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close to science and art one could often encounter an innate hypocrisy. When it became the mode to investigate antiquity more deeply, how many outer and superficial words were pronounced! New connoisseurs were ready to guard theoretically the most remote antiquity; but when it came to more intimate antiquity, which depended upon themselves, then the entire enthusiasm of yesterday evaporated. Antiquity became something annoying and perhaps some "undeferrable business" distracted yesterday's exponents of idealism.

When we turn to the concept of culture, to this concept so near and vital and undefferrable, one involuntarily recollects all the hypocritcal excursions of humanity in which that which knocks persistently is swiftly forgotten, like yesterday's tempest. Sometimes one is frightened—what will happen if Tizi-Wizzi begins to squawk clearly the word culture? And what will happen if somebody, repeating this word, will invent new possibilities of murder? And what will happen if a conference against narcotics will sanction the sale of narcotic raw materials, benevolently affirming the harmful effect of the poison? Take any newspaper file for a whole year and you will find the most unique examples of hypocrisy, bigotry and falsehood made under the pretext of high aims.

Certainly, these exeursions of hypocrisy have already complicated contemporary life sufficiently. People have become entangled. They tried to carry cannons into the Christian Cathedrals to be blessed; but this special measure did not help either. Persons of the theological profession tried to speak of the invalidity of obligations which were only orally pronounced. But these desperate ones did not improve either their own situation, or that of their parish. And amidst this contradictory entanglement, there suddenly and imperatively arose a motto—culture. One must admit that this call penetrated broadly among the masses. Among those masses which have always aroused in us the best expectations, organizations were formed, dedicating themselves to the quest and striving of culture. We know such organizations, where labouring youth, instead of going to some vulgar vaudeville performance, turns to heroic achievement for the betterment of life in the name of the highest ideals and conceptions. No accusations of hypocrisy or comparisons to parrots apply to these sincere and striving people. It means that before us lie two definite tasks. On one side, one must, with all measures, help and unify and ease the destiny of sincere seekers of culture. On the other hand, one must watch with fire in one's hand, lest the precious conception of culture should fall into vanity fairs, lest it become a fashionable but unrealized conception of drawing-room gossip.

Two kinds of work are before one—educational and protective. It means that circles, societies, organizations, who have realized the value and meaning of culture, must see that no vulgarization and debasement should begin to disintegrate this precious and salutary concept. Of course, not only watchmen but the enlightened warriors of culture must gather and support each other, cementing the space through the highest and most beautiful, thus advancing these real values in life. The nudists, for the sake of their idea, are not afraid to exhibit publicly their ugliness. Then let the workers of culture be unashamed to exhibit not ugliness, but beauty of spirit.

When we incorporated the organization, the League of Culture, it was difficult to foresee how this organization would proceed. But the banner of peace was raised; it was realized that this banner is needed not only in time of war but still more in every-day life. And unconsciously, impetuously, the conception of the banner was linked with the conception of the League of Culture.

It is the universal aggregation of that which is best, conscious and enlightened. Not so long ago, it would have been a delusion to dream of such a union. But, apparently, the wheel of life turns swiftly, and the wheel of the immutable law brings us again to an equality based upon the highest. It is touching to note that thus far, happily, this union proceeds without any vulgarization. The people wish to gather in a better way, spiritually as well as outwardly. This upward striving contains in itself the solution of a multitude of social problems, because in an enlightened union, evil is uprooted, and rust is wiped away and the inspired spirits do not have to fear ugliness. We have just reproached ethe nudists for ugliness. If they could eliminate ugliness, then half of the attacks on them would disappear. But the carriers of culture, revealing the most beautiful sides of their spirit, will perform an unusual transformation of life. For humanity must turn away from ugliness. In the very word ugliness, is comprised amorphity,—formlessness, chaos. But our spirit strives to lofty constructions, clarity, light. Who, then, would prefer to work in darkness?

Thus, let us beware of parrots; let us beware of distorters and blasphemers. Because it is unbefitting for us to return to the stage of birds, and it is incompatible to bark like animals, there is so much undeferrable work before us. One must find the profound currents of the past, and link them with the currents of the future. Thus, let us conscientiously and strivingly learn to respect each other and in this learn to respect human dignity. For, in daily life, people do not know how to do it. They know better how to impede than to ease and help.

Vast is the problem of the League of Culture. Everything beautiful, everything enlightening, everything educational! This is not an outer intellectuality—this is a hearty striving towards light, to mutual health and usefulness. Somebody will smile, remembering the old cynicism "Man is a wolf to man." To this one must reply: "Then go to wolves, and remember that under the covenant 'push him who falls;' you become old-fashioned and ridiculous. And what can be more ugly than to fall into ridicule!"

Thus, the League of Culture will first of all fight against the ugliness, amorphity, and decay which have crept into our life. For the facility of advancing actions demands, first of all, order, organization and voluntary spiritual discipline. But culture as such, in its very essence, already contains refinement, understanding, creativeness. And there, where construction rises in the name of enlightenment, there is no time either to look back or sigh or regret. Let us remember again, "When the construction proceeds, everything advances." Let us not forget that every construction in itself contains joy. In the name of this creative joy we gather together and respect each other and can look into each other's eyes with benevolence.

When the treasure troves were searched for, the most essential words of advice to the searcher were: "Do not look back;" likewise we shall say here: "Away with turmoil, away with all quarrels and stale accounts when the construction proceeds, all advances."

ON EXAMINATIONS.

By Mr. A. V. K. Krishna Menon, M.A., B.L., L.T.,
Calicut.

THE cry has gone forth far and wide that examinations are the bane of education and that the sooner they are done away with, the better for our young folk. It is true that examinations are looked upon with horror by the majority of students and that they are, to some extent, an evil. But there is no use decrying the present examination system, unless one is able to suggest an effective substitute for it. Destructive 'easy-chair' criticism is easy enough and has become the fashion of the day. But what we want is constructive criticism. We ought not to ignore practical difficulties dealing with a knotty problem like that of examinations. One writer asks: "Why should there be any examinations in the High School, even including the S. S. L. C. Examination?" The same question may be asked in respect of the University Examinations too. But, may I humbly ask what the kind of test is we are going to have in order to find out whether a student is fit for the University course, if we do away with the S. S. L. C. Examination and the Matriculation Examination? We know the evil of having wholesale promotions in some of our schools. When students come to know that they can go up without attending to their studies, they will be the last to exert themselves, human nature being what it is. There will, of course, be rare exceptions; but these exceptions prove the rule. All of us who are in the teaching line know how sadly neglected the B Group subjects of the High School were, when there were no examinations in them. This led to a revision of the S. S. L. C. Scheme and the B Group subjects had to be included in the A Group compulsory subjects. I am certainly for lessening the number of examinations in our schools. But, until a method better than the present one is found out, I am for having an examination at the end of every academical year to test what the students have learnt during the year and to find out who, among them, can be promoted to the next higher class. The nature of the examinations may also be reformed, so that they will be more a test of the intelligence, capacity and general knowledge of the students than a test of their memory. I do not agree with the view that education should be made more attractive by abolishing all examinations and allowing the students to have their own way. Knowledge cannot be acquired and good habits cannot be cultivated without some effort on the part of the students. It is impossible, in the very nature of things, to expect immature boys to put forth any effort, unless some rules and restrictions regarding their conduct and their studies are laid down. Freedom does not mean license and proper discipline does not interfere with one's reasonable freedom of action. Rules and restrictions are, therefore, very necessary for our peace and welfare and to refuse to be bound by them will be to court disaster. Examinations, therefore, are a necessary evil, however pernicious they may be, and I cannot agree to their total abolition in the field of education, until a more wholesome substitute is found. Let us, like wise men, "rather bear those ills we have, than fly to others that we know not of."

THE AESTHETIC SIDE OF EDUCATION.

By Mr. B. Lakshminarain Row, B.A.,
Kolar.

IT is now universally recognised that constructiveness on the part of the child is of the essence of education, whether that constructiveness be applied to mechanical work or intellectual work. All tendency to action which has, for its primary end, the good of the individual may be called individualistic or self-preservative instincts. The most fundamental and universal form of this instinct is shown in the tendency to contract the body and withdraw it from unfavourable stimuli, and expand or approach towards the favourable ones. Similarly, a tendency to adornment and to the making of beautiful things and the pleasure in expressing mental states to others, and contemplating beautiful objects, goes under the name of aesthetic tendency which is the highest form of tendency among the animal species.

The biological value of this instinct is not easily discerned. It is explained as a resultant tendency than as a primarily useful instinct. Though the aesthetic reaction is, in a large measure, playful (the product of the excess of life above what is necessary to its maintenance), yet it is always associated with the useful form which it has evolved. Anything suggesting want of equilibrium or strength fails to appear beautiful, because such objects have not been useful. Symmetry and a position in accordance with the law of gravity are universal elements of beauty. The elements of beauty associated with universal laws of existence and permanency are therefore responded to in approximately the same way by all the nations; but those associated with local characteristics and customs are responded to differently by each nation such as the Chinese legs, Scandinavian art, Negro music, etc.

Recent experiences make wonderful changes in the aesthetic reaction. Even in the same community, the hats of last year become horrid a year or two later. Since the experience of each individual differs from that of the other, each has his own standards of beauty. Personal associations have more influence upon one's judgment than the more universal and fundamental elements of beauty.

The aesthetic instinct is closely connected with several other instincts. Whenever we see any impulse strongly marked amongst children, there is some ground for believing that there is a crude form of aesthetic appreciation. We have seen children of two or three years of age marking time correctly whenever they hear music, others nodding their heads and some others trying to imitate. Thus the instinct is associated with rhythmic, dramatic, constructive and expressive instincts.

The development of this sense is greatly influenced by the instincts with which it is associated. It cannot, therefore, reach its deepest and broadest development until after a certain age. In early childhood, it is largely sensory, colour, sound and rhythm being the most effective stimuli. Coloured pictures and those with subjects interesting to young children appeal more to them than the most artistic black and white pictures.

Vocal skill and auditory appreciation develop much earlier than the manual skill and visual appreciation. Children enjoy rhythm పట్టం కింపుపట్టం పాటపట్టం melody and the act of singing much sooner than they appreciate symmetry of form, unity of design and the power to make beautiful forms. Statistics show that we have excellent songsters at nine or ten, while we have no good artists below eighteen or twenty. That this aesthetic sense should be developed is admitted by all. But there is difference of opinion as to the best method. Should we show them the best art even though they do not appreciate it, or allow them to revel in crude colours and sharp contrasts till they develop their instincts? We cannot place before them high art, but at the same time cannot allow them to do as they like. The best art, therefore, would be nature, because it gives the best models as the universal laws of beauty are shown in every flower, leaf and twig.

Our chief difficulty lies in making up our minds as to what we should teach and what we should not. We have come across graduates, who, having passed in geology, biology, botany and other sciences, have not cared to keep up the knowledge of these subjects in later life, and have forgotten the names of even ordinary birds, flowers and stones.

And yet nothing can vary the monotony of after-life with so much pleasure as the pursuit of further knowledge in any branch of nature. Opportunities lie at our very door. Still, nature study, as taught in our schools at present, is a waste of time, and it is due to the lack of interest or ignorance of our teachers. Hence, the pathos of our school museums from which nothing can be learnt, apart from what the child already knows. The following practical suggestions based upon the experience of teachers who have devoted their whole life-time to these subjects are offered with the hope that they would be taken in a good light. (1) Let great works of art which appeal to children, because of their colour or the subject represented, be shown to mould their taste. Care should be taken to see that pictures in school rooms are both artistic and interesting. (2) Children have always the tendency to roam about and play the truant, both at home and at school, without any conscious purpose or reason. This tendency may be taken opportunity of to trip them to nearer places of interest with historic or religious folk-lore about them. They may be made to appreciate the beauties of nature and art and self-reliance is thus engendered when excursions are arranged. Excursions form an important factor in education, and, according to our Shastras, no man's education is complete unless he finishes *Kasi Yatra*. Even to-day, we find this farce of *Kasi Yatra* performed in our marriage ceremony, the idea being that the boy having completed his education in the *Gurukula* for twelve years goes on for a year on tour and comes back from Benares where he has obtained a diploma from the Pandits. Thus he is made to lose his conservative spirit and become a broad-minded and tolerant man by seeing other people, other customs and men greater than himself. Every school should arrange at least two trips a year and permission should be obtained to spend some amount from the sports' fund. (3) Develop the sense of humour in your students. Humour should be regarded as belonging to the same class as the aesthetic instincts and the same attention given to cultivating and refining it. The boys should be made to feel the difference between humour and fun. A keen sense of humour is one of the essentials of a good teacher and he does well to encourage pupils to see the humorous side in life and literature. (4) Manual Work: The only possible form of manual occupation in our schools would be card-board, light wood work, paper work, clay modelling, wire work and mat weaving and raffia work. These are intended to (i) develop manual dexterity, (ii) train the power of observation in certain directions, (iii) develop physical strength, (iv) afford scope for self-expression, (v) create pleasure in bodily labour and keep the child in touch with its environment, (vi) cultivate habits of independence, order, accuracy, attention and industry. (5) A manuscript magazine should be started in the school and each boy be asked to write his own strange experiences or an imaginative story. The best of these may be selected and pinned together. The contributions from the boys should be supplemented by the staff in giving good puzzles and brief notes about the school. No doubt, such a magazine thrown on the reading room table may not survive even a week and so the best way of making each boy go through the manuscript magazine would be to take the magazine to extra classes when teachers are absent and asking the boys to read by turns loudly so that all may hear. It will keep the class engaged and, at the same time, the contents would be known to all the boys and create an incentive in them to contribute to the journal. (6) School Museum: Works of original art, rare specimens of coins, stones, stamps, etc., should be got from the boys and they should be made to walk with eyes open observing rare objects in their trips and bringing them to the school. The artistic sense will be developed in arranging these properly, and each boy can be made to show his sense of beauty in their arrangement. Our present school museums, as already observed, are nominal and they should be made real. (7) Story-telling: This is an art and there are very few good story-tellers. The children should feel touched by the lesson the story seeks to embody, without realising that a lesson is being imparted. It should provide amusement and instruction at the same time so that children hardly know which is which and enjoy both. The patriotic sense of the youngsters was roused in a particular school by a teacher who gave this simple story. There was a quarrel among the cereals and vegetables as to which was the superior. All decdided to go to Tirupathi and represent their case before Srinivasa. The grains and vegetables started on their journey. By the time they reached the mount, only ragi among the grains and onions among the vegetables survived. Venkatesa being pleased put the marks of Shanka and Chakra on the onions, which when cut side-ways shows Chakra and Length-ways shows Shanka, and ragi as the soul of sustenance. The country which produces this long-lived grain and vegetable is Mysore, and we are the residents of that country. The boys were immensely pleased and one boy told his mother that he was proud to be a Mysorean. Good story-telling is an art and boys should be encouraged. (8) Lastly, Music and Bhajana: No doubt this is not possible to be introduced in our school curriculum, but I know in many places, we have the Saraswathi Puja once a week, and our boys do sing some songs. The musical talents and histrionic tendency may be encouraged by having some dramas and Bhajanas on school socials, Parent-Teacher Association Day, School Day and excursions. These should form a concomitant pastime and should never interfere seriously with school work.

The latent talents in our boys can be brought out by the teachers when they arrange camp fire at scout camps.

These are some of the broad outlines as they appear to me to develop the aesthetic sense of our boys in our schools.

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CULTUREDNESS.

BY H. E. PROF. NICHOLAS DE ROERICH,
Himalayas.

WITH our friends lives Tizi-Wizzi. This is not a human being but a parrot, and a most exclusive bird. Besides all his other philosophic views, Tizi-Wizzi, having learned about the success of the nudists, has decided to follow their example, and has shed all his brilliant plumage. He did not even have mercy on his long trailing tail, and he began to walk around naked, not at all concerned about his gigantic beak and tiny body. This happens also with the nudists. Tizi-Wizzi became so converted to the ideas of nudism that he immediately pulled out each little feather that appeared. During the numerous conversations with his owners, Tizi-Wizzi sometimes whistles in the strangest way, as if he wants to imitate the word culture.

Oh, often, very often, this sacred word is being repeated with whistles and squawking. As with nudism and other styles, some people will soon consider it very smart to repeat this inspiring word twenty times a day without any reflection whatever upon their former habits.

associate its own deeds with the pronounced conceptions. People go to church, and are touched by the words of high teachings; they admire sermons about purity and reiterating, "before God we are all animals," they go home in order immediately to fill their stomach, over-drink, poison themselves with all kinds of narcotics and pronounce blasphemy. People go to theatres and weep over the sad fate of the heroes and become imbued with the highest ideas and hasten home in order to prepare the same fate for the heroes of contemporary life. People listen to music, and try even to introduce it into their daily lives; but look at these so-called connoisseurs of art, when the stock market does not meet their hopes! Thus we manage to fill our life with most absurd contradictions, but with one pretext—the upliftment of spirit is of fleeting duration, whereas bestiality is a natural filling of life. In their insincerity, people have even reached a certain subtlety. Thus, one liar, when cheating, always had his eyes in tears. And another one, choking numerous people, tried to build many and

SEX EDUCATION OF CHILDREN IN INDIA.

By MR. K. R. VENKATASESHAN, B.A., L.T.,
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I

SEX education means education for parenthood, giving the child* (i) a comprehensive view of the process of reproduction, (ii) a correct and sufficient knowledge of the laws of human transmission and the implications of parenthood; and preparing him (i) for the future changes,—physical and psychic, prior to adolescence and (ii) to the responsibilities to be discharged by him* as a unit of the race.

It ensures in the child right conduct and sex-behaviour, imbuing in him a high ethical concept of life and forming in him ideal habits. It helps him to mould his aspirations towards the noblest and best in desire and attainment.

The objects of such an education are :—

1. The proper discharge of the noble task expected of the child; and the achievement of the noblest and the upright in life.

2. The safeguarding of the precious sex-gifts entrusted to him against vices, and protection from pitfalls.

In imparting sex education to a child, it is imperative that we take into account his mental and bodily changes during the various stages of his growth. The methods and agencies for instruction should conform to these changes.

Childhood can broadly be divided into :—

1.	Infancy	...	[ages 0— 5]
2.	Early childhood	...	[,, 5— 8]
3.	Later childhood	...	[,, 8—12]
4.	Adolescence	...	[,, 13—15]

* Unless repugnant to the context, 'child' should be taken to be 'boy' or 'girl'; and 'him' referring to 'child' to mean 'he' or 'she.'

The agencies that can effectively give sex instruction to a child are :—

(*a*) Mother. † (*b*) Father.† (*c*) Teacher.

The child's education during infancy devolves entirely upon the mother. Real sex education for him begins when she removes his hands from off a wrong part of his body. It is for her to see to his proper posture when asleep or otherwise. She inhibits tendencies in him to mishandle himself and directs them in useful channels.

It rests with her to form in him clean bodily habits. Besides the everyday washing she gives him, she looks to the cleansing of sex-organs, not however irritating them.

During infancy, she acquaints the child with the simple facts of birth. She utilises his artless questions‡ in the same naive way as his, for giving him those facts. It is, however, important that her answers are all true, given in a matter-of-fact manner. When he is satisfied or his attention diverted, she reserves her task on these matters for another similar occasion.

By the end of infancy, therefore, the child learns what 'born' means. He has also learnt from his mother that meddling with sex-organs would stand in his way to future greatness, vigour and strength.

† Where children have no father or mother, a grown-up elder brother or sister may take the place instead.

‡ Questions of the type Who gave the dog a puppy, mother? Where did the plant come from? Where was I before I came to our house? What is 'born'? Why does the cow bellow? Why did the cats scream yester-night? (Some of them may not be easy to answer.)

When the child is able to walk and run (at about five), he can be taken to the home garden. Attention can be drawn to the brightness of plumage and sweetness of carol in birds; to the colour and honey in the flowers and the train of insects flocking thereto.

Now may be given the facts regarding continuity of the race: how living things will become extinct but for the little ones left behind them, and how, therefore, they produce young ones. That one can come from another of the same species should be clearly impressed. Statements like "the puppy is the dog's child; the bean, the bean plant's; you are mine," would take the child to the law of preservation of species.

The grand law of preservation by nature of the young ones may come next. The child can profitably be told as to where and how long he was borne* by his mother before his birth as also how she attended to his needs later. The hard outer coverings to the cocoanut, the beans inside the double-door, the chicken within the shell, the orange pips buried in the core, and the kittens borne by the cat, all illustrate the fact.

Nor does the mother's work cease here. Between five and seven, along with the father, she teaches the child to look upon excretory functions seriously, yet, naturally, thus ensuring a similar attitude towards other similar functions. She checks mishandling parts of his body and sees to the development of regular physical habits.

* This period of protection prior to nativity is called the period of gestation. It varies with different living things: Man—nine months, rabbits—two months, elephants—three years, cows—nine months, goats—six months, dogs—five or six months; then comes the period of incubation of birds, *e.g.*, hen, dove, &c.

These are the first years of the child in the elementary school. The teacher gives him proper physical exercises and good leisure occupation. Proper sitting and standing postures are now insisted on.

The first lessons on motherhood, a plant coming from a seed, a chicken from an egg, and a calf from a cow, are gone through, giving the child opportunities to observe the parts of a flower † and habits of pets, now given to his charge. Occasions, when they are laid by, may be utilised for talks on maternity. A study of the life of plants may also begin.

The next period of childhood shifts into a period of undifferentiated sex-impulse.

The parent ‡ gives nightly talks to the child before going to bed on the ethical concept underlying the function of the race. All instruction and facilities for practising hygienic habits are afforded. He directs the child's interests inculcating in him high ideals and discourages unequal or unhealthy companionship. The provision of organs for letting out impurities is impressed in his mind. He is taught to look upon the exercise of these as nothing to feel ashamed about. It is purely a personal affair affecting him and those in charge of him. Thus a reticence about them is cultivated, and a true modesty developed in him.

The teacher now takes up a regular and systematic study of the double function in reproduction. Bisexual § flowers and their

† The pistil, the stamen, the style, the pollen-dust and the petals can be told to be the seed box, stick, seed-tube, and yellow-dust respectively.

‡ Father in the case of a boy and mother in the case of a girl.

§ The Dathura, the South Indian 'Vendai,' 'Poovarasu' are bisexual flowers. 'Cocoanut,' 'Podalai,' 'Pooshani' are some of the South Indian uni-sexual flowers.

pollination may lead to the separate parts provided for reproductive functions and to the terms 'egg' and 'sperm.' Fatherhood or paternity should be the main theme of sex-instruction during these years. A gradual transition from home pets, birds and animals, to man will help the child to form correct ideas about the process of fertilization in all living creatures (including man). Suitable terminology must be taught to clothe these facts with.

A study of natural science* and animal-life should include also the reproductive function in plants and animals.

Parents should now have periodical (weekly or fortnightly) conferences with the teachers. They supplement the facts given at school by dealing with them as applying to the person of the child. Talks by parents on the powers of man and woman, their relations and responsibilities should also be given.

The last two years of later childhood (ages eleven and twelve) form the most critical ones in the life of a child. Vigorous changes, physical and psychic, take place, heralding the approach of puberty in the individual.

Children may now have :—

1. The study of growth from a single cell and the formation of a new individual by the union of two cells.†

2. The significance of puberty in man and woman ; its signs of approach.

The parent prepares the child for puberic changes before they actually overtake him. Sex-stimulating conversations are carefully avoided, and the spirit of altruism and social service ‡ instilled. Opportunities for vigorous sublimation of sex-energy are given him in plenty.

The teacher is on the look-out for suspicious movements in the child. If he has reasons to suspect anything untoward, he gives immediate advice to the child in private. He insists on his pupils § being modestly dressed,—in ways least provocative of sex-impulse.

Bad advertisements and unhealthy literature are scrupulously kept beyond their access. They are taken out on excursions. $ The teacher selects suitable reading books for them and insists on their attending cinemas and dramas of his choice only. Undoubtedly, the teacher knows what is best for the child on such matters.

Parents at home and teachers at school should pursue a policy of supervision and life-direction for establishing in the child a habitual sublimation process of sex-energy.

Boys and girls, now probably in the fourth form, must be given full details of all the functions of the human system, reproduction included. The study of human organs should also include the sex organs.

Sex education now comprises :—

1. Lessons on glandular secretions ; their functions ; malpractices undermining health and mind.

* The present departmental syllabus in plant and animal life for the lower forms is admirably drawn up and can be utilised for the purpose.

† A cursory biological study of amoeba, hydra, earthworm, snail, cray-fish, frog, lizard, bat, rabbit, dog, goat, cow and man is desirable.

‡ Boy scout movement, youth leagues (non-political) for boys and women workers, child welfare associations and girl guide movements for girls are good organizations for social service. Children can be admitted in them.

§ Girls in particular—applicable only to classes containing pupils of both sexes.

$ Parks. Zoos, Museums, &c. Where they do not exist, to local farms or gardens.

2. Talks on the importance of mental sex hygiene.

3. Discourses on the ethical principles underlying marriage.

4. Illustrations bearing out sexual hunger —physical hunger analogy, overclamming being detrimental in either case.

Summing up, "a correct view of sex should be presented to them based on an account of the role of the internal secretion. The possibility and value of leading a continent life should clearly be impressed, and the relation of will and self-control to sex-integrity prominently brought forward." *

This would take the boy to the verge of puberty † and the girl just beyond it (a year or two perhaps). It is at this age that the teacher takes particular care about the movements of the child ; undesirable sex-habits, if detected, must, by most suitable methods of sublimation, be effaced. Punishment should never be resorted to in these cases, for reasons obvious.

Good sex-instruction and strict rules of discipline will leave no room for lessons on sex-abuse. Individual talks by parents and teachers to each child on the value and preciousness of the seminal fluid must be given.

During this period and the years succeeding, along with lessons on sex, might follow in the moral lesson classes, talks on the ethical side of sex : (i) Sex-conduct, (ii) sex-integrity, (iii) chastity of man and woman, (iv) avoiding temptations, (v) our duty to the race, (vi) duty of parents to children and *vice-versa*, (vii) *Brahmacharya* ‡ will form some of the topics to be dealt with.

Now and then should children be warned of the various temptations and pitfalls in life. But these are never exaggerated. Overdoing of the evils is more harmful than ignorance thereof.

Physiology and hygiene lessons § should deal with the diseases of the sex organs along with those of other parts of the body, particularly, gonorrhœa and syphilis. The origin of these diseases and their remedies may be usefully given.

Before concluding, this warning to teachers and parents is essential :—

Great care should be taken not to give facts of sex and sex-abuse side by side. Likewise, when talking of sex-control, no mention should be made of the various possibilities of sex-stimulation.

II.

The difficulties in the path of sex educators are :—

I. *Parents* :—
- (i) Illiteracy. $
- (ii) Failure to recognize the need of sex education to children.
- (iii) Incapacity to give sex instruction.
- (iv) Want of time.
- (v) Economic hardships.
- (vi) Social impediments.

II. *Teachers* :—
- (i) Insufficient knowledge of the subject.
- (ii) Lack of leisure.

* Narah H. March's *Towards Racial Health*. 1920 Edition.

† A girl in India attains puberty at 13 or 14, and the boy, a year or two later.

‡ Lives of great Brahmacharis and Brahmacharinis like Hanuman, Bhishma, Parasurama, Aovai, may be dealt with.

§ *Vide* present Government syllabus in Elementary Science, IV and V Forms.

$ Only about 8 % of India's population can read and write.

(iii) Insufficient appliances.

(iv) Want of public sympathy.

(v) Individual and age variations of the pupils.

III. *Pupils* :—

(i) Bad home conditions.

(ii) The small percentage at school and the greater percentage outside.

Remedies for some of the above are obvious. Educating the masses and raising their economic status together with the following suggestions will go far towards the solution.

A. (i) The Government should issue periodical pamphlets on the necessity for, and advantages of, sex education to children.

(ii) Social workers* should do propaganda work emphasising the need for it with posters, lantern-slides, etc., and disseminate sex education to children not schooled.

(iii) Sex weeks like health weeks may be celebrated, but in a better way.

(iv) Well-equipped moving-aquariums, travelling cinemas, and model farms on touring cars should be maintained by the State.

(v) Sex Committees might be formed to do useful work.

(vi) Taluk parks, museums and zoos must be maintained.

(vii) Sex education should be incorporated into the curriculum.

(viii) A thorougher medical inspection should be done in schools. †

B. The teacher should

(i) receive a course of sex instruction in training schools ;

(ii) have more leisure ;

(iii) be given all accessories, *e.g.*, gardens, pets, etc. ;

(iv) give talks to parents, collectively and individually, on the subject ;

(v) get free access to all pupils outside school hours for intimate talks with them ;

(vi) unobtrusively give sex talks during other lessons. ‡

Many of the difficulties of the teacher due to disparity of age among his pupils might be overcome if he resorts to individual instruction and has a watchful eye for unhealthy companionship among his wards.

From the scheme outlined (in I), we see that much falls to the share of the parents. But, as conditions are to-day precious little could come of them. The entire brunt, therefore, falls on the teacher.

The teacher should be looked upon as an indispensable factor for the child's sex education, not as an inevitable one. When we realise how he has to plod along with children of varying ages and capacities, how he has to fortify his wards against the assailments of the infinitely more numerous non-students, how he has to spread sex education through a small fraction of our country's children, moving with them only for a few hours of the day, § the magnitude of his work is found appalling indeed. But *Labor omnia vincit*. $

* Adult education workers, village reconstruction societies, youth leagues, alliances of honour, child welfare associations, women movements, etc.

† Cases of delinquency may be detected from external signs. In such cases, proper medical advice should be given.

‡ Physiology, hygiene, plant and animal life. The effect of geographical conditions on men, the formation of the history of a race, etc.

§ Only five out of 24.

$ Labour conquers everything.

THE PRE-SCHOOL CHILD.

BY MR. T. P. CHANDY, B.A., B.T.,
Trichur.

(*Continued from page* 18.)

III.

THE EDUCATIONAL IMPLICATIONS OF THE FEAR IMPULSE.

NEXT to curiosity, the most important instinct is that of fear. It shows itself in the action of escaping or avoiding danger. According to Dr. Watson, there are only three original causes of fear, loud noises, sensation of being dropped and organic pain. But, as the infant grows up, new fears are formed. For instance, a child of three or four years may show a large number of fear reactions. It may be afraid of dogs, cats, stuffed animals, creeping insects, worms, loneliness, darkness, water, heights, etc. Then again, as the child emerges out into full manhood, he shows new forms of fear. We notice that at this stage fear clogs his mind, dogs his foot-steps, and makes him miserable when he should be happy and reliant. He may have fear of society, fear of government, fear of taking cold, fear to venture in business matters, fear of losing money, fear of examination, fear of public opinion, etc. His whole life is filled with fear, fear, fear ! It is a dreadful thing to be thus dominated by fear. It is written that the fearful, the cowards, and the timid have no part in the city of the future (Rev. xxi). The effect of fear is to dry up the very source of life by working terrible havoc with imagination and curiosity. All fear is slavish. A boy who is afraid of nearly everything around him, is not in a favourable position to pursue his studies. In politics, religion and social affairs, it is the courageous and the fearless who are able to stand for truth and make a lasting contribution to the progress of the world. Human life is a great adventure. Any work that involves risk is an adventure. A spirit of adventure is required for the realisation of one's manhood. No man could attain spiritual progress who is held in the bonds of fear. Throughout the Bible, the words ring again and again, " Fear not." Every psycho-analyst can testify to the number of cases where neurosis and nervous shocks in adult life can be traced to the fear in childhood. These nervous shocks leave indelible marks throughout life. Mental shocks of childhood are reproduced in dreams in adult life. Psychologists show that these fears are acquired and not innate.

How do we acquire these fears ? By inadequate training in infancy, we develop timidity of disposition. Professor Watson, the eminent psychologist, tells us that fears are acquired by means of what is known as the " conditioned reflex "—the substitution of one form of stimulus for another. For example, the presence of a child's father before him at first arouses his curiosity. But the father, in the first interview itself, scolds and beats the child, causing organic pain. In the child's mind, his father's name is associated with painful experiences. Hence the mere mention of " father " on subsequent occasions causes fear in the child. Here the original stimulus is substituted for a new one. By such processes, the child acquires many forms of fear. There is also another way by which

the child acquires fear, that is, by suggestion—suggestion by parents, nurses, members of the family, friends, etc. For instance, fear of darkness does not occur to children who have not been told that darkness is terrifying. Most of such fears do not arise if grown up people do not create them. Many ignorant and thoughtless parents abuse the instinctive trust of the child with the stories of old bogey designed simply to save them the trouble and bother that the unrestrained spirit of the child may cause. Nurses use fear as a means of governing children—" I will tell your daddy." " Take care or the bogey will catch you." " Little children that tell lies will go to hell " —these forms of threats have, no doubt, a very unwholesome effect upon the child.

Such childish fears should be very tenderly dealt with. Fears caused by unfortunate first experiences with a class of objects can be removed by favourable experiences. The process of curing is known as the " unconditioning." The quicker such cure can be applied, the better. Suppose a two or three year old boy is frightened by a dog. The child, then, could not even bear the sight of the dog. But the child's fears can be removed in this way. When the child is engaged in a pleasurable activity, say, sitting at table and eating, introduce a toy dog at the other end of the table. The dog is to be presented in conjunction with a pleasurable stimulus. Eating produces both curiosity and pleasure. At that time, draw the attention of the child to the dog. The child will then look at the dog without showing signs of fear as of old. On succeeding days, let the dog be brought nearer and nearer to the child until at last you will find the child playing with the dog with one hand and eating with the other. Then bring the real dog near the child. It will not show any fear reaction. Thus such fears can be removed. In cases where practical demonstration on a similar line is not possible, as in thunderstorm, for instance, we shall have to talk to the boy in a pleasing manner, comparing the flashes of lightning with those of matches. In all cases, the child should be encouraged and helped to bring out his fear into the open, to be able to talk of it without ridicule.

But prevention is better than cure. A few principles ought to be borne in mind by every parent who wants to keep the child out of fear. Firstly, occasions of fear should be avoided as far as possible. Not only are fears excited by actual and imaginary experiences of the child, but by the manifestation of fear by the child's companions. Here companionship with those who easily get frightened should be avoided as far as possible. Children should not be left entirely with the servants. If so, the child instinctively imbibes the attitude of the servants of his household. Many of the fears owe their origin to the child's close association with illiterate servants. A grown-up person in charge of a child should never feel fear. " If you wish to dispel fear in your children, be fearless youself " is a maxim worthy of being tried by every parent. If you are afraid of thunderstorm, the child catches your fear, the first time he hears the thunderstorm in your presence. If you are apprehensive about illness, so will your child be.

Secondly, children should not be scolded or punished or threatened by parents under any circumstances. Punishment will not be needed, if proper training began early enough. Punishment usually damages the child's conception of life and duty. He cannot understand the value of goodness in life, if he is subjected to punishment.

Anger, punishment or any attempt to produce instant submission and dismay in children is apt to create terrors in them. By so doing we are damaging them irreparably. Children brought up in such unwholesome lines will become timid, cowardly and slavish. So, whenever the child has gone wrong, we must appeal to his good sense. A grieved look or the slightest tap on the hand will convey to him the sense of disapproval of those around him. And thus, by kind treatment of discriminating love, the child would learn to take his place in society as a useful member of it, aware of its laws and not rebellious to them.

IV.

THE DEVELOPMENT OF SOCIAL INSTINCT IN CHILDREN.

Man is a gregarious animal feeling pleasure and satisfaction when living and working with others of his own species. So, the psychological handling of children must necessarily be subservient or at least correlated to a sociological out-look. The social instincts determine the general back-ground of our civilisation, and, therefore, of our educational aims. We owe our present form of civilisation, with its cities, villages, family groups and societies to this tendency. Much of our social inequalities and cleavages may be traced to the abuse of the social instinct. Children should be trained so as to learn lessons of truthfulness, justice, fairness and other social virtues.

HOW TO TRAIN UP CHILDREN TO BE TRUTHFUL.

Children should be taught to be truthful in their thoughts and words, even if it would entail worldly misfortune. In order to make the world better, we should make our children upright, honest, candid and straightforward, clear as the day in all things. It is interesting to find out why children lie. If every parent who is faced with this question on the part of his child thinks a bit inwardly, he will get a clearer idea of how to prevent the repetition of lies of his children as well as to deal with them. The period from four to six years of age is a difficult one for children to understand the importance of telling the truth. Sometimes, physical conditions make it very hard for children to express themselves clearly and truthfully. A child who is concerned with healthy activities and interest is not likely to lie as one whose thoughts too frequently turn inward.

A very common reason for lying in children is fear of punishment. A child brought up without fear will be truthful. Excessive parental control and arbitrary punishment lead to the formation of habits of lying and deception. Parents should be very careful in meting out punishment, for harshness may make a child lie in a more desperate way to get out of a painful situation.

The child should be made to learn that it is much happier for him to be honest. For this purpose, we must always gently and sympathetically talk to him. Parents should not be surprised to find occasional lapses from truth at the early stages. For the child is living in his own world, not being quite able to distinguish right from wrong. Moreover, the child's memory is very faulty. He does not know the answer to a question when the adult thinks he does. His sense of time is

very vague. And he often talks in a dramatic character of make-believe delighting in inventing long fairy tales and stories about himself and his environment. So then, a certain amount of caution is needed on the part of the parents when judging whether the child is truthful.

Apart from punishments, parents themselves are very often an occasion for lying in their children. They lie to their children, or break promises or make vain threats. Dr. Ballard says: "Don't threaten. If you do, let nothing stop you from carrying out your threat. If you say to a boy "Do that again I will murder you' and he does it again, then you must murder him. If you don't he will lose all respect for you." Suppose a child is asking his father for a toy. The father promises to give him one when he returns from office in the evening. The child is entirely satisfied with the promise and for the rest of the day he is dreaming how he would play with it. He is living in his fanciful world delighted with the prospect of playing with his toy. When the evening comes, the father returns from the office without the toy. And the child finds to his disappointment that there can be discrepancy between word and deed. The child knows that for the first time in his life from his own parent. He will be looking forward for an opportunity when he could test the lesson he learnt. When, therefore, his father asks him a familiar question—say, is the mother at home? the child answers "no." He knows that he ought to say "yes." But he is simply following what his father did to him. In these and other ways, the child learns to lie. So, if children are not to learn lying, absolute truthfulness in adults towards them is indispensable. If the parents are truthful to their children, they would trust them. Parents should be warned against assuming a terrifying and threatening attitude to their children, as such behaviour would cause unnecessary break-down for their children. In training children to be truthful "Be patient and persevere."

An experience of a mother is embodied in the following extract. "One X (a little five year old boy) seemed to have very little idea of what lying meant and gave a good deal of trouble by his ingenious and plausible accounts of what might have happened. He knew that when he lied, it made his mother sad and he was sorry for that, but was too gay and irresponsible to be sorry for very long. She went on quietly and patiently training him, praising him when he was truthful, but showing him how no one would trust him with anything important if his word is not reliable. One night at bed time, apropos of nothing in particular he asked what happens when I tell lies? His mother said, "It spoils you, it makes your heart dirty." "Can I get it clean?" "Only God can make it clean and He will if you are sorry and stop telling lies." He said "Help me to ask Him now." So they asked Him together. Night after night, without any reminder from his mother, the little boy asked his mother to join him in a prayer for forgiveness for all the lies he had ever told and at intervals for a long time afterwards he would say "Help me to ask God about my lies." He wanted to be trusted by those he loved and more than that there was an inexplicable and inexpressible reaching out of his spirit to the spirit of Truth. When he was six years old, he still enjoyed innocent fictions and he had occasional lapses from veracity, though not so flagrant as before, but swiftly would seem the passionate desire for truth which had come to him and appreciation of it in others. Thus his heart-felt prayer would be offered. "Oh! God forgive me for all lies ever told and help me to speak the truth always."

So then, parents should help the children to strive to attain to pure, simple-minded, hearty truthfulness. "Speak every man truth with his neighbour. Speak truth from the heart." So says the Bible.

HOW TO CULTIVATE A SENSE OF JUSTICE IN CHILDREN.

The prevailing vice in our nation is injustice. Most crimes, as recognised by law, come from the indulgence of selfishness from a desire to acquire, to defeat or to wreak vengeance. Injustice exists in a thousand different ways. Wars between nations have come about from the want of adjustment to social conditions on the part of men. Class differences arise from injustice. Strikes, lock-outs are also the outcome of developed injustice. In many cases, the clash between capitalists and labour is the result of injustice. In India, we have the problem of untouchability—an out-come of selfishness and injustice. At present, we know how to be efficient masters or good slaves; but, between these two positions, there is an intermediate stage of fellowship between man and man. Unless our children are trained to look upon others in a spirit of justice and brotherliness, we shall not be able to make the world better.

What is justice then? It is an adjustment of one's rights in pursuit of happiness with the rights of one's fellowmen in the same pursuit. Injustice is involved when we disregard the rights of others and also when we allow our rights to be over-ridden by others. Justice is, therefore, a fair adjustment of one's rights with those of others.

How does the sense of justice arise? Most children, if left to themselves, are likely to snatch at things belonging to others disregarding their rights. They have had no social experiences to help them to adjust their rights with those of others. Social virtues come only when they move in company and when they are young. In company, they come up constantly to social situations where a number of people are competing for the same objective. The result will be that the children will have acquired social adjustment. Young children not only enjoy the company of other children, but they understand each other better. Association with those of one's own age, where there is scope for "give and take," leads to the development of social virtues like mutual respect, co-operation, etc. It is not to be forgotten that children receive even when they are two or three years old moral education from those of their own age. The child who is never allowed to mingle with other children is denied the right of developing his full personality. Some parents patronise their childen and show too much sentimentality, with the result that they become effeminate. A child so brought up will be extremely selfish or will show too much self-sacrifice.

In training children, parents must provide for their children company of other children of almost the same age, because a child learns much more from his comrades than from adults. The child should have opportunities for competition and co-operation with his equals and friends. He should have scope for showing brotherliness, sympathy, forbearance, justice and other social virtues. Competition draws out the latent talent of the child and also prepares him for co-operation. The great lesson of co-operation is learnt from other children. It is again only equals who can give scope for spontaneity in free

competition and in equal co-operation. Again, another valuable lesson learnt in the company of friends is one of respect for the right of others. A spirit of fairness characterises the behaviour of children brought up in this way. A child learns these lessons thus:—Suppose a tri-cycle is placed for use for several children in a family. They learn by experience that by mutual adjustment alone they could all use it. They would arrange for themselves when each should use it, thus learning the lesson of "give and take," a lesson so very valuable in the distracted world of to-day. The several chums thus exercise a powerful influence over each other, and a complete sharing of life with each other is a valuable experience. Such an experience of all working together with common ends will lead to the development of the impulse to social service also. The child thus trained will be competent to adjust himself voluntarily to social requirements replacing the discipline of fear and punishment by the development of initiative and responsibility. The joint-family system, which is prevalent in some parts of India, has the advantage of giving opportunities for children to imbibe social virtues. It is in the home that the foundation of character is to be laid. If our children get perverted, they are sure to become perverted men. Parents should take care to plant high ideals in their children and send them forth on the journey of life equipped with the just mental balance, which would make them raise the standard and ideals of society. Then they become the builders of a better world.

(To be Continued.)

SCOTT AS A POET.

By Mr. T. Krishnamurti, B.A., B.Ed.,
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As a writer of songs and simple lyrics or ballads, Scott holds a place with Campbell or Tennyson. In imaginative power, he ranks below any writer save Homer and Shakespeare. But his fame as a poet rests mainly on the five first rate poems, to which the name of Romances is given. He turned the thoughts and hearts of his countrymen towards the middle ages.

In respect of the story, the soul of the poem, no one can be compared with him. He can invent and construct with ease, rapidity and variety. For incident, episode and rich detail of story he is unparalleled. He knows the arts of successful narrative. His conclusions harmonise with our sense of the moral order and fitness of things.

His handling of characters include descriptive portraits and characterisation in action. Portraiture is an art seen at its best in Milton and Dryden. If Scott is not equal to these, he is at least incomparably superior to any poet of his own time. The characters in his poems are skilfully drawn. In female characters, he is not so great. His heroines are handled with grace and delicacy, but far more briefly than his warriors.

His narration is easy, animated and interesting. His thought is always clear and his action spirited. His faith is on familiar ground, and in his chariot, he bears us rapidly along. His octo-syllabic meter suits his theme, and is sufficient for his purpose.

He is equally at home in describing external objects—whether artificial, as a castle and a city; or natural as a forest and a lake. In describing persons and passions, limited actions as a hunt or a duel, and wide complicated events as a battle-field, he is nearer the summit. In the description of external nature, he is unsurpassed. Wordsworth may be superior to him in the interpretation of nature. But he had not a keener sense of beauty, nor could he have written such passages as those which describe the view from Barnard Castle and the walk along the Greta to its junction with the Tees. In his wider views of nature, the tempestuous ocean, Byron has excelled him. But again, in the tempest of battle, Scott maintains supremacy. He is inferior in memorable phrases, but superior in general effects. In this art, he is inferior to the very greatest—Homer, Shakespeare, Milton—only in so far as his poetry is of a lighter cast and less charged with thought than theirs. One feature of it, a test of its vividness, has been often noted—the keenness of his discernment and enjoyment of colour.

To these general qualities must be added the special emotion of his poetry, *viz.*, the glow of romantic feeling, which, whether expressing itself in love of the

picturesque and the antique or in the ardour of battle, or in the fervour of patriotism, or in devotion to chivalrous sentiment, diffuses itself in one form or another over all his works. This gives his writing its distinctive hue. This lights up for us, as with the brightness of sun-rise, his mouldering castles and faded scutcheons and all the antiquated pomp of feudal barbarism. In the Scotsman's breast, it kindles a warmer love for a country stern and wild in its romantic beauty and no less stern and true in its devotion to national independence.

His poetry flowed from a nature in which strength, high spirit, and active energy were united with tender sensibility and lively imagination. His associations are towards the feudal past. War and its pageantry were his delight.

Thus the merits of Scott's poetry are primarily in his inventiveness and power of plot construction, his power of portraiture and characterisation, and his narrative and descriptive power. According to ancient conceptions of art, these qualities are fundamental and supreme. Judged by these, Scott would be found to be a great poet.

But he is not without the inferiorities that are to be placed in the other side of the balance. Generally speaking, his poetry is not of the loftiest kind, either in respect of aim and purpose, or of its body of thought and sentiment, or in musical expression.

Scott's purpose was to reproduce in pleasing and interesting fashion picturesque and memorable phases of a past life. He did not write to enforce profound lessons of history, or to elevate the sanctity of moral law, or to justify the ways of God to man. In *Marmion* in particular, we see, both in the fate of the chief characters and in the issue of the battle, the triumph of the moral forces. In his poetry, as a whole, moral purpose is by no means prominent. In Shakespeare, there is, in nearly every play, a moral study of life. Scott is always sound, often nobly patriotic; be never appeals to what is of doubtful honour.

In Spenser, every chief knight is an embodiment of a virtue, and the object of the poem, as a whole, is to present a many sided picture of perfect honour. Scott's subject-matter—his border history and raids and feuds and legends—did not afford scope for any such design. Although his characters are drawn with greater power, there is less of lofty sentiment in their utterances and imitable nobleness in their actions. Such a character as Marmion is too dark to be heroic. Scott was dominated by the realism of fact. He gave too little thought to the elements of the ideal. Scott scarcely attempted what has been called the 'great style.' In imagery, he is below none; but his octo-syllabic meter did not allow him largeness of thought and strength of passion. The short meter has charms of its own (of swiftness or sweetness, of lyric fervour or winged mirth), but not so readily of grandeur.

His verse was not musical. Poetry is musical speech. The melodious sense, with which such poets as Spenser and Milton and Shelley were endowed, was sufficient of itself to raise their poetry to a higher sphere. Scott had the perfect eye for beauty, but not the ear for music.

To these may be added negligence of diction. Scott did not spend time on literary finish. He did not labour to form new and striking combinations. He had few of the sparkling jewels of the phrase. The story and the characters occupied his mind. He did not mind the diction. He was a rapid and careless writer, who aimed only at broad general effects.

GEOGRAPHICAL EQUIPMENT FOR HIGH SCHOOLS.

BY MR. P. V. DORAISWAMI IYER, B.A., L.T.,
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"THE necessity of equipment for the teaching of geography is as essential as it is in science if the subject is to be taught efficiently. Bricks cannot be made without straw, nor structures be erected in the air. "Maps, globes, pictures, and such like aids are requisite and accommodation is needed for their display. Talk and text-book alone cannot develop accurate regional pictures. Geography is not an exercise in the association of ideas having a time sequence, but in the association of phenomena having space-relationship. Inadequate equipment leads to inaccurate teaching."

Obviously, all systems of knowledge cannot be expressed in the same way. The nature of relations that bind the parts of a system into a whole cannot be expressed in the same form. The nature of the relations vary in different systems of knowledge, and the form of expression depends on the nature of the relations, whether of space, of time, of function, or of cause and effect. It will be relevant, therefore, to enquire what kinds of relations are met with in geography and discover forms of expression which will assist facile comprehension.

The relations most frequently met with in geographic systems of knowledge are:— 1. Relations of space as in grasping the relative position of countries, physical features, towns, etc.; 2. Relations of quantity as in grasping the relative sizes of countries, mountains, rivers, population, products, exports and imports; 3. Relations of similarity and difference as in grouping or distinguishing the areas of the world according to similarities or differences of surface features, climate, vegetation, human life and occupations, races, religion, degree of civilization, etc.; 4. Relations of cause and effect as in grasping the effects of the physical conditions of a country on the life and activities of its people.

Now, there are two possible modes of expression, verbal and graphic, and each of these has its peculiar value in aiding intelligent comprehension and ready recall. Clearly, relations of space are best grasped in the graphic form of maps, plans and diagrams. To describe in words the exact position of mountains, rivers and towns and vegetation areas is a cumbersome and distracting task. Such a description is impossible unless a spatial image is recalled in the mind. Such spatial images are often vague and ill-defined. The clearer our knowledge of any set of spatial relations is, the more spatial imagery takes the form of a map, plan, diagram or sketch. The mental map, *i.e.*, the map image, therefore, is the intellectual instrument by which we think clearly about relative position and hence the map form of expression is the most suitable for assisting its comprehension and fixing it in the mind. Maps, plans and diagrams, therefore, should be a language in frequent use in the discipline of learning geography.

While a large equipment is not necessary in teaching geography, a few pieces of apparatus are essential to good work and should be at the disposal of every teacher of the subject. These are necessary as a text-book

or course of study, for no teacher can do himself or the cause adequate justice unless he is furnished with these fundamental tools.

It is a deplorable fact that a vast majority of our schools are, at present, poorly equipped in this respect. In some cases, maps are absolutely lacking—"a shameful neglect of necessities." Much of the objection of buying maps, etc., is due to the fact that the authorities think that the expenditure is too much for a single subject. This view is entirely wrong. Maps are absolutely indispensable in teaching history, literature and current events. We do not grudge spending money on a piece of striking apparatus to be used in one topic only for a day or two annually. The apparatus is kept in the case most of the time. Yet we grudge spending money on apparatus to be used every day.

The Globe :—The Globe is a *sine qua non* in the teaching of geography. A twelve-inch political globe should be in constant use in the school room ; for maps sometimes give wrong impressions. The map is flat, the world is round, when hung up the north is at the top and children get the idea of up and down. Pupils again get curious ideas of relationship of places. To avoid these errors and to keep before their minds the rotundity of the earth, the globe is essential. It is essential for teaching the world as a whole, for teaching latitude and longitude. The globe should be of such size as can easily be handled by both teacher and pupils. It is no luxury, but an absolute necessity and during the early stages more useful than a map. So is a black-board or slate-globe a more than useful adjunct. Problems arising from the study of the rotation, the winds, ocean currents, heat-belts, etc., can be presented best by means of a black-board globe. One not over twelve inches in diameter will be found to be most useful.

Wall Maps :—The map is the chief tool of the geographer, the most valuable vehicle of expression. Young students must be taught to handle this tool and employ this vehicle with freedom and ease, not to be used as an 'extra,' if time permits, but as lying at the very core of geography. It is the short-hand of geography—an economical medium of expression. They are valuable for two purposes, for the study of the general features of a country, continent, or world and as a means of testing a pupil's knowledge. The advantage of using a wall map is that all the members of the class can be required to fix their attention on one thing and one thing only. When displayed in the room they keep the geograpic atmosphere alive. Maps are, therefore, of enormous importance.

School maps are for class use and therefore must first of all be legible. They must be properly coloured. Contrast between two physical regions or political areas should be easily discernible. This does not mean that colours must be glaring. Those mounted on linen, dissected and eye-letted are preferable to roller maps for the reason that they are more handy and can be easily stowed away. The Oxford Geography Wall Maps (Herbertson) 60"×40" for six continents each in five maps (cost 13*s.* each) and Phillip's Comparative Wall Atlases (Unstead and Taylor) 43"×33" are the most suitable of the series. The latter consists of eleven sets and a typical set includes one relief, four climate one natural vegetation, one commercial development and one population map—eight maps in all. A set costs £2-7-6 (single map 7*s.*) The sets on the United States of America and South Africa are not necessary for us in India. The other nine sets form a very useful and up-to-date collection. They are all mounted on linen dissected and eye-letted. They are handier than the Oxford maps and, on account of their greater isolation of features, preferable to the Oxford maps. Besides these, every school should have a Mercator map of the world and the world map should show the ocean currents, the international dateline, as well as political features, steamer routes, cable lines, temperature, rainfall and relief. A map of the Presidency in which the school is situated, the District map, and a few one-inch ordinance survey maps of the school region are also very essential.

Outline Maps :—In teaching certain topics, one frequently is in need of a map that cannot be procured or the one in possession may not answer the purpose exactly. In such cases, it is a very simple matter for the teacher to fill in one of these outline maps with the required data. Thus, at a small expense, he can add a valuable piece of permanent equipment. They are also valuable for enlarging small maps from books of reference or texts so as to be available for class use.

(Phillip's Map Building Sheets eye-letted 42" × 32", each 3*s.*)

Pictures and Illustrations :—As an aid to imagination, pictures are as essential as realistic literature and no geography room is complete without its complement of pictures for class teaching and independent study by the pupils. Pictures should be judiciousiy chosen illustrative of all the great physical and human topics of geography. There should, for example, be series illustrating (1) types of mountains, rivers, valleys, coasts; (2) types of natural regions and their physical conditions and vegetation; (3) types of life and occupations, manners, customs, productions, dwellings, implements, etc. ; (4) main types of agricultural and pastoral lands throughout the world ; (5) great industries and manufactures depicting the processes of manufacture from raw material to finished products ; (6) aspects of commerce such as modes of travel, docks, railways, trading centres, goods-yards, etc.; (7) natural scenery.

Series of such pictures, photographs and coloured prints are now available with the various educational publishers at very cheap prices. Such pictures are no luxury but a necessity.

(1) Black's Picture Post Cards (68) 6*d.* per packet of 6.

(2) Children Overseas (Edinburgh House Press) 6*d.* for 6.

Imperial Institute Series (cocoaunt industry, cocoa industry, sugar industry, rubber industry, etc.) A packet of 7 post cards with information booklet 6*d.* per packet.

(4) Post cards of the following countries: Australia, Barbados, Burma, Canada, Ceylon, India, etc., 19 series. 9*d.* per Series (Secretary, Imperial Institute, S. Kensington.)

(5) Geography pictures edited by Fairgrieve (Black) 1*s.* Each set contains British Isles, North America, West Indies, Central and South America, Africa, Australia, New Zealand, Pacific Islands, Asia, Europe. Each set consists of 64 pictures 6" × 4" two on a page, on one side of the paper with explanatory notes.

(6) Land forms and how they are made S. M. Nicholls (Black) cost 9*d.* per packet of 6 cards.

Messrs. Longmans, Green & Co. have a fine collection of big pictures of world animals, child life in other lands, children of other countries, pictures of human life, culture, etc. These, though a bit more costly, are extremely useful.

Among the visual aids, the stereoscope is of great advantage. It reveals nature more truly than does any other form of photograph, perspective and relief coming out with startling effect—the next best thing for an actual eye inspection. The cost is not great and the advantage is enormous. It gives an air of reality that nothing else does and geography is a subject where reality is so necessary and so difficult to obtain.

The best appliance for that intrinsically most difficult portion of the subject, *viz.*, mathematical geography, is the planetarium. This shows the rotating earth travelling in its orbit about the sun, shows the northward and southward migration of the vertical rays of the sun, shows the circle of illumination beyond the North and South Poles corresponding in amount to the shifting northward and southward of the vertical rays. The position of this illumination with reference to parallels makes it possible actually to see the reasons for the varying length of day and night over the globe, the twelve-hour-day and night at the equator and the twenty-four-hour day and night at the Poles, and for the six months' periods of light and darkness at the Poles. The planetarium is costly, but the cost is not prohibitive. One may be had for a number of schools together and sent round. The District Boards and Government no doubt can afford to have a few for the many schools under them.

The Mapograph like the cyclostyle machine will serve a very useful purpose in giving the pupils outline maps of the continents dealt in the class. There are several substitutes if a teacher is sufficiently ingenious; but, they are all clumsy. If a school or several schools together can have one, it will be found to be of enormous advantage. A complete outfit costs seventeen shillings six pence and outline map-rolls ten shillings each. (Mapograph Company, Ltd., 440, High Road, Chiswick, London.)

Of the *metereological instruments* necessary for observations in geography, the thermometer and barometer are generally available in the science laboratory, and as such, they need not be duplicated. The Rain Gauge and the Wind Rose if they can be improvised in the locality, costly ones need not be purchased. It is, however, absolutely necessary to have them for constant use.

The Geography Room:—Finally, the necessity for a separate room for geography should not be forgotten. A separate room is a necessity for the housing of the cumbersome apparatus which the subject requires, and which it is impossible for the teacher and children to carry from room to room. It is needed for experiments and handwork, modelling, etc., which must be left out from day to day, needed for floor games to children, needed for the lesson with the map lying on the floor. It is still more necessary for wall space for maps, pictures, charts and records. In short, it is to be a reference room for children where geographical material of all kinds is collected and available—a combined class-room and laboratory. The best equipment cannot and would not be properly utilised without this separate room. Hence it is no luxury but a necessity.

ELEPHANTS OF TRAVANCORE.

BY MR. K. P. P. THAMPY,
Trivandram.

THE HOME OF ELEPHANTS.

THE lovely State of Travancore, characterised by 'primeval forests and palm-fringed shores' is, from ages past, reputed for 'its exuberant natural beauties, its old-world simplicity and its Arcadian charms.' Wedged in between the Western Ghats on the east and the Arabian Sea on the west, this small and charming State undoubtedly is most appropriately called the Beauty Spot of India. In spite of the fact that the irregular triangle of Travancore is easily measured out into 7625 square miles, she has kept pace with the foremost of Indian States in India. A view of the country from one of the hill tops is the most pleasant and captivating sight the human eye can ever meet with. From time to time, Travancore has attracted the attention of tourists and great personages, all of whom have extolled in very eloquent terms her picturesque scenery. Sir M. E. Grant Duff has described Travancore as "one of the fairest and most interesting realms Asia has to show." Lord Connemara has called it "a fairy land."

Along with their lovely lagoons, marvellous mountains, wild rocks, precipitous acclivities, shady and pleasant valleys, mighty rivers, murmuring brooks, stately trees, magnificent bowers of nature, creepers that put forth a rich variety of beautiful blossoms and thick carpeted undergrowth of ferns and flowering shrubs, the forests of Travancore present an inexpressible glory and grandeur which is sure to relieve the ordinary prosaic monotony of every-day life and fill it with sweet visions and happy thoughts of real bliss. One feels oneself nearer to God when in the refreshing mountains, and finds oneself the richer, the nobler, and the better for it. Thus Travancore is especially rich in its forests. They are remarkably supreme in their unlimited luxury. Their most outstanding feature is the extensive and diversified flora and fauna they have. Sir John D. Rees, I.C.S., C.I.E., a former British Resident in Travancore, hits off most happily the lovely scenery of the forests of the "Naples of India," which are unique in their own way.

"If the night spent on the way recall the Inferno, the days are those of Paradise when once the hills are reached, and the traveller rides through shady forest under a leafy canopy, only admitting the sunshine by infrequent shafts; every support of the lofty roof a tall pillar tree with a green Corintian capital festooned with vines and creeping plants, and floor covered with an undergrowth of tree-ferns, cycas and flowering shrubs or the graceful cardamom whose smooth glistening oblong leaves wave tremulously in light breezes, which hardly stir the firmer foliage of the trees. Above, black monkeys leap joyously from tree to tree; Malabar squirrels jump about, the yellow fur of their stomachs and the red fur of their backs gleaming in the sunshine which catches the taller trees; wood pigeons flit through the sylvan aisles; jungle fowls cackle; wood-peckers tap the tree trunks, and cicadas shrilly whistle; and yet the general effect is one of silence. In the morning hours one might well call these forests the mysterious temple of the dawn."

It is said that there are no fewer than 700 kinds of trees, 350 species of birds, 67 varieties of snakes and innumerable types of insects in the vast and wonderful depths of the forests of Travancore. They are the natural home of many kinds of wild animals. The wild bison, the grisly bear, the royal tiger, the lordly elephant, the cunning leopard, the gentle deer, the wily jackal, the unclean hyaena, the fearful wild boar, the mischievous monkey, the daring mongoose roam the jungle free. The hawk, the raven, the vulture, the jungle fowl, the wild-bird of paradise, the parrot, and innumerable paraquets abound in countless numbers. Snakes of various kinds, scorpions, alligators of huge size are found in abundance. Travancore forests are of much interest to the keen and clever sportsman, and are often eulogised as the Hunter's Paradise. The sportsman and the naturalist are amazed at the endless variety of fauna and flora. In the shape of "large game" Travancore forests have very much to afford.

Of all the animals of Travancore, the most characteristic and the oldest one is the majestic elephant, which is the undisputed master of the forest. Elephants move about in large herds along the Cardamom Hills of North Travancore. Very seldom is a solitary elephant seen in the wilds; when one does come across a single elephant, the experience might well be a death-dealing affair. When in herds elephants are easily frightened and they scamper off at the slightest sign of danger. Elephants do not remain in one place for any length of time. They move about from spot to spot in search of food and drink. They are a set of black wandering rogues. During the first month of the year, water begins to fall in the higher regions Then the elephants go in search of the coolest and thickest parts of the forests. So they descend to the lower regions, where there are rivers. With the approach of the monsoon, they climb to the higher regions of the wilds. Thus the summer resort of the bigwigs of the forests is the upper region, and the winter resort the lower one. In the month of September, when grains ripen, these terrible denizens of the woods come down to the low country and make devastating and dreadful raids upon the corn fields. The elephant, in its wild stage, is a dangerous enemy to man. It destroys and devours his crops and even his life. Wild elephants cause great havoc on the cultivated area, partly because of their liking for the crops and partly owing to a sort of mischievous pleasure. During the season, the cultivators keep very vigilant watch at nights; they sit and watch by big fires, which, with the beat of tom-toms, serve to scare away the molesters. The natives also erect a platform, not within reach of elephants, and keep watch from there. Such structures seen in the fields, are popularly known as *Ana Madams*, literally meaning Elephant Huts. The marauders, when in company, are very easily kept off by the noise made from the tom-toms and gongs. But a single and experienced bull elephant, a clever rogue as he, no doubt, is, and long accustomed to such things, pays no heed at all to the ear-deafening and frightful sounds created by the smart watchers. He roams through the fields at his pleasure and makes a sumptuous feast of the crops. In November, elephants, which have descended to the plains, rejoin their comrades.

CAPTURE OF WILD ELEPHANTS.

The animals therefore are captured during the hot weather, when they come in groups to the lower regions seeking water. In

places through which elephants are noted to pass, deep pits of fifeen feet depth and of the same diameter are dug very carefully and cautiously by clever and experienced hands. The excavated earth is scattered at a distance to avoid suspicion, for elephants are very wise and keep aloof from danger as much as possible. It is said that every herd is led by a hero of ripe age, wisdom and experience, who gropes his way along with a big log or tree trunk to assure safety for himself and his followers. The pits are wide at the top and narrow towards the bottom, and are made in such a way that it would be absolutely impossible for the elephant, which has fallen into it, to climb out. The mouths of the pits are carefully covered up with dry sticks, leaves and small shrubs. Watchers are appointed by the Government to guard the pits, and report whether any animal has fallen a victim to them. When an elephant treads over the pit, the twigs and leaves give way and it falls down with a loud and frightful yell. For about two to three days, the animal is left unmolested and is free to make wild and frantic efforts to release itself from the trap into which it has fallen. But, overcome by fear, hunger, fatigue and want of space even enough to move freely, it finds all its incessant and enthusiastic efforts badly defeated, and is finally completely exhausted. After having tried all methods of escape with no success, the elephant turns a hermit, gives up all endeavours and patiently waits for things to happen.

Now, the experts deputed for elephant capture by the State, begin their operations. The most striking and interesting feature in this exciting affair is the use of tame elephants employed to catch their brethren. Indeed, without the clever and sincere help of tame elephants, known as decoys, it would never be possible for men to capture wild elephants alive. When the tame elephants and their skilled mahouts are ready, operations to capture the wild one are set in full swing. Dry boughs, the undergrowth of forest, and earth are thrown into the pit, little by little. The wild elephant rendered helpless tramples on the material dropped into the pit and stands over it in dead fright. Again, fresh things are thrown into the pit. When enough has been thrown to level the pit, the wild victim appears at the top and finds itself, to its awe and despair, surrounded by tame elephants and men. The wild elephant is placed between two strong and sturdy decoy elephants. Huge and heavy chains are tied round the captives' legs and are held firmly. Ropes are fastened round its neck. In this way, the proud wild animal is taken prisoner. The capture is immensely interesting and extremely risky. With all the experience, intelligence and caution of the tame elephants and their master mahouts, sometimes the wild animal gets out of control. It is no wonder, therefore, that the exciting sport attracts large crowds of eager and expectant people. For many days and nights, the station where an elephant capture takes place, is the busy centre of much activity, enthusiasm, mirth and uproar.

There is another method adopted in capturing these monsters of the forests, which is more risky. On the way through which elephants are known to pass, big enclosures that are narrow at one end and broad at the other are made. Huge logs of strong and heavy timber are driven deep into the ground very close to one another, forming a well-protected palisade. Inside it, small trees and bushes are grown in abundance, to make the enclosure look like a part of the dense forest. At the entrance which is kept open, sugarcane, a food much liked by elephants, is grown in clusters. The animals, as they move about, are attracted by the dainty food and eat their way into the enclosure. As soon

as they are safe within, watchers turn up and barricade the entrance. After a time, decoy elephants armed with iron chains are taken into the enclosure. The rest is primarily the work of the tame elephants. With the help of these, the mahouts and other people secure chains round the legs of the wild elephants. Big ropes are tied to their necks. Thus they are captured.

Wild elephants are also captured by female decoys taken out into the forests for the purpose. Tame female elephants are left in the woods. The female animal, which is clever and cunning, approaches a male one and makes love to it. The cow elephant always singles out a good tusker. The two play and move in company. The female elephant slowly and steadily separates the male one from its group. Then the male animal is by degrees enticed into the danger zone. The poor tusker, which has given itself up entirely in love and faith to the decoy elephant, knows not about the fate it has to suffer. Then the mahouts and other people employed for elephant capture, cautiously make their appearance. The decoy elephant always brings the male to a big tree. With the help of the tame elephant, chains and ropes are tied round the legs and neck of the wild male. The captive is tied to the tree. In this way it is captured. This method is not in common use, for it is extremely risky and the least successful of all the methods.

The task of the decoy elephant is three-fold and involves great danger. It is the most taxing and perilous enterprise. It has to capture and keep under control the wild elephant, has to take special care of its mahout who sits on its back and has to protect itself from the mad and furious attacks of the captive. The decoy elephants, in such difficult and dangerous situations, play their part wonderfully well, with human-like sagacity, caution and valour. It must be said that it is the ingenuity of man, coupled with and made to work through the medium of the highly intelligent and most willing tame elephants that are, from first to last, responsible for capturing the lords of the wilds.

TRAINING THE CAPTURED ANIMALS.

Thus wild elephants are caught. Then they are taken away to be trained. More difficult than capturing is the training of wild elephants. To make these lawless and rude natives of the forest submissive to law and accustomsd to peaceful town life amidst men, is really a very troublesome and difficult task, which could be accomplished only by man, the greatest and the most perfect of all creation. The training of the captive takes place inside a large cage specially constructed for that purpose. It is made of strong logs of teak wood and is very big and falls into two apartments—the lower and the upper. The wild animal is placed in the lower house and the trainers take their seats in the upper house. The period usually required to train a wild elephant is six months. In nine cases out of ten, the wild animal needs to be handled very roughly during the period when it undergoes training. Armed with long spears and canes, the dexterous mahouts teach and train their elephant disciples. It requires a lot of patience, and cleverness to train a wild elephant. When the training is complete to the mark, on an auspicious day, the elephant is taken out to the road, accompanied by decoy elephants. Two tame animals walk abreast of the newly trained elephant, on either side. Elephants being wise learn quickly. Afterwards, there is no trouble,

Elephants have, from time immemorial, excited great popular interest, always unsurpassed by the interest aroused by other animals. The remarkable degree of intelligence, the huge size and strange conformation, all these have won for the elephant an exalted position. History gloriously certifies to the part taken by elephants in wars. Hannibal's army, which forced through the mighty Alps, had a section of elephants. The ancient Carthaginians used elephants in war. The two distinct species of elephants that now exist on earth are the Indian and the African. The Indian species is decidedly the more attractive. They are easily distinguished from their African brethren, by the size and shape of their ears. The ears of the African elephant are nearly four times that of the Indian and are sail-like in shape.

MAN AND ELEPHANT.

Man has taken some animals into a kind of partnership with him to his advantage. The elephant is one of such animals. Man, in his wisdom, has turned the great strength of the tame elephant to his profit. Though the elephant has not become a truly domesticated animal, for it does not bring forth its young when in captivity, it is of immense use. Because elephants when employed by man, and live under his care, do not multiply, fresh wild elephants have to be caught and trained. When properly trained, the elephant is a most willing servant. The elephant is one of the wisest of mammals. Many stories are told to illustrate the truth of this statement.

Elephants are largely used for piling timber, bridge building, and heavy load carrying. Even in spite of steam machinery, the elephant, even to-day, stands unrivalled for uprooting bushes and trees, clearing jungles, and bringing to the plains trees from hill tops. Sometimes, it so happens that his services are summoned for lifting up a steam roller stuck in the mud or dragging one that refuses to work. On all such occasions, he, with his characteristic good will and lordly demeanour, throws himself heart and soul into the work under the direction of his mahout whom he loves and respects. The steam rollers have, of late, assumed much of the work that used to be done by the elephant. The importance of the elephant has not gone down. He is quite unconcerned with the changes around him and his rivals in the field of dragging loads. There seems to exist some mutual understanding between the steam roller and the elephant. The dead body of the elephant is often dragged away to be burned by a steam roller. The elephant, in return for his services, receives good protection. This largest terrestrial animal is the noblest of all creatures on earth.

ELEPHANT AND IVORY.

The most precious part of the elephant is its tusks. The tusks of the bull elephant are much prized. The desire for getting ivory has, from time to time, prompted many a rogue to break into the Travancore forests and hunt wild elephants, contrary to the laws of the State. Even after its death, the elephant is remembered by its tusks. The exquisite charms of ivory have been felt by all. The polish and smoothness, the colour and grace, the purity and excellence of ivory are proverbial. The haunting loveliness of ivory is undescribable. Ivory sculpture is the most famous, and the greatest master craftsmen, through the medium of ivory, have enriched the treasures of the domain of art. Some of the great writers, namely, Shakespeare, Chapman, Pope, George Eliot, Spenser, have paid glowing tributes to wory in their

works, but only in fragments here and there. Travancore is very famous for ivory carving. Ivory carving done in Travancore, by her skilled workmen, has been honoured with medals and such other distinct proofs of real merit, in many of the foremost exhibitions of the world. Even in the great Wembley Exhibition, articles made of ivory sent from here, were hugely appreciated and honoured.

Many are the articles made of ivory. Models depicting the figures of gods and goddesses, incidents and episodes in their lives, form the popular and favourite section of ivory carving. The carver's tools guided by inspiration from the Creator, have achieved a lot in the realm of art. The discerning eye finds at once the best and highest of all art in these ivory carvings. Look at the illustration of ivory carving of Venugopal, the divine cowherd, Lord Krishna playing on his flute, his kine listening with rapt ecstasy to the lofty messages emanating from the heart of their great master. In this fine piece of art one find.

"That Beauty whose smiles kindle the universe,
That light in which all things work and move."

This exceedingly charming episode is one of the many noblest themes in the life of the Lord, which interprets with beauty and force, truth and bliss. Does not this reveal the lofty sentiment of devotion, joy and light? All the sweetest and sublimest conceptions of Hindu religious thought have been presented in ivory. Portraits in relief are carved in ivory from photos. The skill in this line of artistic work is simply marvellous. Articles of common use, such as combs, brooches, walking sticks, are also made of ivory. All people with an eye for beauty, like ivory made articles.

ELEPHANT AND THE STATE.

The elephant is the emblem of the royal house of Travancore and is protected by the Government. Wild elephants are the sole monopoly of the State. To kill a wild elephant without the explicit order of the State is highly punishable. Ivory is the royalty of the State. Every State procession is led by an exquisitely and elaborately decorated elephant, with a banner waving from its back, most gracefully. All State occasions are characterised by the pompous and dignified march of a number of these majestic animals, richly and splendidly caparisoned. A fully caparisoned elephant never fails to attract attention. With its prepossessing appearance and lordly gait, the elephant is attractive. Bells which give forth melodious sounds, costly and beautiful saddle cloth over its broad back, decorated with golden pendants, the gold Pattam placed on its head, the gloriously coloured howdah on its back, all these vastly add to his natural dignity. Close to the animal will be seen the old fashioned mahout, with a cloth round his head, a dhoti around his waist, and a knife, stick and hook in his hands.

Dr. W. Reid Blair, D. V. Sc., LL.D., Director and General Curator of the New York Zoological Park, one of the finest and famous zoos in the world, in his highly interesting and instructive volume *In the Zoo* says thus:

"The elephant possessing a giant's strength, a giant's mildness, a giant's decorum, has also an eye for dignity and moves with as much steadiness as if he were constantly engaged in carrying a howdah full of Indian princes."

Dr. Blair speaks thus eloquently about the gait of elephants in general. It must be said that Indian elephants, of which Travancore elephants are the best and the biggest, long used to carry princes, move with greater dignity and decorum. It is no exaggeration to say that the elephants of Travancore are looked upon with a great amount of love and consideration by the people, who have fully understood their good and noble qualities of head, heart and physique. One might also say without any fear of criticism, that Travancore elephants are far superior to their brethren in other parts of the world, in beauty of form and in elegance of appearance.

It can righty and reasonably be inferred that the elephant, the most widespread of earth's huge animals, has learnt from the sad fate of its great ancestors, the mastadon, and the mammoth, and has saved its race by being useful to man.

A PROBLEM AND A FORMULA.

By Mr. M. D. Gopalachari, B.A., L.T.,
Chittoor.

LET us consider the following problem in percentage:—

A horse-dealer sells two horses at Rs. s each, gaining x p. c. on one horse and losing y p. c. on the other. Find his gain or loss p. c. on the whole.

The answer, we know, will be the same, whatever s may be, and will be independent of s, involving only x and y.

Solution.

The C. P. of the first horse is $\frac{100}{100+x} \times s$ and that of the second is $\frac{100}{100-y} \times s$.

The total C. P. is $100s\left(\frac{1}{100+x} + \frac{1}{100-y}\right)$

$$= \frac{100s(200+x-y)}{(100+x)(100-y)} \quad \ldots \quad (1)$$

The gain is x p. c. of the C. P. of the first horse $-$ y p. c. of the C. P. of the second

$$= \frac{x}{100} \times \frac{100}{100+x} \times s - \frac{y}{100} \times \frac{100}{100-y} \times s$$

$$= \frac{x}{100+x} \times s - \frac{y}{100-y} \times s$$

$$= s \times \frac{x(100-y) - y(100+x)}{(100+x)(100-y)}$$

$$= s \times \frac{100(x-y) - 2xy}{(100+x)(100-y)} \quad \ldots \quad \ldots \quad (2)$$

The gain p. c.

$$= \frac{s[100(x-y) - 2xy]}{(100+x)(100-y)}$$

(cancelled)

$$\times \frac{(100+x)(100-y)}{100s(200+x-y)} \times 100$$

(cancelled)

$$= \frac{100(x-y) - 2xy}{200+x-y} \text{ (formula)} \quad \ldots \quad (3)$$

This answer does not involve s.

In the question paper set for the S. S. L. C. Examination of this year, 1933, in Elementary Mathematics (question No. 5, Part A)

$s = 2744$, $x = 12$, $y = 2$.

Substituting these values in the formula (3) the gain p. c.

$$= \frac{100(x-y) - 2xy}{200+x-y} = \frac{100 \times 10 - 48}{200+10}$$

$$= \frac{952}{210} = 4\frac{8}{15} = 4{\cdot}53.$$

Special Case.

If $x = y$, the gain is

$$\frac{100 \times 0 - 2x^2}{200} = -\frac{x^2}{100} = -\left(\frac{x}{10}\right)^2$$

(*i.e.*,) there will be loss of $\left(\frac{x}{10}\right)^2$.

Hence it may be concluded that in questions like this, if the percentages of gain in the one case and loss in the other be equal, the answer will be loss of ($\frac{1}{10}$ of the percentage)^2.

HURRY IN CHILD EDUCATION.

By Mr. D. P. Rao,
Lalitpur (U. P.)

HURRY and speed are the two main conditions of work nowadays. Speed is but progress, and the plea that is advanced in its favour is an economy of time. Now, this may be held as true, to a certain extent, in some of the industrial departments of life, where work is generally done by means of machinery and where waste of time amounts to waste of energy. But the same truth, when applied to child education, which deals with a living and feeling organism, becomes a dangerous experiment, as productive of incalculable harm in the free growth of a child.

"It is hurry that is one of the chief sins of our age," says Dr. John Brown. "We all go too swift at the starting, making our children do the work of grown-up men, so that they are hurried out of themselves and pushed on to a point beyond which they cannot get." Surely, there can be no miracle in education. The development of volition and brain centres and the arousing of memory, interest and imagination, must be a gradual process. It requires time for a gristle to harden into a bone. But, in sheer ignorance of this great fact in education, most of the parents, these days, wish the 'breaking of the ground' among their children too early. They forget the blade and the ear which must be safeguarded, at first, to ensure the fullripe corn; but it appears that, in their impatience and hurry for the full corn, they lose the blade and the ear, by ill-caring for them, and ultimately the very corn which was their sole desire.

As it is, they hurry through the education of their children, they stock their little brains with a world of ideas, they give them tasks above and beyond their intelligence and grasp and make untimely experiments of memory and what not, in their anxiety for rapid progress and quick returns. The result is the stinting of the natural growth of the child, so that they kill the very goose in their greediness for the golden egg.

For instance, the guardian of a child comes to the school and says, "Well, dear master, here is the child under your tuition and care. I want to see him in the lower middle next year. The boy is intelligent enough to bear all impressions of teaching and is industrious too. In case any tutor is required to teach him during extra hours, I am ready, please say so." The teacher, who knows his profession well, replies, "It is all very well that you are so much interested in the child; but you know that Rome was not built in a day. It requires time for a twig to become a tree. Moreover, there is no pouring of knowledge into the troughs. All progress in education, as in other spheres of life, is by degrees. There is no rate of speed in this line. We have all to do much spade-work, wait and watch before we can expect any result. I shall, however, see that the boy loses no time and is quickened up." The guardian is astounded at the truth, plain and out-spoken as it is, and takes back the child home, perhaps to see the results of private coaching.

A private tutor, and unfortunately a cheap one, is engaged. All experiments of quick education are made at the boy. Books, good, bad or indifferent, are provided. The teacher comes and goes. The child is crushed under the weight. This is the hopeless result of quick training and quick returns.

There are some parents, who, finding that the child is making a slow progress at school, get his name struck off the roll and put him to some business for ready and substantial gains, as they may call them.

There are others who wish to secure for their children double promotions. In each case, hurry is the means. The end must consequently be nothing more than a confusion and a chaos.

This is one extreme of the case. But the difficulty does not end here. There is another extreme, more harmful and serious than before. This comes from the side of the teachers themselves to whose care a child is generally committed by his father. Quite a number of them run helter-skelter with education. In their anxiety to cover the syllabus of the year, they have to accelerate their teaching. The fear of 'examinations,' so common to boys, hangs heavy on them as well. And what is worse is their ever biting anxiety for showing good results, otherwise for their failure to finish the courses of studies or to bring out a good percentage of 'pass' they stand the risk of forfeiting their annual increments or they are in constant fear of being given the sack for a bad show of work by their authorities.

Under the circumstances, they must hurry up. They must give notes to the little boys who only scribble them, they must stuff their tender brains with a rush of ideas and scraps of information, facts and figures, half of which they would, perhaps, forget in the class-room and the remainder on the next day. So, it is the teacher, who works the quickest and the hardest and the little children are simply 'fed.' Now, if, in the midst of this hurry and speed of teaching that goes on, any dullard or back-bencher who cannot keep pace with the teacher, is up on his legs, interrupting, "Sir, I cannot follow, I have not understood you," the only reply, coming as it does, from the teacher's side is, "Well, what is therein that you do not understand? I have no time to lose. We have to finish the course as early as possible. Don't you see that the examination is ahead?" Teaching thus goes on in a hurried manner. Children have little or no time to think and act 'for themselves.' The minds and memories of little children are put to an undue pressure. No formation and association of ideas on the right lines can be made possible The free and natural development of the child, in his mind and body, thus receives a great set-back. This is the result of hurry in child education.

A MODERN SCHOOL IN AN OLD CASTLE.

BY MR. KATHE VON JEZEWSKI.
Germany.

"THE old archiepiscopal castle on the cliffs on the Saale, together with the portions at the rear, was burnt down and completely ruined and laid waste in the Thirty Years' War."

The chronicler of the city of Halle on the Saale, only two hours by train from Berlin, would not have had to write these words if a Swedish soldier quartered with his comrades of General Banér's army in the mediaeval Giebichenstein Castle had been more careful with fire. But he set fire to the horses' bedding, and that bedding was composed of the records of the court in the castle. The result was a picturesque ruin, one of the many that stand along the banks of the winding Saale.

Much history was made here. It was a place of worship of pagan priests. The stepsons of the Roman Emperor, Augustus, built a citadel here, on the foundations of which Henry the Fowler built the Giebichenstein Castle more than a thousand years ago. Legend reports that Landgrave Ludwig, builder of the Wartburg in Eisenach, was held captive here by Kaiser Henry V in the eleventh century, and escaped by a daring leap into the river.

Whoever ascends to the ruins of the old castle to-day sees below him, on the side toward the city, a long oblong of roofs enclosing a garden, the whole known as the "Unterburg Giebichenstein," the lower castle. In the course of the centuries, this lower castle, with its picturesque court-yards has served a variety of purposes. For a long period, upto the fifteenth century, it was a favourite residence of the Archbishops of Magdeburg. Later it was used for agricultural purposes. But now it houses the "*Staatlich-Stadtische Kunstgewerbeschule Burg Giebichenstein*," the Giebichenstein Castle State and Municipal School of Applied Art, which is known far beyond Europe's borders for its products and exhibitions.

This model institution, conducted by Professor Paul Thiersch, offers a great range of possibilities for artistic training in hand-work. There are workshops for metal and enamel work, printing and book-binding, pottery and porcelain, photography, graphic art, weaving, cabinet-making, etc., and studios for architecture, interior decoration, plastic art and painting. In the workshops, apprentices are trained, and receive their certificates as journeymen at the completion of their course and upon passing the examination prescribed by the Guild in question. Gifted artisans can continue their education along art lines, and can, if already journeymen, prepare themselves for examination as masters. A condition for admission to the school is naturally much artistic aptitude.

The products turned out by the workshops are either fine specimens of handwork for the market, or else are designed as models for duplication. Thus, for instance, the Giebichenstein school works in close touch with the Berlin State Porcelain Factory. Along with their other work, all the scholars are obliged to practise drawing from the nude. Lectures are given on the theory of art, and

there are exercises in style and form adapted to the needs of each individual.

The number of students varies between 90 and 110, about equally divided between the sexes. The guiding principle at Giebichenstein Castle is not to permit the students to try to produce anything until they have become thoroughly familiar with the material to be employed and with the methods which must be used in working with it. Not until this knowledge has been gained is it possible to discern the artistic possibilities that lie in the material.

The Giebichenstein School was the pioneer in setting up this requirement, and its lead was not followed by other applied art schools until considerably later. How successful the principle is is proved by the products turned out by the various workshops. There are chessboards and figures of unique beauty of form, style and finish. The textiles woven by hand exhibit artistry, both in the selection and combination of colours and in the manner in which every advantage is taken of the possibilities offered by the material at hand.

But there is also a very practical proof of the high artistic quality of the products of the "Burg," as the workshops are generally known, in the fact that interest shown in them grows steadily greater and extends farther. There is a growing demand for them, coupled with ever increasing invitations to exhibit, both in Germany and in foreign countries. The school's exhibitions in the applied arts department of the Grassi Museum in Leipzig have become regular spring and autumn fixtures.

There is an interesting legend to explain the name of this old castle, now turned to such modern uses. It is related that it was originally called merely "der Stein," that is, the stone. But when Kaiser Otto I gave it to the Archbishop as a present, he did so with the words, "*Dir geb' ich den Stein*" (literally, "to thee give I the stone"). From this came the name Giebichenstein.

Similar legends exist to explain the names of many German towns, for instance, of Duderstadt, in Hanover. Three brothers, declares the legend, founded the city, but each one insisted that one of the others should name it, repeating "*Gib du der Stadt den Namen*" (given thou the city the name). From much repetition emerged "Duderstadt."

OUR SCIENCE COLUMN.

AUDIBILITY IN BUILDINGS.

BY MR. V. N. VISWANATHA AIYAR, M.A., L.T.,
Madras.

This problem has received a large amount of attention in recent years having been subjected to special study and research by eminent physicists. It is a matter of common observation that an assembly hall in a school building which, to an ordinary visitor, is an impressive one may acoustically viewed be very imperfect. Listening to speeches may be extremely difficult in such a hall on account of the production of echoes. Almost the first person to make a critical study of this problem and to suggest remedies was the great American experimentalist Sabine, who tackled the problem with success in 1850. Quite recently, the question has received an additional importance in connection with the erection of broadcast studios where even the slightest reverberation will hinder satisfactory reproduction.

In our province, a serious attempt has been made within the last two or three years to study this difficult problem under the inspiring guidance of Dr. H. Parameswaran of the Presidency College. Some of the important auditoria in Madras and the moffusils such as the Musuem Theatre, Legislative Council Hall, Senate House, and Thirumal Naicken Palace were selected and important experiments conducted. As a result, valuable and accurate information has been collected which is being made available to the public.

The principle underlying this problem is he well-known one that sound is reflected from plane and spherical surfaces in much the same way as light, so that, sometimes, we observe the phenomenon of sound being brought to a focus. An interesting case of sound reflection which finds mention in most elementary text-books on sound is that of the whispering gallery in St. Paul's Cathedral. A sound made close to the round walls is reflected so that the echo is heard distinctly at any other part. The following observation made by Tyndall is full of interest :—

"In one of the cathedrals in Sicily, the confessional stool was so placed, that the whispers of the penitents were reflected by the curved roof and brought to a focus at a distant part of the edifice. The focus was discovered by accident, and for some time, the person who discovered it took pleasure in hearing and bringing his friends to hear utterances intended for the priest alone. One day, it is said, a very near relation of his occupied the penitential stool and both he and his friends were thus made acquainted with secrets, which were the reverse of amusing to one of the party."

In our own country the Gol Gumbaz is said to be a similar whispering gallery situated in the Bijapur Division in the Karnatak District of the Bombay Presidency.

So, in modern times, the question of proper design of buildings has rightly come to prominence in the construction of public lecture

halls. The chief factors that affect the acoustic properties of these buildings are briefly (1) the number and position of the doors and windows, (2) the distribution of the audience, (3) the distances and nature of the exposed wall surfaces, and (4) the position, shape and nature of the ceiling. It may be stated in passing that the inclined plane board kept as a canopy to the lecturer in many halls is intended to reflect the sound down to the audience and thus utilise that portion which would otherwise be wasted by transmission backwards.

Taking the question of reverberation in buildings, we know that if we speak in an empty hall we find that our voices are resonant and powerful; but, in the open air, they are feeble and die soon. The reason is that inside the hall the sound waves are reflected at the walls and ceiling and the echoes so produced add on their effects to the direct sound and produce a richer sound. In a theatre, this very reverberation becomes a nuisance. If there is a large audience, the trouble disappears to a great extent, as their clothes yield to and so break up the sound waves, whereas the hard surfaces constituting the walls and ceiling reverberate and go to make the sound indistinct. The defect is not so serious in small halls as in large halls; for in the latter echoes take an appreciable time to reach the listeners and so cause interference.

A brief statement may now be made as regards the physicist's method of approaching problems arising out of existing defective halls and devising remedies. Small ripple tank models of vertical sections representing the halls to scale are made. Sound pulses are produced by suitable apparatus and photographs taken in rapid succession at very small intervals. From the photographs correct ideas about the reflection of sound in the halls can be formed and methods for remedying defects suggested. These may, sometimes, take the form of covering hard walls which reflect the sound by thick curtains which have the property of absorbing the sound waves.

Some among the many points which receive consideration at the hands of modern architects in the design of halls, are (1) the avoidance of concentration of sound by so shaping the ceiling and walls that the sound is scattered in all directions; and (2) rendering the surfaces sound absorbent, using fibrous materials, instead of making them, as usual, hard and smooth.

THE IMPORTANCE OF GEOGRAPHY IN INDIAN SCHOOLS.

BY MR. VAMAN H. PANDIT, B.A.,
Indore.

GEOGRAPHY—it is a world subject. The citizens of future India are studying to-day in schools and it is quite vital to equip them to face the totality of life. In studying geography, we are in close contact with the wonders of the universe. Every activity of the Great God unfolds itself very vividly before our vision as a clouded sun comes out brighter than before. Such a fine subject we have successfully neglected. We have made efforts to ignore it altogether. In India, it is too often regarded as a subject of little or no importance. The tendency is to kick it aside in University education. There are some Universities which do not even possess a 'Faculty' for geography, while the Senior Educational Boards have ante-stepped it as optional. Our curriculum of subjects is overcrowded, we admit. Why is it so? No one cares for it. The course of English is enormously bulky. Why not rob it rapidly from the 'rapid reading' course and make room for geography?

Post-war world is changing and shifting like the Ganges sand. We can travel round the world in a week, raze to the ground the age-long architecture and fine buildings from the starry heaven, converse soon with our brother who is living in the 'Land of the Mid-night Sun,' frontier operations can be carried on from the gigantic heights of the Himalayas, the dhoti we wear comes from a petty island seven hundred miles away, the fragrant pomade used for hair-dressing comes from the place where the Niagra roars and thunders, and the gold wrist-watch on our beloved's hand comes from the 'Paradise of Europe.' All these twinkling changes have altered our conceptions of the meaning of geography. Now, the subject is just finding its proper place.

Geography is a science as well as an art. Formerly, teachers failed to note this important character of the subject. We must not miss this fundamental aspect of it. It appeals to the student's intelligence and leads to the proper understanding of an Indian and his relations with the world. It comes under the domain of 'social studies.' In this subject, heart, hand and head come harmoniously into operation and inspire a student with creative energy. It is here we have an opportunity of bringing a student into the real stuff of life.

A very close connection exists between history and geography. They are interdependent on each other. 'As is the geography of a country so is its history.' Certain places have a two-fold importance on the globe, historical and geographical, and without a proper understanding of history the political significance cannot be apprehended. The value of topographical appreciation on the battle fronts in the Great War has proved the utility of regional geography. The effect of teaching is marvellous, if a teacher knows both the subjects well. It would be far better if the teachers equip themselves as dual specialists in history and geography. Nor is it very difficult. A graduate in history or any other

subject can do so within a very short time. Further on, while teaching, complex problems may arise ; but in the end experience will guide him quickly than any of the training colleges in India. As a student, I had such teachers in the Khandwa High School, whose lessons were very interesting.

No doubt, for Generals and Captains, whether on sea or land or in the air, the knowledge of geography is essential. The subject is such that it can be taught from a military, national or international point of view. Teachers should note that they have to reflect the nation's mind as it is. We can have more great wars if we like. We can avoid them if we wish. From a purely nationalistic point of view, the teaching of geography and history combined is a most formidable battery; it is as infectious as a poison gas. If stretched to its utmost capacity, it is an assault on world culture. For the present, the idea of international brotherhood is like the lid of a kettle jumping up and down. It is rather difficult for us to approach the subject with such a noble view ; it is like erecting a Taj Mahal near a volcano unless the western nations decidedly change their attitude of looking towards India. Fatalists we are ; but we should not expect that Zeus, King of Gods, would come down with his fleet-footed messenger to set the things right for us. The political policy of a country is chiefly governed by the geographical environment. A soaked-up teacher can handle the subject well, for he knows what to eleminate and what to add. Above all and beyond all, it will be very good if we teach geography with a view to fostering world peace.

Increasing social contact and the growth of common interests is fast developing international co-operation. As a stone thrown into water creates endless circles, so the idea of nationality is widening. A century ago, we were Mahrattas; at present we are Indians, and who knows, tomorrow we may become world-citizens? Sub-nationalities are sinking down. Ultimately, nationalism must be based on land, never mind from whatever source it has been derived. Conciliation and co-operation should be the aim in teaching geography. It must lead us from a national point of view to a world conception. Every civilization has some common contribution to humanity at large. Other nations often conclude an erroneous view about Indians, and their estimate of Indian psychology. It is their attitude of mind that largely decides such rash conclusions. If the nations understand us through the unprejudiced lenses of human sympathy, it will be good to them and to the whole world. India has made tremendous efforts to unite East and West. But West is still firm. Brotherly affection and readjustment of economic conditions is essential for world peace. Political misunderstandings of the problem run counter to the thought of world-mind. Imperialism is like a spear in the hearts of patriotic statesmen, and it is very very strong, it will rock down nations, houses and churches into heaps of ruins, it will crack the scientific civilization from top to bottom. Our aim in teaching geography should be of international co-operation. Let this thought blossom as a rose.

Geography begins in the cradle. A child perceives different images of sky and stars, and his little home or hut with its surrounding fields. All these things go on tying facts. Thus seeing and thinking are developed. The external environment counts much in this process and significant relationships are built

which are of utmost importance in life. The school has not only to thrust facts and information into the brain, it has to provide for making them the student's own and to express them in some way. In this way, a habit of geographic thinking should be developed, so that it may be a great asset to scientific and to social thinking.

The goal of education is a preparation for life. The western nations must change the outlook in teaching of geography, if they wish for world co-operation and sounder and more cultured citizens. Three essential objects are to be fulfilled in teaching. It must provide useful knowledge. It must train and elevate the mind. Lastly, it must inspire co-operation to world unity. What we get from a beautiful picture or a poem can also be attained by a clever geographer. Almost all the poets are born geographers. Geographical facts must live and breed ; else they are of no use. A good teaching ought to cultivate geographic ears and geographic eyes. A studious habit of observation is necessary for this purpose.

In the teaching of geography *why* is necessary. Why Cawnpore is an industrial centre? Besides, pictures, prints, lantern slides, stereographs, exhibits and a lot of other things are to be used. The material for the teaching can be found anywhere and everywhere, such as rocks, stones, etc. A teacher must go on excursions to adjacent places and must collect all these things. But a teacher ought to collect such things and pictures as have a geographic quality. Sometimes, a teacher must have a collection of pictures without any descriptive titles and he must ask the student to give them suitable titles and to supply information as regards the pictures. For young students this is an intelligent game and they take a keen interest in it. A teacher must observe carefully how the maps are traced and drawn and whether the positions of towns and other places have been exactly located or not. Above are the few suggestions which will be a guide in the teaching of geography.

So far, all is clear. The Indian teachers have no scope. They are not well fed and furnished. We agree we are all grappling with the hydra-headed monster of poverty. Despite the obstacles, it is the duty of our teachers to impart knowledge, and geography is the subject *par excellence* for illuminating the young minds. Most sadly I say, "where there is the will there is the way."

PLACES OF EDUCATIONAL INTEREST.

XXVI. THE METUR DAM (AS I SAW IT)

By Mr. L. N. Gubil Sundaresan,
Trichy.

I had the pleasure of visiting this great engineering work recently. Metur was easily reached by train from Salem and buses take the passengers from the railway station to Metur proper. As one goes along, the first thing that is seen of the Dam is the beautiful surplus arrangement called the Ellis Saddle. This consists of sixteen vents of sixty feet span each.

The steel shutters of these vents are 70 feet in height and are counter-balanced by concrete-filled-counter weights. The shutters are easily operated by electric motors installed on top. This surplus work also carries the new road to Thopur and, when completed, the trunk road from Madras to Calicut will be diverted through Metur, thereby giving opportunities for travellers to see the Dam and the Lake. The architecture of the Ellis Saddle is mostly Indian, and gives a very nice appearance with its re-inforced concrete arches and cut-stone lined towers and minarets.

In the Dam proper one is easily attracted by the two towers, Black and White, which are of immense magnitude and height. They handle all the materials required for the construction of the Dam in the river-bed portion for a length of about 1,500 feet. I understand that with their help they got the maximum out-turn last month and how they were able to raise the river-bed portion of the Dam five feet more than what they intended to do. The whole Dam is built of head-load rough stone in red cement mortar. The fact that it is cement that they are using is responsible for the quick progress of the work. The cement is from the Shahabad Cement Factory.

Towards the right, there are the low level sluices and the high level sluices. The Dam in this portion is nearly complete and in fact parapet work has been commenced in this reach.

The low level sluices consist of five vents of 14′ × 7′ and the high level sluices of eight vents of 16′×10′ 6″. These sluices individually are capable of supplying the maximum requirements of the Cauvery Delta and only one set of sluices will be operated at a time. The shutters in all these sluices are counter-weighted free roller type worked by electric motors housed in what are called gear chambers just below the top of the Dam. These gates are also capable of being worked with hand by two men.

The low level sluices are functioning now and during the coming flood season the high level sluices also will be functioning. The total length of the Dam is just over a mile and its maximum height is about 180 feet above the bed of the river.

I understand that the Fisheries Department is also doing some work here. They are rearing different kinds of fishes and in future years this lake of Metur would be a fruitful source of revenue to Government in the Fisheries Department.

There are more than 10,000 people in Metur. The whole town, is supplied with chlorinated filtered water, thereby ensuring the safety of the workers in the camp. The hospital is a nice one with about one hundred beds. There is an efficient health staff with one Health Officer and it is to their credit that the place is free from malaria. The town is beautifully laid out with comfortable quarters for all types of officers and subordinates. There is a Club where all could meet in the evening and play Tennis or indoor games.

The motive power for all works in the Dam is electric. This is, at present, drawn from Sivasamudram. But, after the works are over, the mains would be switched on to Pykara. There is also provision for generating electricity at the place with the available head of water in the Dam. For this purpose, they have installed four hydro-electric pipes in the Dam in the river-bed portion. But this would be taken up only when there is demand for electric supply from Metur.

The Dam will be completed in the course of another year and I understand that they have been able to keep to the programme and the cost well within the estimate.

After the closure of the work, this small township, with all the conveniences of a modern up-to-date town, will have to be idle, unless some enterprising people come forward and instal some factories or mills. The proximity of cotton growing districts is an incentive for starting textile mills, and with cheap electric power that will be available from Pykara, this would be a successful undertaking.

THE TORCH OF WISDOM.

BY 'WALKER.'

Patriotism, says Ruskin, is an absurd prejudice founded on an extended selfishness.

* * *

In imperialism nothing fails like success.
—DEAN INGE.

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Love of country means pride in the past and ambition for the future. —DEAN INGE.

* * *

Patriotism to the peoples represents only a frightful future; the fraternity of nations seems an ideal more and more accessible to humanity, and one which humanity deserves.
—TOLSTOY.

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In history every step in advance has also been a step backwards. —FREEMAN.

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The existence of the State is the movement of God in the world. —PLATO.

* * *

The government of a people by itself has a meaning and a reality, but such a thing as government of one people by another does not and cannot exist. —MILL.

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Taxation without economy is tyranny.

* * *

The time has come when the only way we are going to get money is by working.
NORMAN THOMAS.

* * *

Increase of wealth divides rather than unites a people, but suffering shared in common binds together with hoops of steel.
—DEAN INGE.

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The nations are the citizens of humanity.
—MAZZINNI.

To the same minority of realists the majority always appear mad.
—A. A. BANMANN.

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The modern young man hates to be thought an idealist. —DR. ALEX. NAIRN.

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Truly it is the timid that muddle the world.
—BASTON PERRY.

* * *

There is no such thing as isolating yourself from the world depression.
—STANLEY BALDWIN.

* * *

We cannot legislate for fools, and too many of them are at the wheels of cars.
MAX PEMBERTON.

* * *

Business men and individuals are rapidly balancing their budgets; they must also intelligently budget their balances.
—ROGER W. ROBSON.

* * *

Balancing your budget does not mean cutting the heart of everything.
—M. SCHWAB.

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The fortunes of our civilization, both material and spiritual, depend in the major degree on the character, ethical and economical aspects of its industry and in the minor degree on the character of its politics.
—PROF. L. P. JACKS.

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Success in any undertaking comes not to the man who idly waits for his great oppurtunity, but to him who seizes whatever oppurtunity comes and makes it great.

NEWS AND NOTES

FOREIGN.

GERMANY.

WAGNER'S GENIUS.

Richard Wagner was a genius, but he was a working genius, and just how hard he strove to attain his eminence is shown by the collection of his manuscripts, which is now being publicly shown at Bayreuth for the first time. Thus the place has become a centre of great attraction to all lovers of music.

The collection made by Cosima Wagner and known as the *Wahnfried Archive*, was exhibited in the Bayreuth Government building until August 31 st.

Appropriately, the exhibition was styled *Genius at Work*, and the manuscripts, both music and texts, gave not only a glimpse of Wagner's working methods, but also an insight into his astonishing industry. Rough drafts of the text of several musical dramas, including *Rheingold* and *Tristian and Isolde*, the great prose outlines, with stage directions of all his works alter *The Flying Dutchman* and many of the composer's earliest works are included in this collection. (R. D. V.)

LEIPZIG FAIR.

The Leipzig Autumn *Sample Fair* was held coincidently with the *Technical Fair* from August 27th to 31st. The Textile Fair opened on the 27th and lasted until the 30th. (R. D. V.)

THE GREAT PHYSICIAN NATURE.

Healing Forces of Nature is the title of a travelling exhibition now open in the German Hygiene Museum at Dresden. It shows the curative effects of sun, air, water, plants and other natural resources at the disposal of mankind. Three of the six departments are chiefly scientific while the other three are of a practical medical nature. Much space is given to calneology and to climatic cure resorts. The exhibition will remain in Dresden until the end of September. (R. D. V.)

BRITISH CHURCH DIGNITARIES TO SEE "HOLY COAT."

The Holy Coat of Trier, believed by all devout people to be the robe of Christ, was exhibited at Trier from July 23rd to September 3rd, when pilgrims from all over the world came to the place.

Cardinals and bishops from Great Britain, France and practically every other European country have accepted invitations to visit the city during the exhibition. Pilgrims from Genoa were carried to Trier by special train, and the relic was visited by the whole of the Luxemburg Government headed by the Grand Duchess.

According to tradition, the coat, for which soldiers cast lots at the foot of the Cross, was discovered by the Empress Helena, who presented it to the city. (R. D. V.)

FOREIGN STUDENTS IN GERMANY.

Foreign students, coming to Leipzig, will, in future, be able to enjoy the advantages of a new home, which has been opened in Postrasse, only a short distance from the University. In addition to the usual reception and sitting rooms, the new home boasts a fine games room and a well-stocked library. (R. D. V.)

OLYMPIC GAMES "CALL TO YOUTH OF WORLD."

A bell bearing the inscription "*I Call the Youth of the World*" has been chosen as the symbol for the 1936 Olympic Games in Berlin. Weighing three tons, the bell is being modelled by Walter E. Lemcke, the sculptor, and will be the same size and have the same tone as the great bell of the Berlin Cathedral. It will be used during the Games and small models will be made as souvenirs. (R. D. V.)

AN ENGLISH SCHOOL IN BONN.

Among the officers of the English Army of Occupation in this old city of the Rhine was Captain W. E. Weber, M. A. (Cantab). He

returned to Bonn in 1923, where he established a school of Modern German, which has, in ten years, won a high place among the city's many educational institutions. Most of the students are coached for the diplomatic service, either directly or subsequently to their course at Oxford or Cambridge, but an increasing number also go in for business or natural science. The year is divided into terms, from January 15th to April 15th, May 1st to July 30th, and September 15th to December 15th; but students may enter on the 1st or 15th of each month. (R D. V.)

NEW SCHOOL FOR GLIDERS IN MECKLENBURG.

A new school for gliding has been established at Neubrandenburg. Twelve courses of 14 days each will be held from March 31st to October18th. The tuition fee is 20 marks for each course.

SMALLEST SCHOOL NEAR THE OLDEST CHURCH.

The *Peterskirchelin* (the little church of St. Peter) standing on a crag, a quarter of a mile above the old town of Fischbach, on the river Inn, can now look back on 1,000 years of existence. It is the oldest church in the Inn valley. Half a mile higher up in the Bavarian Alps are the *Astenhofe* farms built at a greater altitude than almost any other in Germany. They have belonged to the same families for centuries. The pastor of the Peterskirchelin is also the teacher for the children of these farms. His school has only four pupils, making it the smallest in the country. (R D. V.)

FIND IN 750 YEARS' OLD CHURCH.

Hidden under thick coats of white wash, valuable frescoes of the twelfth century have been brought to light during the restoration of the church of Kunigunde in Borna, near Leipzig. Believed to have been founded by Frederick Barbarosa in the tenth century, the church is the only basilica in Saxony.

MUSEUM WHICH SHOWS HOW TO COMBAT INSECTS.

Insects that are the foe of every forester, horticulturist and farmer are shown in their natural surroundings in an insectarium which has been added to the Leipzig Zoological Gardens. Hundreds of destructive moths, worms, beetles, etc, are exhibited with tables and placards explaining their destructive methods.

MECHANICAL STONE CRUSHING MONSTER.

A mechanical monster—the largest stone crusher in the world—has been completed in the Krupp-Gruson Works at Magdeburg. Weighing 235 tons, the machine can crush 500 to 800 tons of granite in an hour. Its crushing jaws alone have a weight of nearly 40 tons, and fifteen freight cars are needed to transport it.

WAGNER EXHIBITION IN LEIPZIG.

The whole life of Richard Wagner is portrayed in an exhibition being held in the Old Town Hall here in connection with the Bayreuth Festival. Compositions and manuscripts of the famous composer, original letters, and family photographs are among the exhibits which will remain on view until the end of September.

OLD SARCOPHAGI FOUND IN XANTEN CATHEDRAL.

Further excavations in the cathedral of the old city of Xanten on the Lower Rhine have brought to light two stone sacrophagi. One is believed to be that of St. Victor, patron saint of the cathedral. The other, which is from the Carlovingian era, may contain the remains of the Countess Emeza, a neice of Charlemagne.

SUGAR FROM WOOD.

After ten years of laboratory research, Dr. Bergius, to whom the Nobel Prize was awarded for his method of liquefying coal, has perfected a process for obtaining sugar from wood, and its first practical application is now being made. The crude wood sugar and molasses can be used for fodder, for making yeast and for distillation, and it can be further refined to chemically pure grape sugar. A number of by-products are won in the process, including lignine for the making of briquettes and acetic acid.

NEW BISMARCK MUSEUM IN FRIEDRICHSRUH.

Visitors to Friedrichsruh, the home of Chancellor Bismarck, will now find there the collection of souvenirs of the great "Iron Chancellor." It contains many of his personal belongings, including his long pipes and the pistols with which his life was twice attempted. Glass cases hold many important autograph letters, while other exhibits include objects some of great artistic value, which were presented to the "Iron Chancellor" by admirers.

WORLD'S FASTEST TRAIN.

The world's fastest train, the "Flying Hamburger," a dresel-electric two coach train, was placed in permanent service between Berlin and Hamburg. It covers the stretch of 178 miles in 2 hours and 18 minutes, an average speed of 77·46 miles per hour.

The "Flying Hamburger" is the last word in steam lining technique; footboards, and even headlights are recessed, and projecting surfaces have been reduced to the minimum. (R. D. V.)

"TWO-GALLON" MAN WINS FOREST BY DRINK.

A Burgomaster who, at one sitting, drank two gallons of beer to defeat a ruler's favourite, and at the same time won for his city a beautiful forest, is claimed by Finsterwalde, the German town, 60 miles from Berlin, which formerly belonged to Saxony.

The "Great Drink," as it is known in Finsterwalde to this day, took place in 1661, and this was the way of it.

The Elector, John George the Second, was fond of hunting, but fonder still of the Finsterwalde beer. One day, after a thirsty chase, the Elector was with the Burgomaster and members of his suite in a beer hall when a discussion arose as to who could drink the most. Baron von Stein, the Elector's favourite, boasted that no one could beat his reputation as a beer drinker, when up spoke the vigilant Burgomaster, Abraham Kosswig, of whom it is said he had a "fabulous capacity to drink," and challenged the boastful Baron to a beer duel. Kosswig drank two gallons of beer and won the duel, and the Elector offered there and then to knight him.

The Burgomaster declined the honour, but asked instead that the Finsterwalde Forest should be given to the city. The Saxon ruler consented, and that is why to-day the inhabitants of Finsterwalde never regard their forest without a gtateful thought to their "two-gallon" man, Kosswig. (R. D. V)

THE ROERICH PACT.

WASHINGTON CONVENTION OF BANNER OF PEACE, NOVEMBER 17, 1933.

Prof. Nicholas Roerich, world renowned artist, philosopher and archæologist, to whose art a sky-scraper museum has been dedicated in New York, and who is the founder of many cultural institutions, conceived the great salutary idea of the protection of artistic and scientific achievements of humanity, as far back as 1904, when he advanced the first proposals in this respect to the Russian Imperial Government. In the beginning of the Great War, Prof. Roerich again emphasized the necessity of the same idea and finally in 1929 he proposed to the nations to establish a Pact for the preservation of treasures of art and science of the world. This proposal was made public in the U. S. A., through the "*New York Times*" and at the same time, Prof. Roerich commissioned Dr. Georges Chklaver, Doctor of Laws and Lecturer of the Paris University, to draft the legal form of this Pact.

The Pact in 1930 was submitted and unanimously approved by the Museum's Committee of the League of Nations. In the same year were founded the "*Committee of the Roerich Banner of Peace*" in New York and the "*Comite pour le Pacte Roerich*" at Paris. The next year saw the foundation of the "*Union Internationale pour le Pacte Roerich*" under the presidentship of Mr.

Camille Tulpinck, with its seat at Bruges, Belgium. Prof. Nicholas Roerich was elected Honorary President of all these three bodies and the President of the Hague Court of International Justice, M. Adatchi, accepted the protectorship of the Union in Bruges.

Two International Conferences dedicated to the promulgation of the Roerich Pact were organized both in Bruges, the first in 1931 and the second in 1932, at which delegates of over twenty countries participated.

At the time of the Second International Conference, an Exhibition of Art cities took place at which twenty-three countries were represented.

At the same time, on Mr. C. Tulpinck's initiative, the "*Foundation Roerich pro Pace, Arte Scientiae et Labore*" was inaugurated in Bruges.

All three Banner of Peace Committees held lectures, published reports and arranged many manifestations, as for instance the Pageant of the Shakespearean Association of Roerich Society in Central Park in New York.

Enthusiastic response came in from all parts of the world and thousands of letters of appreciation and endorsement were received from Governments, scientific and artistic institutions, women's organizations and leading statesmen. These opinions were published in form of Vol. I. of the *Roerich Pact Book.*" Almost all leading men in the world of culture have expressed their appreciation and enthusiasm for the Pact, and we find in this list of adherers such prominent names as: H. M. King Albert of Belgium, Presiden: Masaryk, Mrs. Franklin D. Roosevelt, H. H. Pope Pius XI, Marshal Lyautey, Maurice Maeterlinck, Dr. Rabindranath Tagore, Sir. C. V. Raman, Sir Jagadis Bose, Secretary H. A. E. Wallace, Senator Copeland, Senator Ricci, Baron de Taube, Prof. A. Bustamente, Prof. R. Altamira, Prof. Louis Le Fur, H. G. the Dutchess of Somerset, Prof. Anesaki and a long row of other such similar names of international standing, followed by a list of Academies, headed by the Academie Francaise, and by the world's Universities, museums, etc. etc.

The present year sees the inauguration of a Convention at Washington, U. S. A. on November 17th, which will be an important milestone for the Roerich Banner of Peace, which is already unfurled over several institutions.

The Banner as such represents three spheres within a circle, in majenta colour, on white background.

Naturally, such a Banner is needed not only in time of war, but at all times, because innumerable vandalisms and destructions of irreparable treasures take place almost daily. Thus the Banner is an epoch-making sign of culture.

This Banner of Peace, similar to the flag of the Red Cross, is intended to protect all centres of art and sciences, religious monuments and all the world's cultural values. As the founder, Prof. Nicholas Roerich, states in his address:

"What the Red Cross flag is for the preservation of physical health, our Banner of Peace is as protector of the spiritual health of humanity!"

INDIAN.

PERIYAKULAM.

THE V. M. HIGH SCHOOL.

There was a public meeting in the V. M. High School, Periyakulam, on 23-8-33 under the auspices of the School Literary and Debating Society, presided over by Mr. S. Sundaresa Ayyar, B. A., Vakil, Periyakulam, when M. R. Ry. S. Santanakrishna Nayudu Garu, B. A., Government Pleader, and Vice-Chairman, Periyakulam Municipal Council, delivered the inaugural address to the members of the School Literary Society

The address laid stress on the proper development of civic responsibility on the part of Indians and the attention that should be given to rural uplift in any scheme of national reconstruction. Methods of constructive work to improve the condition of Indian villages were also briefly indcated for consideration and adoption by the students.

The President added his own pertinent remarks and touched also on the principles of cooperation essential for any good scheme of rural uplift.

The meeting was well attended and the public of Periyakulam evinced great interest in the progress of the school and the efficient functioning of a unified Literary Society.

Mr. M. R. Rangaswamy Ayyangar, the Headmaster of the school, thanked the lecturer and the president for their illuminating talks to the students and elucidated further, the gist of the address for the benefit of the boys. The meeting then came to a close.

TRAVANCORE.

INAUGURAL MEETING OF THE SCIENCE COLLEGE LITERARY SOCIETY.

The inaugural meeting of the Literary and Debating Society of H. H. the Maharajah's College of Science, Trivandram; was held on the 28th July, 1933, under the presidency of Mr. Justice K. P. Gopala Menon, Bar-at-Law, and the inaugural address was delivered by Dr. D. Jeevanayakam, M.A., Ph.D. (Col.), L.T., Lecturer, Training College, Trivandram. The lecturer delivered an interesting address on *A Plea for College Education through Activities*. Dr. Jeevanayakam said that activities should find a place in collegiate education and emphasised the need for Co-operative Societies, Browsing Rooms, Students' Book Shops, Literary Unions, Physical Culture and Students' Leagues as vital factors which would greatly add to the usefulness and efficiency of education. Dr. Jeevanayakam's speech was eminently lucid and practical and was well appreciated by the audience. The President in his concluding remarks paid a glowing and well-merited tribute to the lecturer for his valuable address. Mr. Menon laid stress on the various activities suggested and explained by the speaker as hundred per cent. essential for preparing one for a successful life. The President appealed to the students that they should not take active part in politics so as to endanger themselves and bring about sad distress. He exhorted the students to endeavour their best to obliterate entirely all communal feeling which tended to make life unpleasant. Mr. Menon remarked that job-hunting should not be the be-all and end-all of life.

TUTORIAL SYSTEM IN THE SCIENCE COLLEGE.

Dr. K. L. Moudgill, M.A. (Cantab)., D.Sc., F. I. C., Principal of the College of Science, Trivandram, has adopted the tutorial system in the institution from the current academic year. To begin with, this system has been applied to the Junior and Senior Intermediate classes. About a dozen students are placed under the direct charge of each Lecturer. The Lecturer has to keep watch over the career of the students under his care, in and out of the college. Each Lecturer has to guide, control and help the batch of students entrusted to him. All affairs relating to the College such as leave letters, complaints, are to go to the Principal through the Lecturer. This move of the Principal is praiseworthy and, if conducted properly, will be of great use both to the students and the college authorities.

INAUGURAL MEETING OF THE ARTS COLLEGE MUSICAL SOCIETY.

The inaugural address of the Musical Association of H. H. the Maharajah's College of Arts, Trivandram, was delivered by Mr. M. S Ramaswamy Aiyar, B.A., B.L., L.T., on the 8th August 1933. The subject of the address was "*Music Then and Now.*" The lecturer spoke about Music in olden times during the days of Samudragupta, Bhoja, Akbar and Aurangazeb and traced its course in pointed terms down to

the present day, clearly presenting the sharp and strange contrast. He emphasised that music at the present day is at its low ebb and that music needed to be furthered immediately. He drew a striking comparison between oriental and occidental music and opined that Indian music should never be allowed to be guided or controlled by western music. He quoted the damaging and prejudiced opinions expressed by certain westerners regarding Indian music. He refuted such views and, by a few comparisons and contrasts, established the superiority of Indian music. He much regretted the sad state of affairs as far as music was concerned and severely condemned the intelligentsia who neglected the study of music. He appealed to his audience to study music and take to music more and more and endeavour their best to give it its proper place in education as well as in life. At the end of his lecture, Mr. Aiyar sang a couple of songs with fidelty to principles of music. Mr. P. R. Parameswara Panikker, Vice-President of the Association, thanked the lecturer and the audience. Mr. Panikker paid a glowing tribute to the musical talents of the lecturer.

THE Y. M. C. A. LITERARY WORK COMMITEE.

Under the auspices of this Committee, *A Students' Parliament* has been started, composed of students from all the educational (collegiate and secondary) institutions of the town. The main aim is to create a feeling of comradeship among the students and to train them up in Parliamentary discussion. In an announcement it was clearly put down that only subjects of a non-political character will be dealt with in the discussions of the Parliament. The convener of the Committee is Mr. S. Uma Maheswar, M.A. (Hon.), Lecturer in English, Arts College, Trivandram. It is believed that the Parliament will be a great blessing. All success to this highly necessary organisation.

THE INTER-COLLEGIATE CLUB, TRIVANDRAM.

The Inter-Collegiate Debating Club, though recently started, is doing much work in training students in Parliamentary discussion and spirited debates. This Club has among its members some of the best students in Trivandram. The inaugural address of this Club was delivered by Mr. Justice K. P. Gopala Menon, Bar-at-Law. The subject of the address was *The Student and A Student*. Mr. Menon spoke about the duties and responsibilities of students. He particularly warned the students not to mingle themselves in politics and not to be a party in causing distress by championing communal feelings. He exhorted the students to fight tooth and nail against the spread of communal feeling and to set a healthy example by establishing cordial relationships of comradeship with members of different communities. He stressed the importance of physical efficiency, the need for a broader outlook on life, and the urgent necessity of starting Social Service Leagues. Mr. Menon opined that students should join together and form Social Service Leagues with well chalked out programmes of work. He referred to some of the Social Service Leagues with which he was closely associated, and spoke at some length about their successful work.

The Club is functioning very vigorously, and lively debates on vital questions of the day are regularly conducted wherein a large number of members actively participate.

REFORMATORY SCHOOL, TRIVANDRAM.

Mr. K. V. Ramakrishna Aiyer, M.A., L.T., Superintendent, Government Reformatory School, Trivandram, has been appointed as First Grade Teacher in a High School. For the past a few years, Mr. Aiyar was at the head of the institution in which capacity he carried out his duties ably. Mr. M. O. Varghese, M.A. (Hons.), L. T., now Secretary to the Travancore Public Service Commission, but formerly a teacher, has applied for the Superintendentship of the Reformatory School.

TRIVANDRAM SCIENCE COLLEGE ENGLISH STAFF.

Mr. G. Gopalakrishna Aiyar, M.A., Senior Assistant Professor of English, has been appointed as Professor of English in the Science College, Trivandram. Mr. Aiyar had acted a number of times as Professor. This well-merited promotion has been heartily hailed for Prof. Gopalakrishnan has long remained in the lower ranks, despite his reputation as an efficient Lecturer. Some of his students who became juniors in his profession later, after their return from England with high distinctions in literature, were appointed as Professors superseding the well-established claims of Mr. Gopalakrishnan.

Mr. M. R. Balakrishna Warrier, M.A. (Hons.), Senior Tutor in English, has been promoted as Assistant Professor from the current academic year. Mr. Warrier's well deserved promotion to the higher ranks has been warmly welcomed by all. He has already won his laurels as an able Tutor and one of the most popular members of the staff. He was recently elected as Manager to the *Science College Magazine*.

Mr. Varkey Panjikkaran, B.A. (Hons.), who was formerly on the English staff of the St. Berchman's College, Changanacherry, has been appointed as Lecturer in English in the Science College, Trivandram. While at Changanacherry, he had established a reputation as a capable Lecturer and this certainly has stood him in good stead. Though it is only a few days since he came to the Science College, he has become very popular with students, mainly owing to his teaching powers and pleasing manners. He was elected as the Staff Editor of the *Science College Magazine*. It needs to be remarked that the first number of the Magazine, which was published just a few days ago, bears ample testimony to the merits of Mr. Varkey as Editor of a College Magazine.

STATHAM COMMITTEE REPORT.

The Committee have finished their labours and sent in the Report which is now being hurried through the Press. The Report is still in the confidential stage and people are eagerly awaiting the Report about which Dame Rumour is whispering of startling changes to come. It is, however, firmly believed to contain many valuable suggestions in regard to Elementary School education and vocational bias in the State schools. Mr. Statham, the Director Designate, will be at the helm of affairs shortly when he will have fullest opportunities for putting his schemes into operation. It is interesting to note that the Report has become a subject of much speculation.

REVIEWS AND NOTICES.

COLLEGE COMPOSITION, BY G. K. CHETTUR, M.A., PRINCIPAL, GOVERNMENT COLLEGE, MANGALORE. LONGMANS, GREEN & CO., LTD. Pp. 541. *Price* Rs. 3.

This book, intended chiefly for use in the Intermediate classes, is planned on a sumptuous scale. A chapter on Indianisms, sustained in a humorous vein and placed at the beginning of the book, points out errors commonly committed in this country. Other chapters follow the elements of style as in the usual books on rhetoric and composition. The second Part of the book deals directly with the practical arts of paraphrasing, epitomising, expanding, essay-writing, letter-writing, and the composing of dialogues. A number of models of the last three arts, available in standard literature, has also been included in this part. Part Three provides a large number of exercises in the different kinds of composition. The author justifies himself for swelling the size of the book with numerous passages in prose and poetry, by the practical necessity felt in the class room. The last Part of the book is concerned with details of grammar. We believe the book will prove a useful addition to the instruments available at present for the difficult task of teaching composition in our colleges. It is unfortunate that the bulk of the book should have grown to the extent of increasing the price to three rupees. The book might have been divided into two volumes, one for the elucidation of the principles of good English, and another entirely for the collection of passages in prose and in poetry. Even then, each volume should not cost more than a rupee. If our principle of division had been adopted, the author would have attained an organic unity in his work which is not evident at present.

A REVISION COURSE IN PHYSICS (HEAT, LIGHT AND SOUND SECTION). EVAN J. EVANS, M.Sc. Pp. 256 + viii. J. M. DENT AND SONS. *Price* 3s.

The book under review is yet another attempt to help the students preparing for the various examinations and is an example of the versatility of the English authors in devising new modes of presenting subjects. It is a companion volume to the author's 'Magnestism and Electricity,' which the reviewer has not yet had the pleasure of looking into. This attempt is highly praiseworthy representing as it does a new angle of view in writing books. The book 'is meant to supplement' and not to supplant the extant text-books. Plainly stated, its function is to serve 'as a tool with which to achieve examination success.'

Though designated 'a revision course,' the matter is fairly exhaustive, the several important topics receiving adequate treatment by way of logical arrangement, accuracy and careful summary. The numerous sectional diagrams deserve special mention. Unfortunately, a few, such as figures 55 and 153, have been somewhat mutilated by the artist. There is also a good collection of carefully selected and representative graphs This is of great importance to students as even in these days most students fight shy of graphical methods of representing results.

At the close of each chapter, typical numerical examples are fully worked out and each chapter closes with a set of questions selected from the papers of the various examination bodies in England. The book deserves to be in the hands of students who prepare for the Madras S. S. L. C. Examination and the Intermediate Examinations of the Madras and sister Universities.

SYLLABUS FOR CHURCH JUNIOR AND SENIOR SCHOOLS BY THE HON'BLE CORDELIA LEIGH. MACMILLAN & CO., LONDON. *Price* 1s. 3d.

This is a well-planned and well-thought-out syllabus. Its purpose is not only to teach the Bible but also Church History and Missionary History. The syllabus places proper emphasis on the importance of the Prayer book, Church worship and hymnology. The superiority of this syllabus over others of the same type is very well seen in the importance attached to all the aspects of the Christian Church. There is great freedom to the teachers; but it implies careful preparation on their part. A similar syllabus is well worth a trial in similar schools in this country.

A HISTORY OF ENGLAND BY C. E. CARRINGTON, M.A., AND J. HAMPDEN JACKSON, M.A. PUBLISHED BY THE CAMBRIDGE UNIVERSITY PRESS. Pp. 803 + xx. *Price* 7s. 6d.

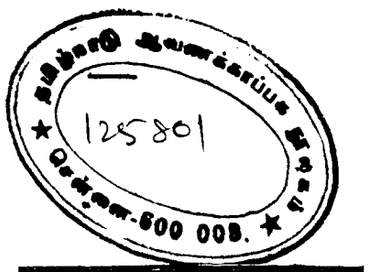
The authors of this attractive book have aimed to meet the requirements essentially, though not exclusively, of the School Certificate [England] and similar examinations. In this purpose, they have been quite successful. In the preface, the authors state: "The story is presented from an international standpoint and political history is subordinated to social history. The authors have endeavoured not to lose sight of the picturesque features of English History and have reproduced many favourite stories in the words of the original chroniclers. The reader is introduced to the science and art of history by extensive quotations from contemporary sources and from the classic historians." The book is divided into three parts— I, upto 1485; II, 1485 to 1714; III, 1714 to 1931, covering respectively 222, 235 and 320 pages. The style is simple and descriptive.

In writing books on history regarding recent events, unbiassed judgment is not very easy. The following quotation from page 671 is an example of the presentation of recent events in India to young scholars. "The Congress party were invited with the rest but at first refused to send representatives; and the first Round Table Conference was held in London without them. In 1931, however, they did send *representatives* to a second conference *Mr. Gandhi among them.* But, meanwhile, the *extremists of his party had carried matters so far* that on his return, at the end of the year, he was faced with the alternatives of either abandoning his party or his work for the conference. He chose the latter course. Mr. Gandhi and all other leaders were imprisoned for *though these movements were supposed to be non-violent, terrible outrages had occurred.*" (Italics ours.)

The merit of the book is not, however, lessened by such a presentation of recent Indian History. The good features of the book are many, the most outstanding among them being the sections dealing with British commercial supremacy and the development of literature, the 24 plates of famous pictures and the numerous maps and diagrams in the text. The 17 appendices are a very useful adjunct to the reading matter and those dealing with the decline of the powers of the crown, mechanical progress, the growth of national debt, and how England is governed will be specially helpful to students.

The plan of a manor with notes and diagrams representing the life of the period in the front end paper and the map of the world as known to the Europeans in the 16th century (with the routes of the voyages of Cabot, Columbus and other explorers marked) at the back end paper are bound to be appreciated by scholars.

The index is full, the paper is good, the printing is attractive, and the get up is elegant. This nice volume will prove a handy book of reference to the high school teacher and excellent text-book to the Intermediate student of our University classes.



STARS AND THEIR STORIES BY MURIEL KINNEY. ILLUSTRATED BY GABRIEL PIPPET. WITH MAPS BY F. GRANGER, F.M S. BASIL BLACKWELL, OXFORD. Pp. 57. *Price* 2*s.* 6*d*

Astronomy cannot be introduced more attractively to children than by this pretty book. The sky is studied as it appears in each month of the year, in its most prominent detail. The relevant Greek story is also told in its simplest form. Beautiful drawings, and useful maps adorn the book. This book can become popular with Indian children, considering their general acquaintance with English. But we would wish that a similar book were prepared embodying the beautiful Sanskrit stories about the stars.

EOTHEN BY A. W. KINGLAKE, EDITED BY GUY BOAS, M.A. MACMILLAN & CO., LTD. PP. xxiv + 312. *Price* 2*s.* 6*d.*

This is a handsome edition of the great classic of travel literature. It makes excellent reading for young people, and the help provided in this book will be much appreciated. A literary appreciation and a biographical note precedes the text, and notes and questions come at the end. A full map of the region of Kinglake's travel is also provided.

SOCRATES PERSISTS IN INDIA BY F. L. BRAYNE, WITH EIGHT CARTOONS BY LYNTON LAMB. OXFORD UNIVERSITY PRESS. Pp. 140. *Price Re.* 1 4 *as.*

The author of this book has already established his credentials as a very careful student of the problems of rural life. This book elaborates in the form of delightful conversations all the important facts bearing on the life of the village, suggesting reform in each line. The conditions in the Punjab are thought of in this book, but they apply to all other parts of the country, or for the matter of that, to any part of the world, as the author points out. In view of the purely sentimental cry of emotionalists who have not the least real understanding of what is required for rural uplift, the present book should be of great usefulness in this country. It should not, of course, be sufficient to have this book in English, it must be made available in the vernacular, so as to reach all the readers who are concerned with the problems.

MARLOWE'S DOCTOR FAUSTUS AND BEAUMONT AND FLETCHER'S THE KNIGHT OF THE BURNING PESTLE, EDITED BY HAROLD OSBORNE. UNIVERSITY TUTORIAL PRESS. PP. xxvii + 95 AND xxviii + 130. *Price* 2*s.* AND 2*s.* 6*d.* RESPECTIVELY.

These additions to the series of 'Selected English Classics' should be quite welcome. The authors are of interest chiefly as Shakespeare's contemporaries, and only the students of the Honours course in English are obliged to make an acquaintance with them But editions of this kind may help to bring the books to a larger circle of readers.

RAPID READING SERIES, READER V, BY LLEWELYN TIPPING. MACMILLAN & CO., LTD. Pp. 259. *Price Re.* 1.

These readers are well-known and very useful for schools. The present book, which may be used in a high school form, introduces 1,500 new words. The lessons draw on fresh material as well as on well-worn old classics.

A PLAY IN ONE SCENE FROM ALICE'S ADVENTURES IN WONDERLAND BY LEWIS CARROL, AND A PLAY IN ONE SCENE FROM THROUGH THE LOOKING-GLASS, DRAMATISED FOR THE CENTURY PRODUCTION BY V. A. PEARN. MUSIC BY HENRY CYPHUS. MACMILLAN & CO., LTD. PP. 119 AND 92, *Price* 9*d.* EACH.

These dramatic versions of children's favourites in literature should be found useful for school theatricals. For Indian schools they may be appreciated more as reading matter than for acting purposes.

PALADINS OF INDIA BY SIR GEORGE DUNBAR, WITH SIX ILLUSTRATIONS BY AGATHA WALKER. OXFORD UNIVERSITY PRESS. Pp 127, *Price* Re. 1.

This book treats of six heroes who played their part in Baluchistan, the North-West Frontier, Mount Everest, and in the North-East Frontier. As breaking new ground, the book is full of interest and will make an attractive text-book in schools.

VEDIC STUDIES, VOL. I, BY A. VENKATASUBBIAH. (SURABHI & CO., LANSDOWNE BUILDING, MYSORE, 1932.) Pp. 292.

This book is the first of its kind published in English for the benefit of serious students of the Vedas. The author is a Doctor of a Swiss University of many years' standing and is well-known for his deep erudition and scholarship through the numerous original articles he has been publishing for several years in important Indian and foreign journals. We are glad that he has collected together in a book his articles entitled 'Vedic Studies' published in *Indian Antiquary* and the *Journal of the Bombay Branch of the Royal Asiatic Society* and included in it some new studies also. The Sanskrit students in this land owe to him a deep debt of gratitude.

The only work of a similar character accessible till now is in German, entitled 'Vedische Studien' by Pischel and Geldner. As regards the interpretation of Vedic texts, it is a matter of common sense that a highly cultured Indian trained in the scientific western methods of interpretation is any day better fitted for the task and his work is bound to be more reliable and satisfactory than the most painstaking efforts of foreign scholars. The advantage of birth and race-tradition is not a factor to be wholly ignored in the matter of linguistic intuition. Dr. Venkatasubbiah has take immense pains to diagnose with scientific thoroughness the true meanings of certain difficult typical words such as 'Abhva' frequently occurring in the Rig Veda, of which no satisfactory explanation has been given by the exegetists. After a searching and careful analysis of all the passages in which a particular word occurs and after making a comparative study of the available interpretations of Vedic scholars of repute, both Indian and European, the author hits upon the true explanation of the word and proves its adequacy by suitable quotations of parallel passages not only from Vedic texts but also from Belles Lettres, wherein the sense of the author is fully echoed. To give the reader an idea of the comprehensive manner adopted by the author in discovering the true interpretation of the *fourteen* difficult words selected by him, it is sufficient if we mention that he has sought the help of *six* Sambitas, *six* Brahmanas, *two* Aranyakas, *eight* Upanishads, and *five* Sutra works besides quotations from *Bhagavata*, *Mahabharata*, *Kiratarjuniyam*, *Katha Saritsagara*, *Jnatadharma Katha*, *Samyutta nikaya*, etc., and incidentally explained critically the meanings of about *one hundred and twenty* additional words.

The book deserves to be in the hands of every student and professor of Sanskrit and no college or public library in India can well afford to be without a copy. It is not too much to hope that the encouragement given by Indian Savants and the Indian public in respect of the present work will be sufficient to induce the author to bring out his other volumes of which the work under review is a worthy precursor.

ELEMENTARY CALCULUS BY A. S. RAMSEY. CAMBRIDGE UNIVERSITY PRESS. 1932. PP. ix + 178. *Price* 5*s.*

This little book, as the author maintains, is more concerned with the processes of calculus,

viz., differentiation, total and partial, and integration, definite and indefinite, and their immediatea pplications, *viz.*, maxima and minima, areas, volumes, moments of inertia, errors and approximations, than with theorems such as Leibnitz's or Taylor's theorem. The author has succeeded in a measure in achieving his aim of giving things worth learning for a beginner without either indulging in too much detail or leading him unconsciously into things which may have to be unlearnt later. Exceptions and pitfalls are carefully pointed out and illustrated appropriately. The presentation is clear and simple, and the material covered is a little more than what is prescribed for the Intermediate Examination in some of the Indian Universities, for example the Mysore University.

The get-up of the book is good. There are practically no misprints or errors. The reviewer has noticed after a fairly careful scrutiny just one error, that on page 45 where $\frac{dv}{dt}$ is regarded as a measure of the velocity.

On the whole, the book is a very useful one and can be safely recommended for use in the junior collegiate classes of Indian Universities.

ELEMENTARY CO-ORDINATE GEOMETRY BY A. S RAMSEY. CAMBRIDGE UNIVERSITY PRESS. 1933. Pp. 155. *Price 4s. 6d.*

This book on Co-ordinate Geometry is intended essentially for beginners and claims to give a sound working knowledge of analytical methods. It contains simple and straightforward discussions of the properties of conics referred to their axes and makes use of Cartesian equations and parametric methods. The earlier portions of the text deal fairly fully with the straight line, the circle and general loci; applications of differential calculus come in for the treatment of tangents and normals to curves in general, and the book concludes with the polar and pedal equations of some important curves such as the cardioide, the lemniscate, and the equiangular spiral. The author intends this work as a companion volume to his 'Elementary Calculus.'

As a point of criticism, it may be urged that the author has omitted to give us a working knowledge of determinants which is a valuable tool in coordinate geometry. Slips are rare. The reviewer has noticed only two, one on p. 117, and another on p. 131, which are, however, not serious. But a fallacious solution occurs for an incorrect question on p. 120, which is inexcusable.

The get-up of the book is excellent as usual with Cambridge publications. The book can be recommended to the Intermediate students of those Indian Universities which have prescribed analytical geometry. It is also a suitable book for B.A. Pass students with Mathematics as a subsidiary subject.

AN INTRODUCTION TO THE CALCULUS, BY G. VAN PRAAGH, 1932. Pp. 92. MACMILLAN & CO., LTD.

This book deals with the elementary notions of differential and integral calculus and their straightforward applications to certain well-known problems of physics and chemistry, such as vibrations, simple harmonic motion, and rate of chemical reaction. Among the worked examples, some advanced topics are also discussed, *e.g.*, the Gibb's Absorption Equation, the average life of an atom of a radio-active substance, the growth of a current in a circuit and forced vibrations and resonance. There is no doubt that the book will prove very useful to science students who wish to get acquainted with calculus as a mathematical tool. B.A. pass students taking physics or chemistry in any Indian University can profit much by a close study of the book.

The get-up of the book is excellent and inviting. But the inexperienced reader may be warned against certain obvious mathematical errors, such as 'the natural log of N is the *power* to which *e* must be raised to give N,' and

$$\frac{1}{a^2x^2} = \frac{1}{2a}\left(\frac{1}{a+x} - \frac{1}{a-x}\right)$$

occurring on pages 26 and 55 respectively. With a little more careful proof-reading, such errors and slips could have been avoided.

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THE EDUCATIONAL REVIEW.

The State and Education.

Speaking at the University of London, Mr. Ramsbotham, M. P., Parliamentary, Secretary to the Board of Education, spoke on the English ideals regarding the relationship between the State and Education. Educational conditions in India are undoubtedly not quite so advanced as in England, and it may be dangerous to apply English ideals, in their entirety, to this country, but it is good to have such an authoritative exposition of the English outlook on Education. An aspect of his speech of special interest to people in this country is his reference to the need for intellectual contact with foreign countries. We heartily endorse his statement that "no University to-day could really be alive unless it could attract students from abroad," and we wish it were more fully realised that "the thoughts of scholars were the only currency that never depreciated." Mr. Ramsbotham devoted a good deal of his speech to the subject of University autonomy regarding which there are perhaps no better examples than the Universities of Britain. The Universities were completley independent in Britain of the central authority in Education and "the President of the Board of Education and the authorities of the London University met, not as rulers and dependants, but as friendly monarchs of neighbouring and allied states." He felt firmly convinced that the wisest statesmanship recognised this principle. "Once a nation allowed the State" he argued, "to direct the policy of the Universities to appoint their personnel and to control the content of their teaching, it put it in the power of the politicians to decide what should be taught not only in the Universities, but in the schools of the nation, and thus to determine what should pass into the nation's life.....To allow the government of a State, whether it consisted of a single individual or of a committee of individuals, to permit or prescribe what should be taught, involved the destruction of much learning and all liberty."

The University of Madras.

It was a valuable address which was delivered at the last Convocation of the University of Madras by the Rev. Father Carty, one of the most well-known and experienced of educationalists in South India. He spoke appreciatively of the work of the University and its recent development in various branches of reasearch. Besides various departments of science, the University had developed in recent years separate sections of Indian Philosophy, Indian History, Indian Economics and Indian Music. In his opinion, the Oriental Research Institute attached to the University was particularly valuable and he would not be surprised if the Madras University secured its pre-eminence one day by the results achieved by its Oriental department. Father Carty entered into a careful analysis of the advantages to be gained by study in a University and the following is perhaps a good description of University life:

> A University organization appears particularly well adapted to give our minds the largest amount of sound culture. The mere fact of living for several years in such a seat of learning is a powerful, even if at times unsuspected, factor to stimulate the minds of students. Instead of focussing their attention exclusively on one particular object of study, University students are thrown in continual contact with other minds engaged in different intellectual pursuits, and, to a mind eager for culture, this association is of the greatest value even in the study of its own special branch. In addition to this, there are also other activities which foster intellectual fellow-feeling, and lead to a growing sense of mutual regard, appreciation of one another's point of view and esteem for every form of learning. Debating societies, literary and scientific clubs, well-equipped libraries, public lectures on a variety of usual subjects, are some of the means whereby without any special effort the minds of University students are imbued with culture in the widest and deepest sense and are made to realize the vastness of Truth, the conquest of which is the most enduring achievement of our race.

While admitting that Universities should provide for training in such subjects as business and commerce, Father Carty had no hesitation in saying that a University was not a business concern and protested against any desire to give only a secondary place to cultural studies in the organisation of a University.

Indian Academy of Fine Arts.

An important step in the advancement of the Fine Arts in India has just been taken in Calcutta with the inauguration of the Indian Academy of Fine Arts. Bengal has played her part enthusiastically in the present revival of art in India, but there is still need for a central organisation which may bring together all those interested in the subject. An association of lovers and patrons of art who will set their seal of approval on the good productions of artists and make arrangements for periodical exhibitions should fulfil a valuable purpose. The proposed Academy will encourage painting, sculpture, architecture, engraving, chasing, seal-cutting and medal-designing and other kindred branches. It will hold an annual art exhibition at Calcutta and endeavour to keep a permanent collection of objects of art for the benefit of the public. Those who are familiar with the good work of the British Academy in England and the large part it has played in giving encouragement to British artists can perhaps envisage the excellent work which such an institution is capable of doing in India. The Academy has been inaugurated under influential auspices, Maharajah Tagore having been elected its President and the Viceroy and the Commander-in-Chief having been invited to become its Patrons.

The University of Bombay.

His Excellency the Governor of Bombay, Sir Frederick Sykes, gave the last Convocation Address at the University of Bombay and referred to many interesting points in the course of his speech. In view of the impression prevailing in many quarters that changes in the constitution of a University are enough to make for University reform, His Excellency did well in pointing out that a constitution in itself can do very little. "It must have the right people to work it and it must be worked in the right spirit." He repeated the famous observations of Aristotle and Cardinal Newman that the aim of education ought to be the training of good citizens, of young men and young women who will be useful servants of their country, ready to take the fullest advantage of the new opportunities that will be opening out before them. Sir Frederick also put in a strong plea for the development of Indian languages, but had to point out some of the complications connected with the problem of the employment of vernaculars as media of instruction. He uttered a warning against the possible deterioration of standards of English and he was anxious to point out that a knowledge of English is coming to be more and more indispensable to the student who wishes to keep himself abreast of contemporary thought and progress in any subject, be it Sanskrit or Science, History or Economics. "And there is a further claim that English has upon us, and one which is of the utmost importance at a time like this. It is a great unifying influence in a land whose future depends on unification. It is the *lingua franca*, not only of educated India, but of the great comity of nations, which we know as the British Empire, and of a large part of the rest of the world as well. If India is to take her rightful place among the nations, the retention of English is indispensable." His Excellency referred to the plans before the University for the introduction of Technological Education and hoped they would materialise at an early date.

Physical Education.

We are glad to read in the papers that the authorities of the Benares Hindu University have resolved upon making Physical Education compulsory for all students and candidates will not hereafter be allowed to appear for University examinations if they have not put in 75% of attendance

in the Physical Education classes as in any other subject. In view of the extreme importance of physical well-being for every individual, we are glad the authorities of the Benares Hindu University have taken this step. In spite of all the talk there has been in our University centres regarding the need for a harmonious development of mind and body, anybody acquainted with our educational institutions will know that only a small section of University students come into real touch with athletic activities. The existence of good teams in a University and even their triumphs in tournaments is no guarantee that the average student is benefiting by the activities. Very often he is content to be an open-mouthed spectator at matches and he has little work to his own credit. A University which claims to be residential will not have fulfilled one of its important aims if it does not bring all its under-graduates and graduates within the scope of its athletic activities. We recommend this step to all educational institutions in India though in practical working many things will have to be ensured before it can be done. The opening of extensive play grounds and the establishment of athletic facilities for each and every student must of course precede any attempt at making attendance compulsory at games and physical education classes. This new departure at the Benares Hindu University will be watched with interest by all those interested in the subject.

Elected vs. Nominated Vice-Chancellors.

If the members of the Senate of the Bombay University who have recently voted for an elected Vice-Chancellor in place of the present system of nominated Vice-Chancellors are under the impression that the educational millennium will set in as soon as this recommendation is accepted by the Government and the Bombay University Act is amended accordingly, they are entirely mistaken. The administrative duties of a high class modern University are so heavy that the want is really for a full-time Vice-Chancellor—it does not perhaps make much difference whether he is elected or nominated. It is difficult to say yet, if democracy has proved a great success in the educational organisation of India. We are by no means certain that the exercise of the majority vote will bring better Vice-Chancellors to the service of the University of Bombay than those she has had in the past. If the recommendation is accepted and the Act is changed, it may be wise to impose certain restrictions which may serve to set right any possible abuse of a democratic election. The Senate may be compelled to elect from out of a panel of three candidates chosen by the Syndicate in which the abuse of the elective system may perhaps be less serious, or the Chancellor may be given the option of choosing one from three candidates elected by the Senate. We are afraid the time is not yet ripe for an unrestricted elective system in University affairs in India. But the members of the Senate will be well-advised in pressing for a full-time paid Vice-Chancellor. Our Universities cannot be expected to achieve very much by having Vice-Chancellors who can only find time to preside over meetings of the Senate and the Syndicate and who are not specialists in educational matters. India is very badly in need of a class of eminent educationalists capable of giving a lead to the country in all matters concerning higher education. It would be possible to produce such persons only under a system of full-time, paid Vice-Chancellors chosen from the ranks of the educational profession.

International Co-operation.

With the recent inauguration of a Bureau of the League of Nations in India, with its headquarters in Bombay, it is hoped that more interest will be taken in this country in matters of international co-operation. At the recent meeting of the International Intellectual Co-operation Committee in Geneva at which India was represented by Sir S. Radhakrishnan, several matters concerning the subject were taken up for discussion. The educational reorganisation of China, to help which the League of Nations had sent out a committee last year, the scientific study of social and political relations, the production of educational films on the League of Nations, the press and intellectual co-operation were among the subjects discussed. Pleading for the development of international ideals of peace, Sir S. Radhakrishan hoped the world will soon look forward to the day when there will be one world-body even in government. He said: "While science and organisation are building up a single world to-day, the world does not yet function as a single organism. Our political partitions and economic barriers are dividing the one world into a number of independent units. The one civilised society is being governed by sixty and odd independent sovereign states. It is our duty to build up a world-soul, a world-culture, a world-conscience to inform and animate the one world to-day. The Internationaal Committee on Intellectual Co-operation is endeavouring to build up such a world-culture by furthering international sympathy and understanding." Sir Radhakrishnan was right in thinking that the Eastern nations, China and India, were pacifist by tradition and temperament and had a good deal to contribute to the new world-culture and there can be no better way of ensuring it than through co-operation with the League of Nations.

The Study of Nature.

Lecturing to the University Union in Bangalore, Sir C. V. Raman appealed to his young hearers to study nature, to base their study of science on the phenomena of the physical world coming into contact with them whenever they go out of doors:

"The true man of Science derives his inspiration from Nature. The moment you are out of contact with Nature, the moment you feel that the impulse for the study of science will come from the text-book, from the examination syllabus or from the Professors, you are lost. The true man of Science always will go straight for his inspiration, for his enthusiasm, to Nature. If Nature does not make you feel the surge of life and try to sublime that appreciation into an intellectual effort and try to understand a little of the supreme work of Nature, then I say you are not a man of Science. Nature produces very wonderful things, almost without effort. There is no greater teacher, no one so lavish in putting forth objects worthy of study than Nature. Science derives its inspiration from an appreciation of the prodigality and beauty of Nature."

It may be pointed out, on similar lines, that the student of the humanities should also study life first-hand without confining himself to books. In these days of specialised scholarship and enormous output of books, there is real danger of man's mind being locked up in printed pages and losing all contact with life. In Arts as well as in Science, the essential thing is not to forget the bearing of knowledge on the world and of the world on knowledge.

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