or master as an apprentice and soon sets up for himself independently. They care not for the general education which we value so much. They are satisfied with what little knowledge or skill they acquire and with what little they can gain as their living. The farmer especially finds himself so much occupied with his work in the field that he has hardly time left to think of the gains of knowledge, and when some time is left, he has seldom the inclination to seek it. The apathy betrayed by the mass of the rural population and the sad conditions of illiteracy that prevail, have led to primary education being made compulsory in rural areas and even when made compulsory, the progress is only very tardy.

On the other hand, there is a correspondingly large body of men living in towns who set too high a value on general education and think too low of vocational instruction. These men who are of high or low birth and of

superior or inferior rank in life, send all their sons to schools and colleges where general education is imparted. The founders of these schools and colleges themselves having the same magnified notion of the importance of these institutions, their number is far greater than that of institutions devoted to vocational instruction. The pupils sent to these schools and colleges spend a disproportionately long time there in receiving the general instruction thus imparted. They also spend disproportionately large sums on this account. Their energy also gets so much dissipated that hardly enough strength or stamina is left for them to follow successfully the more important course of technical study. They leave these schools and colleges at the age of 20 or 21, which is about more than one-third of the living age of the normal man in these degenerate times. Their means and energy having thus been prodigally spent and the time left for technical study having been far too belittled, these youths—the sole products of general education—begin to start in life with what little capital of strength and qualifications they command or possess. But, to their utter disappointment, they find that they are no better than quill-drivers and ready-reckoners with no higher prospect than these can hope to have. Many they are to-day who thus find that the pay and prospects of a clerical career are a poor compensation for all the time, energy and money spent on their education and many more are they who suffer for want of an employment. The keen distress caused by unemployment in the world of to-day is partly due, so far as this country is concerned, to the almost universal craze for higher education and University hallmark, which shut the eyes of all people to the manifold avenues and walks of life which

they may safely enter and hope to prosper by successfully undergoing the necessary vocational training.

The danger of attaching too much importance to general education and of leading pupils wholesale into the paths of higher intellectual and academical courses of study having now come to be recognised by the educational authorities, though not quite by the general public, steps have been taken for introducing vocational courses in the general educational system or at least some vocational subjects in the general curriculum of schools. In the High School attached to the Ramakrishna Home at Madras, vocational instruction is imparted side by side with general education and boys are trained in spinning, weaving, carpentry, rattan-work, and some other kinds of handicraft. The progress made by the pupils has been found to be so satisfactory that the Hon. Mr. Patro, the Education Minister, who once visited the institution and examined the types of work executed by the boys, remarked: "There is no doubt that the skill and bias that the students obtain here, if developed further, will enable them to make a living without any great difficulty." In Mysore, the most progressive of the States in Southern India, the defect in the existing system has been detected and sought to be rectified by provision being made for imparting vocational instruction in all the High and Lower Secondary Schools of the State. Even the S. S. L. C. Board, Madras, have felt the need of a vocational side to the general education imparted and have included some suitable vocational subjects under the C. Group head of the syllabus. It is unfortunate that these subjects have not yet the same attraction to pupils as the academical subjects do. However it is some satisfaction that the num-

ber of those who take these subjects is slowly rising.

But even so, the result is not satisfactory and it appears to be due chiefly to vocational training being made part and parcel of a general scheme of education. For the pupils do not derive fully the benefit of a vocational course. In the first place, the time devoted to vocational practice at school is not quite as much as is necessary for it or at least as much as is allotted to other important subjects. In the school attached to the Ramakrishna Home referred above, the time allowed is only two afternoon sessions in a week, which is indeed far too small. It may be that in school where time is to be provided for a multiplicity of subjects to be taught, the full time necessary for each subject is not available. But the fact has to be stated all the same, that if vocational training is to be provided for in the time-table and if the same is not possible, it is no use coupling it with a course of general education. As for the practical bias that may be necessary, manual training which has established its claim for a place in the general school curriculum will more than serve the purpose. Secondly, the teacher in charge of the subject is not generally an expert—one who is able to gain the confidence of the pupil and guide him properly at all stages of work. It is difficult, it is often urged to pay for one of superior qualifications, nor is there sufficient work for him as the subject is actually taught at present. The same financial difficulty stands also in the way of the many plants, fittings, tools, apparatus and machinery, being supplied for the different subjects of training, and the difficulty is also felt of fitting in the programme of technical work with the general school programme, when

subjects, widely differing in nature and requiring special modes of treatment, are introduced into the curriculum, such as Agriculture, Mechanical Engineering, and Surveying.

If vocational training is to be really effective and is to serve as a sure and certain means of the pupil earning his livelihood, it should be made independent of the general school curriculum and should begin after the pupil undergoes a course of general education. His general education completing at the age of fifteen, lays the necessary foundation for enabling him to lead a perfect life or to take up any vocational course, the academical course being also included in the broad sense of the term. In the first place, a careful selection of the courses for which the pupils may be trained, should be made. For, it is not possible, nor is it necessary to train pupils for all vocations which people might choose to follow. In making the selection, due consideration should be given to the demands of the profession and to the demands of the people at large and such professions or callings as afford ready and easy employment after training, should be preferred. The University course which draws so many pupils at the present day should be limited and confined only to those who possess the necessary capacity and taste for literary and scientific pursuits. This is possible to be done if the Government and other public bodies who employ men for their service do not insist on having or encouraging men of such high academical qualifications which are, after all, not necessary for the due discharge of their work. The noble professions of Law and Teaching are already so full that it is undesirable to swell the ranks of such professional men and cheapening them

in the market by multiplying the courses of study. As to the profession of teaching, it is only fit for a particular type of men with particular tastes and temperaments. It is a profession which needs more self-sacrifice and offers less gain. As to law, in so far as it can be viewed as a vocation for a practice, the course may be started much earlier than at present and be made open to pupils who complete their S. S. L. C. course. The first grade and second grade courses in law which were held for some years in the past, were found very useful and did not involve so much loss of time and money to pupils.

Agriculture is the occupation in which the greater part of the population in the country find themselves employed. But unfortunately many who follow this occupation do not receive any regular and systematic training. They are only familiar with the old, traditional and time-honoured ways of agricultural practice and employ only the primitive old implements of their ancestors in their work of cultivation. They are ignorant of the modern scientific methods of intensive and extensive cultivation. It is necessary therefore, that schools, where these new methods can be taught to pupils, should be opened all over the country. It is true, however, that the Government have established colleges to train pupils in agriculture. But the pupils who undergo training there, find employment only as Government servants and go out as Agricultural Inspectors and Farm-Managers. These colleges may therefore be said to train only agricultural inspectors and not agriculturists. The majority of the people who follow agriculture as their trade do not go there to receive any training, nor do they care much for it. These institutions are not therefore

very popular and do not quite answer the purpose for which they are intended. The wealthy land-lords or owners of large estates are the proper men who are to take the initiative in the matter. They should recognize that agriculture is an industry which demands much technical knowledge and skill on the part of those that are engaged in it. They should see for themselves what great progress has been made in other countries as a result of such knowledge and skill and how important it is for them to employ trained men to work under them as farmers and cultivators. They should send these men to schools wherever they are for training, or open schools themselves, get them trained and have them employed after training. They should also open colleges where they may send their own sons and invite those of others to undergo training in the higher course of agricultural knowledge. Then alone will these colleges and schools be popular and more freely resorted to. Then alone will agriculture be preferred and followed as a vocation even by men of the higher classes and the keen distress that is now caused by unemployment, will to a certain extent, be mitigated. The country too, being so mainly agricultural as it is, will come to have a greater percentage of its literate population possessed of scientific knowledge and engaged in scientific agriculture and its wealth and prosperity will be greatly increased.

Manufacture also offers a wide field for training and employment. It is true that the natural mineral resources of the country are not so great as those of some other countries of the world are. There is not such an abundance of coal and iron here as in the United States or England, and consequently no manufacture on such a gigantic scale as is carried

on in those countries is possible here at present. But India has always been both a manufacturing and agricultural country and the history of the country tells us that a variety of handicrafts had been encouraged and practised from the remotest times. The products of the Indian craftsmen were not only used within the country itself but were also sent to distant countries abroad and these were highly praised for the skill in workmanship which they displayed. There are to be found, even at the present day, the descendants of the ancient Indian craftsmen—the carpenters, the metal workers, the stone workers, the weavers, the dyers and a host of others; but all these, for want of proper encouragement and training have lost much of the skill of their forefathers and yet practise the crafts which they traditionally follow as best as they can with what little skill and knowledge they possess. They know not how to improve upon the methods which were followed for ages. Nor are they aware of the modern ways of doing business and of all the modern contrivances by which to produce the best articles and sell them cheapest in the market. It is necessary that schools should be opened where these men may be given the required training and be made to acquire the skill of their forefathers in the respective crafts which they follow. Others who are not of the same trading caste may also be encouraged to join these schools and learn whatever craft their capacity and taste may choose for them, so that they may afterwards live by the same. The employment of machinery in modern industries has given rise to a new class of workmen, viz., the mechanics. These are to know how to handle and drive machines of different power and make them employed in different industries.

It is necessary that a large number of men should be trained as mechanics so that they may find employment in manufactories where production on a large scale is carried on by means of machinery. Machine power is also employed for various other purposes such as those of traffic and trained men are necessary to drive steam engines and motor cars. The demand for motor-drivers and motor-mechanics is very great at the present day as motor traffic has become so universal and common and many of the Indian chauffeurs do not possess the knowledge and training necessary to enable them to handle cars with safety.

Just as it is the interest of the landlords to open agricultural schools and colleges so also it is the interest of the capitalists to open industrial schools and colleges of commerce. For, it is they who launch out in industrial and commercial enterprises and demand the employment of men possessing technical knowledge and skill. There are at present only a few technical schools scattered here and there over the country. The Government have instituted examinations in a number of technical subjects, but have not established a sufficient number of schools where the pupils can be trained to undergo these examinations. Consequently the number of pupils attending such examinations is only very small. As regards colleges where instruction in higher branches of technology is to be imparted, they are practically nil in this part of the country. The charitable body of Missionaries who are greatly responsible for the spread of education so far, have till now confined their attention to the cultural side of it and have established schools and colleges where the pupils are taught only the humanities and the sciences. The Nagarathars or the Nattukottai Chettiers who are now freely opening

their purse in the cause of education also keep their eyes directed to the same cultural aspect and spend their money in developing and expanding University courses in particular centres. Belonging as they do to the class of merchants or traders, the commercial aspect of education has a right to demand equal attention if not more than the cultural. They should see what a low position India occupies in the scale of nations devoting themselves to industrial and commercial activities and what great tension prevails in the world of employment to-day. As men charitably disposed towards the people of this country, they should first cater to the cravings of the stomach before they think of catering to the intellectual cravings of humanity. They should therefore make up their minds to bestow as much care and spend as much on vocational education as on general education. They should start as many technical and industrial schools as there are secondary schools in the country. They should establish technological institutes and colleges of commerce just as they establish University academies and Institutes of science. It is not enough they open these institutes and colleges alone. They should select and send capable men to important industrial and commercial centres to learn business. They should invest capital and start industries similar to those that are found in those centres and thus find employment for all those trained in these institutes and colleges. As things stand at present, the products of India are sent out to foreign countries to be converted there into manufactured goods and to be taken back again into the Indian market. The few industries that are found existing in the country itself, are mostly owned by foreigners and are mostly managed

by foreign agency. The profits that are obtained from these industries go into the pockets of foreign capitalists and while their servants find themselves sumptuously fed, most of the Indian workmen are either left hungry or made to feed on stones. If, on the other hand, these industries be owned by Indian capitalists and managed by Indian agents and if fresh industries in which the various raw products are best utilised, can be started by the investment of fresh capital, all the profits of the business would exclusively benefit the people of the country alone while plenty of scope will be created for the employment of all trained men. The high tension caused by unemployment will then be greatly relaxed and the country will grow rich and prosperous.

Much therefore lies in the hands of the Indian magistrates whether they are landlords or capitalists. Of course the Government are doing what they can in the matter, and we cannot expect them to do more for more reasons than one. It is the people and people alone on whom devolves primarily the duty of finding employment for their children. The Government will employ as many of

them as possible but cannot provide for all. It has to be said again that it is the people alone—the wealthier classes among them who have the necessary wherewithal to cut out new paths and open new fields of employment from which their sons might choose those that are suited to their tastes, temperaments and qualifications and thus hope to lead a life of peace, contentment and prosperity.

I have dealt with the subjects of Manual Training and Vocational Training as it can possibly be done in a paper of such short compass and I now conclude. General and vocational education are two essential parts of a complete system. General education is the foundation for all kinds of knowledge and training. As such it is necessary even at least in an elementary form, for all people living in rural areas. In its more perfect form it is necessary for people living in cities and towns. To them it is a preparation for citizenship and for perfect living. It is a measure of the general advancement of the country's civilisation and a sure basis for progress in different directions. Vocational training which is the counterpart of general education, begins where the latter ends. It ends when the pupil begins to choose a calling and make his living. Each has its own place in the system and both serve to secure a common end.

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vide Fort St. George Gazette, Part I-B, p. 547, dated 1-11-1927.

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PESTALOZZI'S IDEA OF A TEACHER.

By Mr. CYRIL MODAK,

Jubbulpore.

WE must bear in mind that Pestalozzi lived in the 18th century, and many evils have ceased now to exist in the educational realm, though, of course, new evils, in accordance with the laws of nature, arise to blemish every decade. It is, nonetheless, of some advantage to see what men of special talent have thought and felt regarding those problems which in our own day confront leading thinkers of the several branches of knowledge. There is no denying that Pestalozzi was a genius in his special walk of life, and every inch of him a teacher: and teachers acquire a somewhat obnoxious habit of always detecting mistakes and uncomfortably ventilating them. Pestalozzi was no exception to this rule. The condition of things, as he saw it, and as we are constrained to see it (not infrequently!) led him to remark in *Christopher and Eliza*, "In most schools, however, it seems just the contrary; the schoolmaster seems as if he were made on purpose to shut up children's mouths and hearts, and to bury their good understandings ever so deep underground. That is the reason why healthy and cheerful children, whose hearts are full of joy and gladness, hardly ever like school." This is what had created in the childish mind of Pestalozzi an indelible dislike for school life, an impression which seems to have been one of the earliest forces that impelled the great reformer to carry on his work in the face of so much tribulation. Thus then we have the first idea of what a teacher should *not* be and should *not* do.

In a passage from *On Infants' Education*, he tells us "Interest in study is the first thing

which a teacher....should endeavour to excite and keep alive... I would go so far as to lay it down as a rule, that whenever children are inattentive, and apparently take no interest in the lesson, the teacher should first look to himself for the reason." It is almost a sweeping statement. But it carries weight. It would, the majority of educationists will agree, save a great deal of lamentation on the part of the pupil, despair on the part of parents, and irritability on the part of the schoolmaster, if this fact is not only remembered but put into practice. It is a psychological axiom that interest arrests attention. Quite a good deal of time is spent in hammering this truth into the minds of raw recruits to the Teaching Profession. But older recruits are apt to lose sight of this principle sometimes! To such, their work appears to be so monotonous as to rob them of their smile, and leave instead a rigidity too sullen for words. Life for them has lost its charm. With Omar of old, they would fain expostulate:

"Beloved, could you and I with Fate conspire,
To grasp this sorry scheme of things entire,
Would we not shatter it to bits, and then
Remould it nearer to the heart's desire?"

But nothing availing, they resign themselves to their lot, and continue—where in truth they have no business to be!—as priests in the temple of knowledge, only to frighten away the young votaries by a scowl or a stare as dark as night!

It seems Pestalozzi was thinking of such when he made his somewhat insolent remark in *How Gertrude Teaches*: "I finish describing, otherwise I shall come to the picture of the greater number of school-masters, of whom there are thousands to-day who have—solely on account of their unfitness to earn

a respectable livelihood in any other way—subjected themselves to the *laboriousness* of this occupation; and they in accordance with their unsuitability for anything better, look upon their work as leading to nothing further, but sufficient to keep them from starvation." In our modern, enlightened twentieth century, naturally such a statement would be more or less unwarranted and a little wide of the mark: though, few will deny that there is still some truth in these words which every conscientious teacher realizes at some time or another of his professional career.

But, happily, we are not left with such a dark picture. The only way to assist children "to a real development of their mental faculties," says Pestalozzi in *How Gertrude Teaches*, "is gradually to enlarge the sphere of their intuition, *i.e.*, to increase the number of objects falling under their own immediate perception. To impress upon them those perceptions of which they have become conscious with certainty, clearness and precision. To impart to them a comprehensive knowledge of language, for the expression of whatever has become, or is becoming, an object of their consciousness, in consequence either of the spontaneous impulse of their own nature or of the assistance of instruction." Thus we get some idea of what he expects from those whom he so vehemently chastises in words. He wants a teacher, when he ascends his throne, be it in a class-room of a school, college, training college, or any other educational institution, to prove an educator, to teach, to enlighten, to develop, to ennoble, and to inspire. Interpreting Pestalozzi, Quick says: "He (the teacher) *draws out* in the young the intelligence and the sense of what is just, the love of what is beautiful, the admiration of what is noble, but this he can

do only by his own intelligence and his own enthusiasm for what is just and beautiful and noble." Holman, in explaining Pestalozzi's view, observes: "Since the beginning of the human race, men have been trying to make easier the progress of the learner from the elements of the culture of the power of intuition to the elements of the culture of the power of thought; and at raising the common sense which is gained by the simple perception of objects of nature to the level of the logical certainty of the power of thought and judgment. The educator has to continue this." While Morf says that Pestalozzi believes, "the individuality of the pupil must be sacred to the educator."—Is it remembered to-day?

Nor can we complain that the Swiss Reformer of education was theorizing on ideals that must be unattainable to be attractive. It must be remembered that Pestalozzi always preached that parents should be teachers, all persons who found themselves in charge of children should discharge their duties of educating and developing them. Indeed, he went so far in emphasizing his theory: "Everyone can teach," that his critics have showered censure on his name ever since. If then Pestalozzi's idea of a teacher was meant to be actualized by anybody on the street, it follows that he spoke of something within the reach of ordinary mortals. It is unnecessary to be a 'born teacher'—to borrow an unhappy and a much-abused phrase! Anyone with the average love for children and the average shrewdness of mind can satisfy Pestalozzi's ideal of a teacher. For, all he said to a teacher is summed up in 'Make it your aim to *develope* the child.' The word 'develope' must be understood in all its vastness and comprehensiveness. He who developes a child physically to be strong, mentally to be strong, and morally to be strong, is a 'teacher.'

Reviews and Notices.

A MANUAL OF PRACTICAL CHEMISTRY FOR HIGH SCHOOLS, BY A. L. NARAYANA RAO, B.A., L.T., HEADMASTER, BOARD HIGH SCHOOL YELAMANCHILI. Price Rs. 2.

The fact that the book has been approved by the Text-Book Committee as suitable for school use speaks of its utility to the S. S. L. C. students. Besides, the book covers the Syllabus in Practical Chemistry for the S. S. L. C. Examination of the Madras Government. Each exercise is supplemented by exhaustive notes intended to 'collate, summarise and extend the knowledge.' In writing this book, the author, who is a teacher of several years' experience, has spared no pains to arrest the attention of students by means of suitable questions on what they are apt to overlook in the course of the experiment.

The book will prove a useful companion in the Laboratory.

INORGANIC CHEMISTRY, BY G. H. BAILEY AND D. R. SNELLGROVE. (UNIVERSITY TUTORIAL PRESS, LTD., LONDON, 1928). VOLS. I AND II. Price 6s. 6d. each.

The two volumes have been written mainly to meet the requirements of students pursuing a course of study for the Intermediate Examination. Bailey's Tutorial Chemistry has been so popular as to necessitate six editions. It has now been rewritten by Bailey and Snellgrove, including in it an elementary survey of Atomic Structure, the Rare Earths, etc. Portions which are beyond the Intermediate standard are marked with an asterisk and relatively unimportant paragraphs are printed in small type.

Vol. II is divided into two sections, section I being devoted to the elements of Physical Chemistry and section II to a systematic treatment of metals based on the Periodic Law. Each chapter ends with a number of questions bearing on its subject-matter.

The two volumes are up-to-date and have been got-up very nicely. Students preparing for the Intermediate Examination and B.A. (II-A) of the Madras University will find them of immense help.

THE FUNDAMENTALS OF CHEMICAL THERMODYNAMICS, BY J. A. V. BUTLER. (MACMILLAN AND Co. 1928). Price 6s.

Students of Chemistry cannot but be familiar with the name of Butler, who recently brought out his small volume on 'The Chemical Elements and their Compounds' being an introduction to the study of Inorganic Chemistry from modern standpoints. The same author has now undertaken to publish in two parts the 'Fundamentals of Chemical Thermodynamics.' The present volume is Part I, being an elementary theory and application of thermodynamics to chemical problems.

The book consists of 9 chapters in about 200 pages. After an explanation of the two laws of thermodynamics, the following topics are discussed with simple but ample illustrations, mostly chemical, from the standpoint of the application of these laws: changes of state, solution, homogeneous gaseous reactions, galvanic cell, electrode potentials, concentration cells and electrolysis. The treatment is very simple but elaborate and can be easily followed by students of Chemistry with an elementary knowledge of calculus. Pass and Honours students of Chemistry of the Madras University will find the book very helpful.

JUNIOR CHEMISTRY, BY R. H. ADIE. REVISED BY J. E. T. GILBERT. (UNIVERSITY TUTORIAL PRESS, LONDON). Price 3s. 6d.

This book has reached its third edition and appears in a more or less new form, the scheme having been modified to a considerable extent. The historical side of the subject has been developed at many points, thus giving a human aspect. There are 19 chapters including a study of air, water, salt, sulphur, carbon, phosphorus, chalk and

the more common metals and important commercial preparations. The book closes with a chapter on Chemical Calculations and Test Questions. The book is very elementary and contains detailed descriptions of numerous experiments which a beginner cannot fail to appreciate.

INTRODUCTION TO CHEMICAL THEORY, BY R. VIRARAGHAVA SARMA. (P. VARADACHARI & Co., MADRAS). Price Rs. 1-8-0.

The author has attempted to give a clear and lucid exposition of the chemical theory that is required for the Intermediate students of the Madras University. He has included a number of problems with useful hints to solve the more difficult of them. The get-up of the book is however far from satisfactory. A bigger type with greater marginal space on thicker paper will certainly add to the attraction of the book.

A PLEA FOR OPEN-AIR SCHOOLS IN INDIA, BY S. C. CHATTERJI. (D. B. TARAPOREVALA, SONS & Co., BOMBAY). Price Rs. 1-8-0.

One of the characteristic features of the educational system in India is its uniformity. In India, schools are cast in one single mould and follow one single line of development. They all look like postage stamps. Mr. Chatterji's plea for open-air schools is an interesting attempt to introduce variety into the dead uniformity which characterises the educational institutions in India. At present there are in our Elementary Schools many invalid children who are unfit for instruction side by side with the physically normal. To determine what children are physically defective and to make suitable provision for their education is one of the urgent needs of education. These children should be in Special Schools. A few months in an open-air school amid healthy surroundings and with an adequate supply of fresh air and rest would probably enable these to resume their place with profit in an ordinary school. The author is critical of the open-air schools for delicate children which

impose on their pupils the same curriculum as that obtaining in the ordinary elementary schools. To profit intelligently by the resources of the open-air schools these should develop on special lines.

In every country in Europe and America the open-air movement is in progress. But the special feature of the movement in the United States is that in the last few years there has been a tendency towards open-window rooms instead of open-air schools. This is due to the desire to meet the growing demand for fresh-air facilities.

We would propose that the department should arrange for the establishment of two open-air schools, one residential and one non-residential. From careful observation of the physical and mental progress of the children conclusions could be drawn as to the relative advantages of the two types. Experiment might well be made with the wooden buildings on the Training College site.

This book is a book of great importance. It brings to us the tremendous lesson of the value of fresh air and the wind and trees, the flowers and the little things of the earth, the skies and the changing clouds.

GROUNDWORK OF ECONOMICS, BY R. D. RICHARDS, PH.D., B.Sc. (ECON.) (UNIVERSITY TUTORIAL PRESS, LTD., LONDON). Price 4s. 6d.

The study of Economics is receiving a good deal of attention at the hands not only of examining bodies but also from the general public in advanced countries of the West from the eighties of the last century. Every month a large number of books are published not only on the different aspects of Economics but also on the general principles of Economics. The outlook on the subject is changing so fast with the varied economic conditions that books written a few decades back become interesting only from the point of development of economic thought rather than as a study of all the acute economic problems.

The author has in the present volume of about 300 pages covered the whole field of Economics in

a general way and as is only proper "special attention has been given to important present-day economic problems like unemployment, industrial fluctuations, social insurance, industrial peace and trade unionism." The author has drawn freely from many published works by many eminent students and the merit of the book is that the masters of the subject are made to speak for themselves. Every one of the 20 chapters commences with a quotation which rightly strikes the keynote of the chapter. These quotations have been selected not only from the writings of economists but also from the pronouncements of prominent men in public speeches or magazine articles. Chapter III on *Value* has this quotation from Tauesig: "The value of a commodity means in economics its power of commanding other commodities in exchange," whereas for Chapter XIV on *Money* the quotation is made from Winston Churchill's speech in Parliament on June 25, 1927: "I agree that no topic can claim to be so important as currency in the present day."

In the preface the author says "the book has

been written for the general reader as well as for the student." Students will certainly be amply rewarded for reading the book under review which is full of quotations from many important books on the subject and in addition has a summary of each chapter and a good bibliography at the end.

It is doubtful if the general reader can be very much benefited by reading this book. The author has taken into consideration only conditions in England for purposes of illustration of economic principles with the result that the bias is only towards industrialization. Many important modern topics in essentially agricultural countries like rural reconstruction, forest conservation and some others, have not been even mentioned to receive a passing reference.

The book will however prove very useful to candidates preparing for examinations of the Institutes of Bankers, Chartered Accountants and of Secretaries for portions specially intended for them have been included. The author has succeeded in marshalling the facts and presenting principles in the most concise way. The style is good and the subject has been made very clear.

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The Educational Review.

The last session of the All-India Teachers' Federation held at Bombay was a great success, thanks to the efforts of the local

organizers, particularly Professor M. R. Paranjpe of Poona. The Conference was held at the Cowasji Jehanghir Hall of the Bombay University and was crowded with visitors, not merely from the various parts of the Bombay Presidency but also from distant cities in India, from the Punjab, from Bengal, from Southern India and from the United Provinces. Welcoming the delegates, Principal Seshadri, as Chairman of the Council of the Federation, expounded the aims with which the Federation had been founded and also took occasion to review important educational events during the year. He invited attention to the recommendations of the Royal Commission on Indian Agriculture on the advancement of Indian education, for making elementary education compulsory and for paying special attention to the progress of female education, if necessary, by instituting scholarships for young mothers as an inducement for the spread of literacy among people in rural India. In the course of his Presidential Address, Dr. G. S. Arundale struck a note of high idealism and pleaded for life and enthusiasm on the part of the teacher, without the vision being confined to the ordinary grooves of routine work. A special feature of this year's programme was the reading of a large number of valua-

ble papers by educational experts. Principal Hamley of the Bombay Teachers' Training College spoke on the need for educational research in our Training Colleges; Dr. Parker of the Elphinstone College, Bombay, subjected the present curricula and syllabuses of the Bombay University to a severe analysis and pleaded for adequate reform; Mr. G. K. Deodhar of the Seva Sadan, Poona, expatiated on the education of the adult, particularly in rural areas; Professor Karve spoke on higher education for women and there were a large number of other papers besides, on various branches of education. Each paper was followed by an interesting discussion which was appreciated very much by the large number of members present. The organizers of the Bombay Conference took up also the question of the education of defectives in India and there were papers on the education of the blind, the deaf and the mute, accompanied by demonstrations which showed that with proper effort and sympathy even they could be brought within the pale of educational advancement. In every way, the last session of the Federation was a great success and teachers will look forward with eagerness to the next session which has been invited by many cities in India, including Madras, Mysore, Gwalior and Patiala. It might interest readers in Southern India to know that the chances are that the invitation of Madras will be accepted by the Council of the Federation and South India will have an opportunity of demonstrating its interest in education in a remarkable way at the

SENATE HOUSE, } S. R. RANGANATHAN,
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time of the next session in Christmas, 1929.

We offer our hearty congratulations to Professor S. Radhakrishnan on his appointment as Professor of Comparative Religion at the University of Oxford. Before this number is in the hands of our readers, Professor Radhakrishnan will have sailed for England for entering upon his duties at the University of Oxford. We need hardly say that it is an honour of which not merely South India but the whole country will be immensely proud. For the first time in the history of the University of Oxford, an Indian will occupy not a mere Lectureship or a Readership, but a regular Professorship and of such an important subject as Comparative Religion. By his valuable contributions to the study of Philosophy and Comparative Religion in recent years, Professor Radhakrishnan has of course more than justified his claims for filling up a chair of this kind. South India seems to uphold, even in these days of contact with Western civilization, her old traditions of deep interest in spirituality and even as in the Middle Ages, Sankara, Ramanuja and Madhwa went forth to various parts of India, spreading the message of Hindu Philosophy, we are having a new thinker going forward not merely to the rest of India but even beyond the seas to proclaim the great truths of Hinduism. Though technically called Professor of Comparative Religion, one of Prof. Radhakrishnan's main duties will be to

lecture on the Philosophy of Hinduism, and we have not the slightest doubt that during his tenure of office, Prof. Radhakrishnan will bring considerable distinction not only to himself, but to the whole of India and the East.

Attention has already been drawn in these columns to the desirability of abolishing the system of nomination to the important services in India. The establishment of Provincial Public Service Commissions would seem to be an undesirable step also as it is likely to encourage petty communalism and interfere with the acquisition of the best talent for the official services. We are glad that Mr. W. R. Barker, the President of the Public Service Commission, took occasion, in the course of his recent address at the Patna University, to declare his faith uncompromisingly in the system of competition for recruitment to the public services. Speaking with considerable experience in the recruitment of young Indians for the various Imperial Orders of Service in India, Mr. Barker had no hesitation in saying that competition was the only system which eliminated jobbery and personal influence and advocated it very strongly for all parts of India, not merely in the Imperial services, but also for the important Provincial services. It may be mentioned that during the last few years the Public Service Commission has been in operation in this country, there has been a feeling gaining ground that the interests of the services are safe in their hands and

Competitive Examinations.

if only the Government of India would allow free discretion in the matter of recruitment to the services, without interfering constantly with pleas for communal and provincial representation, we should have a state of affairs which will do credit not merely to those responsible for the choice of officers, but to the services themselves. It must be a retrograde measure to think of going back on the principle of competition and take refuge behind the underhand ways of nomination invariably leading to prejudice, favouritism and other sinister methods of personal preference based not on ability but on other considerations.

Speaking at the first Convocation of the Agra University, the Rev. Canon Davies, who has a long record of educational service to his credit in India, dwelt on the need for organizing college life in a manner worthy of the best traditions of University education. He gave detailed instructions with regard to the various steps necessary for making college life vital and effective and of real influence on the lives of the young men entrusted to the charge of educationists. After more than two decades of service as Principal of St. John's College, Agra, the Rev. Canon Davies will lay down his office not merely as Principal, but also as Vice-Chancellor of the Agra University, sometime in March next year, and he will carry back with him in his retirement the best wishes of a large circle of friends and admirers who have learnt to appreciate his valu-

able contribution to the educational life of the United Provinces. It is some satisfaction that during his retirement in England, the Rev. Canon Davies will still be indirectly connected with educational work in this country as Secretary to the Educational Mission of the English Church of England, entrusted with the work of choosing Missionary workers for the educational institutions of the East. We wish the Rev. Canon Davies long years of useful work in the new office to which he is being called.

It was a striking address that Prof. C. V. Raman delivered at the recent Convocation of the Andhra University. As one actively engaged in the work of research and the advancement of the frontiers of knowledge, Professor Raman naturally spoke with considerable enthusiasm on the need for recognizing research as an integral part of every University. He protested against any assumption that a unitary and residential University was necessarily a solution of all educational ills, and warned people against thinking that by the mere inauguration of a unitary and residential University, they have advanced the cause of knowledge. "There is a feeling abroad," said Prof. Raman, "which is often voiced from high places, that you have only to do away with affiliating Universities, and put in their places unitary and residential and teaching Universities, and that by doing so you would straightaway usher in, educationally, a new heaven and a new earth. Let

Unitary Universities.

The Agra University.

me warn you that this is only a half-truth and a very dangerous half-truth. It is possible to have a unitary, teaching and residential University which is quite as bad as any affiliating, examining and territorial University. A residential University which propagates ignorance, communalism and religious fanaticism under the guise of education, is even worse than an affiliating University which leaves its students severely alone to learn whatever they can. Whether a University is good or bad is determined entirely by the ideas and ideals that inspire its activities. No University can be great which has not men of outstanding ability as its teachers, which does not attract the ablest and most ambitious students, and does not provide its teachers and students with opportunities for the highest and most original kind of work. A University is a Republic of Learning. It needs, of course, material resources in the shape of well-equipped laboratories and workshops, libraries, lecture-halls, hostels, residences and play-grounds. But above all it needs great men as teachers. There is no tragedy more deplorable, no waste more appalling than to have huge buildings filled lavishly with books and apparatus and equipment and spacious lecture-halls and to find within them mediocre teachers and misguided students doing an inferior type of work. A tragedy of this kind is much commoner in India than many of you realise. The essence of University work is that it marches with the frontiers of human knowledge. You require for it men who are explorers in the

unknown territories and sailors on the uncharted seas of new knowledge."

A very welcome development which is

College of
Technology
for Bombay.

being contemplated by the University of Bombay is the establishment of a College of Technology with an initial expenditure of about 50 lakhs of Rupees. An appeal is being made to the Corporation, to the Government and to the citizens for making up this outlay which is necessary for starting a Technological College under the auspices of the Bombay University. It is surprising that in spite of the numerous facilities existing in the great capital of Western India, an institution of this kind should not have materialized as yet. The time is certainly come for pooling the available resources and establishing an institution of this kind which will give the highest technological training possible in at least a few departments for the young men of Bombay, avoiding the necessity for their going to other parts of India or even to England. In the Victoria Jubilee Technological Institute which has now been in existence for many years and has succeeded in training a large number of young men for various technological careers, there is a nucleus for the establishment of an institution of the kind. We hope that within the next few months, the appeal which has been made will receive adequate response and a college will be established for the purpose of affording technological training.

Several misconceptions current in the country with regard to the Osmania University have been cleared

The Osmania
University.

in a very striking article which has appeared recently in the *Pioneer* under the heading "If Machiavelli came to Hyderabad." It is not generally realized that Urdu through which instruction is imparted in the University is not the language of the people and only about 6 per cent. of the population is conversant with the tongue. In fact, Urdu is as much a foreign language to the bulk of the people of the Nizam's Dominions as English, as the various vernaculars which are spoken are Telugu, Marathi and Kanarese. It is only the accident of the State being in charge of an Islamic Dynasty that enables her rulers to insist on people having their education through the medium of Urdu in preference to one of their own mother-tongues. The correspondent sees a sinister political power underlying this move on the part of the Nizam's Government and argues that it is a blot to emphasize and continue the present Muslim superiority in the State. While not subscribing to this analysis of the motives underlying the educational reform, we are certainly of opinion that the use of Urdu as a medium of instruction at the Osmania University is not the attainment of the millennium which it has been supposed to be by people in various parts of India. As English is in any case a compulsory second language in the University, there does not seem to be much justification in compelling every

student to learn not merely his mother-tongue and English, but also a third language which only adds to the weight of the curriculum and prevents students from specializing themselves effectively in any branch of study, either in Arts or Science. Added to it is the serious handicap of having to pursue one's education through translations of text-books which, however well-made, are very inferior in comparison with the originals and rapidly get out of date in view of the great march of knowledge in practically every branch of study in modern times. We have no doubt that the various problems connected with the imparting of instruction through vernaculars in the University stage of study will receive reconsideration in the coming years in the light of the experience gained at the Osmania University, Hyderabad.

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OPINION.

The South Indian Teacher: Oct. 1928:—We have great pleasure in reviewing this very useful book on High School Geometry, printed and neatly got-up by the well-known Publishers, Messrs. Srinivasa Varadachari & Co. The price of Re. 1-4-0 is within the easy reach of every High School boy, and the get-up being particularly good, makes the book really cheap.

Among the many commendable features of this book, we desire to point out the very practical nature of the introductory chapter, containing as it does, numerous examples of a varied and instructive character, which will help a candidate to become acquainted with the main principles of Geometry. The arrangement of the subject-matter of the theoretical part of Geometry is, as the author claims, the one proposed and commended by the Mathematical Association. But one point which must be mentioned is, psychologically speaking, the proof of the first theorem on parallels as suggested by the Mathematical Association has come to be given up, in favour of the older Euclidean proof, as being more suitable and less open to objection—in accordance with the experience of many a teacher of High School Mathematics.

As rightly pointed out in the Foreword by Mr. R. Vaithyanathaswamy, the reference to historical background in the course of teaching, adds a human element and helps to make the subject more interesting. The experimental work with solids will prove to be of great value to the teacher and the pupil alike. The large and varied number of exercises form a very commendable feature of this interesting book.

In fine, this book bids fair to become easily a popular rival to the many books on Geometry now in the market—almost all of which are either American or English publications. We have real pleasure in wishing for this book an honoured place among the text-books now in use.

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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.

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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

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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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