REGD. NO. M 272

VOL. LVIII NO. 11 || || NOVEMBER 1952

THE EDUCATIONAL REVIEW

CONTENTS

Annual Subscription, inclusive of Postage, Rs. 5. Half yearly Subscription, Rs. 3.

14/A, SUNKUWAR ST., TRIPLICANE, MADRAS.

Foreign Subscription, inclusive of Postage, Rs. 6-8-0.

Hon. Editor: Sri A. N. PARASURAM, M.A.

Asst. Editor: M. C. KRISHNAN.

NOTICE

SRI P. N. GHOSE, Typewriter Repairer, 132, M. S. Paul Chowdhury's Lane, North Bantra, Howrah P.O. has been appointed as one of our Representatives for Bengal. We request our subscribers and advertisers to extend to him their fullest support.

Manager.

THE EDUCATIONAL REVIEW

The Educational Review

A MONTHLY RECORD FOR INDIA

VOL. LVIII. NOVEMBER 1952 11

Sir C. V. Raman—the Great Indian Scientist

BY SRI T. G. N. IYENGAR, B. SC., *Mysore.*

"If science is meant for destruction, I resign from science"—*Sir C. V. Raman.*

Our great scientist, Sir C. V. Raman, is 64 years old on this 7th November, 1952. It is impossible to forget the humorous words which he uttered when he was just 55 years of age. He said:—"I am in my last stage of life, namely, the *Vanaprastha-ashram*. That is why I am living in between the city and the forest" (at the Indian Institute of Science). Even though he is aged, he still wishes to work hard, and his enthusiasm has not yet vanished, because he feels young and is proud of it.

The third great Indian scientist, Chandrasekhara Venkata Raman, was born on 7th November, 1888, near the town of Trichinopoly in Southern India. He is the son of a school-master. He was remarkably bright as a school-boy, and he passed his Matric examination at 11 years of age and graduated when he was just 16. He was a mathematical prodigy. Science was his favourite subject, because he knew that science was purely meant for searching truth in nature. Physics was the most fascinating subject for him and thus he took physics for his study and got the first place in the M. A. degree examination of the Madras University. Even though Raman was very much interested in the pursuit of science, his father was keen on his joining Government service. So, Raman sat for the F. C. S. examination (Financial Civil Service now known as Indian Audit and Accounts service, I.A.A.S.) and topped the list. As per his father's wish, he entered the Finance Department of the India Government as the Deputy Accountant General, Calcutta. With much reluctance, he pulled on with his job.

During his stay in Calcutta, he came in close touch with the Indian Association for the Cultivation of Science, and there he made researches. After some years, the place of a professor of physics at Calcutta University fell vacant. In spite of much opposition, Sir Asutosh Mookerjee was very particular that Raman should get it in view of his remarkable genius. So he prevailed upon Raman to accept the post. Thus Raman, who was in quest of science, returned to his world of interest. There he proved an excellent professor of physics. He made brilliant researches, and he explained to the satisfaction of all scientists, why the water of the sea looks blue. Thus scientific researches got him fame. He was recognised by scientists of Europe and was made a Fellow of the Royal Society of London in 1924.

The Calcutta University also honoured him by conferring on him a doctorate in science. While tributes were thus paid to his achievements in the world of science, Raman openly declared:—"I am not flatter-

ed at the honour done to me by the Royal Society. This is a small achievement. If there is anything which I aspire for, it is the Noble award." He hoped that he would get it within five years.

Even though these words seemed to lack in modesty they merely betokened his ardent ambitions for greater achievements. This hero among physicists fulfilled his promise after 7 long years of hard work, by a brilliant vital discovery in connection with light called the "Raman effect", in the month of February, 1928. So great were his services to science that a knighthood was conferred on him in the year 1929. The next year in 1930, he was awarded the Nobel prize for physics. At the time of his receiving the Nobel prize, it is said that even the Swedish King stood at attention to honour this great Indian scientist.

Sir C. V. Raman's life is a wonderful tale of romance and adventure. This spirit of adventure brought him honour, wherever he went. His researches have gained world-wide reputation. He was invited by Faraday's Society of England to explain the Raman effect. For a while he was the Director of the Indian Science Institute, Bangalore. Recently he also receive some American awards.

Sir C. V. Raman is not merely a scientist, but also a true artist. He has a special liking for parks and gardens. He finds delight in fresh air, flowers and green grass. If he is garlanded, on no occasion does he remove the garland until he reaches home. He fully knows that nature is beauty and a joy for ever. He leads a very simple and clean life in Bangalore, and he considers it as the best city in the world. He is a strict vegetarian and a non-smoker. He hates smoking. Look at his words regarding smoking :—'I have not seen any animal having fire in its hands except man. I do not know this wonderful creation."

Sir C. V. Raman has wide interests and he is knowledgeable even in subjects outside his chosen field of study. He is outstanding in literature and politics. Why, as a matter of fact, he is an authority on many subjects. He is one of the great admirers of Mahatma Gandhi and his principles. Regarding the autograph which he once obtained from Mahatma Gandhi, he remarked :—"I paid 5 chips for 8 letters." (Rs. 5 were paid for the 8 letters in Mahatmaji's autograph, "M.K. Gandhi"). Even to this day, he feels very unhappy that he was under the British flag when he received the Nobel-award. He once asked young men to be purely Gandhian in ways or to westernise themselves completely. He disliked people who were dangling in the middle of the two principles.

He has a very beautiful library. One of his favourite books is Edwin Arnold's *Light of Asia*. Regarding books, Sir C. V. Raman said :—"In India, bad books are found to a very great extent. Books are not well-written, nor well bound, nor printed well. My library contains only three Indian books. I would not have bought them. Those were only presented to me. Out of the three, I would have purchased only one, because I myself have written the introduction to it." He further added that in India while more was written on a subject, less about it was known.

Much has been missed by the educated people living in Bangalore, if they have not seen and heard Sir C. V. Raman, the knight errant of Indian science. On this occasion, it will be a serious dereliction of duty, if we do not recollect some of the salient facts and beautiful ideas from his elegant lectures.

His lectures are very attractive. More than anything else, the very sweet smiling face of his is enough to impress us. As soon as he gets up from his chair for any lecture, he first takes hold of his coat-collars and holds them tightly. The more tightly he holds them, the more impressive and sweet his lectures become. Sir C. V. Raman never forgets to talk about himself at the beginning of his lectures and then plainly confesses that he has finished self-revelation. I still remember what he said once regarding this :—"I have spoken

enough of self-revelation, and I will begin about your revelation now." Then he attacks the subject matter directly and thoroughly. He is always humorous in his lectures. While addressing a big gathering where Lady Raman was also present, he humorously commenced :—"Mr. President, *Lady Raman*, Ladies and gentlemen." Once talking to a student audience about music, he questioned, "Why do we like music?" and he himself answered, "Because we like music." Then he added, "I further hope that you are all musicians, but please do not be a musician to understand the sweetness of music."

Once Sir C. V. Raman was invited to a certain institute of Bangalore, and a film was shown to him there. He remarked at last, "Ah! I got something for nothing after all".

On a certain occasion, Sir C. V. Raman gave the following advice :—"If you cannot do anything in this world, atleast do this. Go and stand before the grass and say, 'Ah! How green the grass is!' I think you can do so much."

At this stage, we may pick up a few facts from his interesting lecture on crafts. His definition of the first craft of India, namely that of manufacturing muslin cloth, is still ringing in my ears. He said :—"Muslin is a fabric which, when worn by a lady, looks as if she is hardly wearing anything at all." He felt absolutely sorry that European civilization was responsible for putting down the craftsmanship of India. He said :—"I dread machinery which has spoiled humanity". He highly appreciated the craftsmanship of Robinson Crusoe and also the work of the mason who dressed stones nicely. He narrated the following —"Once I bought a beautiful basket, not because I never possessed one, but because of appreciating the craftsmanship". Then he added turning towards Lady Raman : "I do not know what Lady Raman thought about it."

Sir C. V. Raman is absolutely plain and frank and does not care for formality. Once he was invited to a certain hostel, and after his arrival, he wished to go round the hostel. He then frankly remarked in his speech that the authorities in charge should give more attention to the cleanliness of the hostel. He said :—"One can get pleasure only by attending to one's own surroundings." His conception of the dignity of labour is outstanding. At a certain time he was very much interested in conducting some experiments, and he applied for sick leave. A gentleman approached him and requested him to attend a certain meeting. He frankly told him laughing, "I am supposed to be on sick leave and I can't attend the meeting". When someone sought his advice, he said, "I can neither advise nor can I take any advice from others."

When Sir C. V. Raman was once questioned about the atom-bomb, he was very much annoyed. He vehemently replied:—"I dread the science of destruction, which means mass murder. If that is science, I resign from science".

He once said :—"Diamond is shouting to tell its story. I have got very great affection towards diamonds not in the way of women, but in the way of scientific progress". He has a special liking for speaking on the story of diamonds, and never forgets to mention the queen who refused to give him diamonds in spite of many requests and promises. He continued that nature was not so simple to understand. She was laughing at us, as we were fighting to discover a small fact about her.

"I am less interested in economics, much less in social activities", says Sri C. V. Raman. He is primarily interested in science and that too in physics: and he considers chemistry as the dirty part of physics. He said that there was no use in thinking unless it was linked by experiments, and, also that there was no use in doing experiments without thinking. He declared that the highest kind of unity could only be shown by experiments. He narrated the following incident, Sir C.V. Raman, accompanied by Sri S. Radhakrishnan, once visited a certain college and went round the classes one by one. They at last saw a

class consisting of only two, a teacher and a student sitting in their respective chairs one before the other. Sir C. V. Raman told Sir S. Radhakrishnan that it was a philosophy class, but the latter denied it. Then they entered the class and found it to be so. Thus Sir. C. V. Raman remarked that students were turning towards science.

Who can enter his laboratory as his student? Sir C. V. Raman said:—"A camel can pass through the eye of a needle, but no first ranks of these Universities will enter my laboratory". He further gave the following illustration:—'In the army, they will select a man who is of a particular height, say 5 ft. 7 inches; half an such short will be too short, and half an inch taller will be too tall." Similarly only a student whose intellegence and work are of a particular standard alone can enter his laboratory.

Sir C. V. Raman once visited a college exhibition, and he was very keen to understand the Raman effect which was there shown. He asked the volunteer in charge to explain. What could the poor boy explain to this great giant of science? He himself then explained the subject to the satisfaction of all for nearly half an hour. When he was asked about a quick solution of the food problem, he said, "Stop breeding like pigs, and the problem will solve itself."

India still expects a great many things from this doyen among physicsts. His next valuable contribution to scientific progress is his Research Institute in Bangalore. Many things are to be learnt from him, namely, hard work, frankness, dignity of labour, concentration and so on. He is now working on the structure of diamonds and he is almost like a crystal, hard, brilliant and multisided. Sir C. V. Raman said.—"When a crystal is cut, a charming phase is seen. This is almost like seeing God to a scientist". So on this occasion let us all wish long life and prosperity to this great Indian scientist, Sir C. V. Raman, F. R. S.

The Future of English II*

Mr. Sarvothama Rao: This is the second discussion on the subject of The Future of English. It will help you to cover new ground and open out new aspects of the subject, if I indicate to you briefly the trend of the last discussion. They were all agreed last time that the medium of instruction in the schools should be the mother-tongue of the pupil, not only because a pupil of tender years grasps knowledge best in his or her own mother-tongue, but also because our regional languages should be developed by harnessing the energies and talents of our educated men and women. It was also agreed that the medium of instruction in our colleges should be English, because advanced knowledge in sciences and even some of the arts subjects like economics could be best reached through English. Then there was the question of the national language. One of the students was of the view that English should be retained as the language of administration, since we feared that to give it up would necessarily mean its falling into disuse. But the other two students were definitely of the opinion that we should have a national language, so that we might find our own soul, and they thought that Hindi would serve that purpose best. But in urging this view, they

---

* The second of the two broadcast discussions held by the A.I.R., Madras, and published here by their kind permission. It took place on 8-9-52. The last discussion appeared in our October issue. Four college students, Messrs Ramakrishna and Hameed, Miss Lakshmi and Miss Shrieves, participated. Prof. B.K. Sarvothama Rao, M.A., B.L. presided.

were not pleading that English should be jettisoned, as though it were a burden we had been carrying so long to our own hindrance. They wished that English should keep the currency which it enjoyed at present, and said that it was partly to secure that result that they wanted that the medium of instruction in colleges should continue to be English.

Having thus outlined to you the trend of the last discussion, I will now invite you to go into this question and see what new light you can throw on it. I can see that Mr. Ramakrishna is wanting very much to set the ball rolling. What is it you have to say, Mr. Ramakrishna?

Ramakrishna: I do feel we can never think of completely doing away with the English language. What we have to discuss then is, how much of importance we should attach to English in future and at what stage it should be taught to the students. But before I say anything on the point, I am curious to know what my other friends who are here, feel about English. What about you, Miss Shrieves?

Miss Shrieves: I think that there has been a lot of prejudice against English. It is almost looked upon as a foreign language. But it is not so. It is as much one of the Indian languages now as any other. It happens to be the mother-tongue of the Anglo-Indians who are one of the communities in India. I hope you are not going to dispute this, Mr. Hameed.

Hameed: I cannot deny that English is the mother-tongue of the Anglo-Indian community. But they are after all a small minority. Let them by all means enjoy the right of receiving their education in their mother-tongue. But that is no reason why we others should continue to fetter ourselves with English.

Miss Shrieves: Is that how you feel about English? You think that learning English is like being in chains?

Hameed: Well, it is something not far different. I can hope to find perfect self-expression only in my own language. The imposition of the study of English has cramped the development of our own culture. I don't like to mince matters. I do say, the sooner I see English thrust into the background and its place taken by our national language, the happier I shall be. Do I sound too extremist in my views to you, Miss Lakshmi?

Miss Lakshmi: Rather, I don't wish to embarrass you by asking you whether you think that the English education you yourself have had, perhaps against your will, has hurt you. So I shall only say that while I don't go so far as you do in my dislike of English, I should certainly like it to take a less prominent place in the scheme of education than it does.

Ramakrishna: Permit me to say that the question of dislike for English does not arise here at all. All of us, if we are honest about it must admire it, as much as Miss Shrives does, whose mother-tongue it is. But our love for it should not be to the neglect of our own languages. Unfortunately so far, English seems to have advanced in our country by dwarfing our own languages.

Mr. Sarvothama Rao: You mean we have been so far wasting our energies and materials building a house for ourselves in another man's land. The land may be lovely, but it is another man's land for all that.

Miss Shrieves: But is this analogy correct? Can we say that the English language is like another man's land? Is there such a thing as national proprietorship in languages? Cannot we make it our own by mastery of it, as so many of our fellow countrymen have done?

Hameed: I could agree with you if we had no languages of our own worth preserving. When we have here in India so many languages which are not only adequate as media of expression, but also have literatures of their own to boast of, we should develop them and make them what English is today.

Mr. Sarvothama Rao: Well, you have expressed yourselves sincerely and even fearlessly on the subject of policy. Let us come down to details and see where you stand there. Do you grant that the medium of instruction in our schools should be the pupils' own mother-tongue?

Miss Shrieves: I am prepared to grant that.

Mr. Sarvothama Rao: The others, I know, feel that way. So there is no need to ask them. But have you any reasons other than those advanced last time for the use of the regional language as the medium of instruction in schools?

Miss Lakshmi: I wish to add one more reason. A large percentage of our population is going to leave off studies at the High School stage. Education with an English bias is of no use to them. If they are given a good grounding in their own mother-tongue, it will be of real help to them. That is one more reason for not having English as the medium of instruction in schools.

Ramakrishna: I grant that those who are breaking off at the High School stage will be benefitted, if they have given more of their time to their mother-tongue than to English. But think of those who go up to Colleges. If there the medium of instruction is to be different, their task in following the lessons will be extremely difficult. Already, this difficulty is being felt. The students who leave our schools, have so slight a hold of English that they are not able to follow the classes.

Miss Lakshmi: Why should not one's own mother-tongue continue to be the medium of instruction in the Colleges also?

Miss Shrieves: That is impossible. How many sections then should we have in each College, and what confusion there will be in the country? The scientists and economists of Tamilnad cannot get themselves understood by their brethren in Andhradesa, Karnataka or Maharashtra. The medium of instruction in Colleges should be the language which is common to the whole country. The only question is whether it should be English or Hindi.

Hameed: Whichever it is, how do you propose to bridge the gap between the High School and the College?

Mr. Sarvothama Rao: One listening group has written to us that this gap can be closed by keeping the regional language as the medium up to the third form and changing over to the common language after that.

Hameed: But I don't think that it will satisfy our object of giving sufficient encouragement to the growth of our regional languages. I wonder whether there is no other way out.

Mr. Sarvothama Rao: I would put it to you that the gap you are talking of is not so wide as you imagine it to be. The student who has gone up to the College is no doubt up against a difficulty, but a difficulty, not an impossibility. Things should not be made too easy. You know the student is going to be all the better for having to learn to adjust himself.

Miss Lakshmi: I am afraid you are not a very sympathetic person. (*They all laugh.*)

Miss Shrieves: How then are you going to get over this difficulty?

Ramakrishna: There is something on this point in an address delivered by our Director of Public Instruction recently at Kumbakonam. He said that an expert from England in the method of teaching English would join the staff of our teachers' college, and our teachers to be trained hereafter would be able to teach English in a new way which would give to students at the High School stage a better grasp of English, than our students have now. We may therefore expect in a few years, better co-ordination between the standards at the school-leaving stage and the college-commencing stage.

Miss Shrieves: I remember, having read in an editorial of one of own dailies that a new method of teaching English by itself, might not raise the standard of attainment in English. The number of periods set apart for teaching English and the books set for the study of English should be more than at present.

Mr. Sarvothama Rao: We may hope that all this will be done. But does it mean that you all agree that English should continue to be the medium of instruction in our colleges?

Miss Shrieves: I should think so.

Ramakrishna: As a student of engineering I am afraid that the subject has to be taught in English.

Hameed: I oppose that idea even at the cost of seeming ungrateful to the language I have myself benefited from. I would like to see English being substituted by Hindi, our national language, as the medium of instruction in our Colleges.

Miss Shrieves: But do you think it is possible at all to teach the sciences for instance, in Hindi?

Miss Lakshmi: It may be difficult in the beginning. But, as our Chairman himself said a few minutes ago, difficulties call forth our best.

Mr. Sarvothama Rao: Well, I did not foresee you would quote me for this purpose. But you are right, perhaps.

Ramakrishna: I doubt whether we can ever teach a subject like Engineering or Medicine as well in Hindi as you do in English. I have seen samples of the technical terms they have invented so far. They seem so vague, so roundabout, even if they may not be inaccurate.

Miss Lakshmi: I too think so. Perhaps the right thing is to keep English and Latin technical terms, even while we change our medium of instruction to Hindi.

Miss Shrieves: But what is your reason for giving up English and replacing it by Hindi? If your only reason for it is that our national pride requires it, I may as well tell you that the needs of our national pride will be sufficiently met, when Hindi becomes the language of the administration and the common language of the people. Nobody will think less of our national dignity, if we can all speak Hindi in our homes, offices, senates and parliaments, while our scientists continue to speak the language in which science is spoken in the largest part of the world, namely, English.

Hameed: Now that you put it that way, I will say that our national pride requires that even the sciences in our country should be taught and learnt in Hindi. The German learns his science in German, the Russian in Russian, the Frenchman in French, and I don't see the logic in your saying that the Indian should learn his science in English.

Ramakrishna: But, my dear friend, you are forgetting one difference. The German, Russian and all those other languages you have in mind grew with the growth of the sciences, and are natural and adequate media for their expression. But Hindi has to be forged hereafter as a vehicle for the communication of scientific knowledge. That means that we will be going backward at least for some time.

Miss Lakshmi: That is only a punishment for the sin we have committed in neglecting our own languages so far. The remedy is not continuing to neglect; but trying to make up at least from now.

Ramakrishna: You will be sacrificing one or two generations at least of our young men and women in the process of this adjustment. I don't say that this is not a worthy goal you are aiming at. It will be good, I admit, if we could get all the chapters of our sciences well written in Hindi. But the sacrifices we impose on our children during the transitory period—are they justified? Should we not avoid them?

Miss Lakshmi: I think the sacrifices can be minimised, if not altogether avoided by making the process of adjustment slow and general. Let us change over to the Hindi medium, say, in another 40 or 50 years.

Mr. Sarvothama Rao: 40 or 50 years are nothing in the long future of our country's history which we, as patriots, look forward to.

Ramakrishna: I would say 50 years should be the minimum period allowed for

the completion of the process of adjustment. All that time is necessary to spread Hindi throughout the country, to develop it as a means of expression and to get all the necessary text-books and reference books prepared on it. It was just yesterday that I read in the papers of a letter signed by Sir C. V. Raman and other eminent men, warning the Government against lowering the standard of English in a hurry.

Miss Shrieves: Now I would like you for a moment to project yourself to be living in India a hundred years hence, when our sciences, our economics, our politics and other subjects are well taught and learnt in Hindi. Will it be a truly blessed condition? Will we not feel cut off from the world? Instead of opening more gateways for the free flow of knowledge into our country, we would have raised a fresh barrier against that flow. We would have gone backward and not forward, and we would have shattered all hopes of a world federation.

Ramakrishna: I confess I too have that fear. Seeing that our statesmen have decreed that our country is to remain in the free commonwealth of nations, and seeing that English is a language which we should regard without prejudice, as the language of communion among the largest section of the world's population, we should keep it. We should not, for the sake of sentiment, give up the advantages we have so far secured by its study. Let us develop our Hindi by other means than by using it as the medium of instruction in our Colleges.

Hameed: I don't agree there. I don't admit that we will be cut off from the world, if we learn our sciences in Hindi. The knowledge of the outside world will come to us though translation, and our knowledge shall travel abroad through translation. Besides, after all, our scientists are few. Let them learn sufficient English for the purpose of international communication, if they want, but let Hindi be the language for all the rest of us.

Miss Shrieves: Do you say then that English should not stay even as a compulsory third language in our country for all those who are educated?

Hameed: No, I think the earlier English goes, the better.

Miss Lakshmi: There I think, you will stand alone in your opinion. We certainly do not want English to go. After all, it is a language which we would now be wishing we had studied, if it had not been introduced into our land by our former rulers. And having had luckily the advantage of having studied it so far, we will be foolish to give it up.

Hameed: At that rate, how many languages do you want our children to study?

Miss Shrieves: Only three, the child's mother-tongue, Hindi and English. Only two, where the mother-tongue happens to be Hindi.

Hameed: Do you think our children can cope with three languages?

Ramakrishna: Why not? Don't underestimate the capacity of our children. In the public schools of England, pupils study Greek or Latin and a continental language in addition to their own mother-tongue. And I am sure the same is the case in the schools of the other countries. Now, be frank, how many languages do you know yourself?

Hameed: H'm, three, Tamil, English and Hindi.

Miss Shrieves: There you are. Don't make a song about others being able to learn what you have been able to.

Ramakrishna: Our children may be able to study three languages, but the question is whether they can be equally fluent in all of them.

Miss Shrieves: I do feel that English will fade away, if it is neither the medium of instruction nor the language of administration.

Miss Lakshmi: I think the position we shall reach is this. Since a knowledge of English will be no longer the passport to

government employment or business success, pupils will study English only for the love of it.

Miss Shrieves: But do you think there will be many who will care to study it deeply, when it is no longer needed for official or business purposes?

Ramakrishna: I would like to ask how we can carry on administration purely in Hindi all over our country. Can we expect all our villagers to have so much mastery of Hindi?

Hameed: I think Hindi will be used for general purposes, and the regional language for local administration.

Mr. Sarvottama Rao: I am afraid the time is up, and we have to close now, though you still seem hungry for further discussion. I must confess that the discussion this evening has brought up some unexpected things, which leave me somewhat disturbed and even startled in mind. Except Miss Shrieves who spoke up bravely for English, which is her mother-tongue, all of you were pretty hard on that language, and you wished to see it disappear not only as the medium of instruction in our schools and as the language of administration, but also as the medium of instruction in Colleges. You were hardly prepared for any compromise on these points, and you were prepared only to see it remain as an additional language learnt in schools and Colleges for the sake of contact with the outside world. If you ask me now for my own opinion, I must confess I am not happy over the conclusion you have reached. I am prepared, as indicated last time, to see English no longer being the medium in our schools except in the schools for the Anglo-Indian community. I am prepared also to see English ceasing to be the language of our administration. But I am not happy over English ceasing to be the medium of instruction in our colleges. I say that, not only because I apprehend that, however well we mean to teach our subjects in Hindi, there must be found something wanting, but also because it would be moving against the forces of progress, it would be working against the time spirit, to attempt to learn the higher sciences in other than English. You have argued, and rightly too, so well in favour of the mother-tongue, implying that no other language can be an adequate substitute for it. I shall not sound fanciful, if I were to tell you that I believe that English is the mother-tongue of that rapidly growing, that wonderful child, science. I would therefore urge you and through you, your representatives who are our administrators, to beware of teaching this child, science, tof orget her own mother-tongue, English, and speak another language, however much we may love that language as our national language. If you wish to see the day when every scientific fact can be expressed in Hindi, do encourage the writing of text-books in Hindi and open a University exclusively for those who wish to learn everything through Hindi. But let English continue to be the medium of instruction in the Universities where it is already the medium. And let me also tell you that to continue to retain English, while not neglecting our languages, does not mean that we mean to remain in voluntary cultural enslavement after our freedom from political enslavement. To know a language like English which is the master key to inexhaustible treasures of thought, is not enslavement, but liberation. Besides, a language is not a mere collection of words and phrases, but is almost a living organism, the face and features of which have been shaped by the civilization of which it is the mouth-piece. To learn a language like English is not merely to be able to speak and write it, but to acquire a certain taste, to develop a certain outlook and to rise to a certain vision. Let us beware of losing these things without which life itself wobld be impoverished.

Special Educational Services in the United States

SPECIAL education is a term used to describe those school services that are maintained for children who are physically handicapped, mentally retarded, gifted, and socially maladjusted.

The greatest part of the responsibility for the education of handicapped and exceptional children in the United States has been assumed by local public day schools. Usually only the most seriously handicapped children are sent to residential schools.

DAY SCHOOL PROVISIONS FOR EXCEPTIONAL CHILDREN

Day school provisions for exceptional children are often under the direction of a Department of School Education, which is a unit of the local school system. Both special schools and special classes within elementary and secondary schools are maintained for physically and mentally handicapped children. Some types of special education require only supplementary services to children in the classes for normal pupils. For example, children with serious speech handicaps and less severe hearing handicaps usually receive speech-correction or lipreading lessons from special teachers who visit them at regular intervals.

The largest number of pupils receiving special education services are those with speech handicaps, and the second largest group is composed of backward and mentally retarded children. Many school systems provide special education programmes for pupils whose intelligence ratios are between 50 and 75. Very often these classes are found in both elementary and secondary schools. It is usually considered desirable to provide for learning in the basic school subject for these pupils according to their limited abilities. Much of their schooling centres on the development of social and vocational competence. In most schools, they are given opportunities to cooperate with normal pupils in the elementary and secondary schools.

Many day schools have provisions for crippled, cerebral-palsied, cardiac and delicate children. Frequently, a special school with physical therapy facilities, special seating arrangements, ramps or elevators is maintained. Other school systems set aside rooms in elementary and secondary schools for these children. Most of the day school programmes for physically handicapped children involve the cooperation of the local school health authorities and other child welfare agencies. Some of the more seriously handicapped pupils may continue in special schools or classes indefinitely, while others may be assigned for a few months or years. Children assigned to classes for the physically handicapped are frequently given free transportation.

Children who are so handicapped physically that they cannot be removed from their homes, may often be served by a bedside instructor who is employed by the local schools. A number of school systems also provide teaching services in local hospitals and convalescent homes.

Day school classes for deaf and visually handicapped pupils are less frequently found, although the larger cities usually provide these educational services. Only a few of the largest cities maintain day school classes for blind children.

Children who are socially and emotionally maladjusted, are sometimes assigned to special classes for maladjusted pupils. More frequently, they are kept in the regular elementary and secondary schools and provided with the services of school social workers and, in some school systems, psychological services which are given by a public-school guidance clinic.

Much attention recently has been given to the education of gifted children. While

the vast majority of the local school system attempt to provide enrichment for these pupils in the ordinary elementary and secondary schools, a few cities provide special schools or classes* which gifted pupils attend on a part or full time basis.

Residential schools enroll about 15 per cent of the exceptional children who are being given special instructional services. Every state makes some residential school provisions for its handicapped and delinquent children. There are also many private residential schools for various types of handicapped children. However, special education for exceptional children is becoming increasingly recognised as a day school responsibility, and many of the states and outlying parts of the United States provide funds to local schools for the maintenance of special education services.

PUPIL PERSONNEL SERVICES

Guidance and personnel services have a peculiar place in American education in that they are based on an acknowledged principle which has influenced the administrative structure of education only in varying degrees throughout the country. It is necessary first to understand the idea itself.

SOME BASIC CONCEPTS

The controlling concept is that individuals differ to such a degree as to affect at any level of education their starting points, their rates of progress and their potential goals. For any person these differences pose problems concerning his personal relations, physical and mental health, education, vocation and many other matters. Moreover, differences in a person's environment, when combined with individual differences, make innumerable variations. All of these elements are recognised as offering difficulties impossible to solve on the basis of classroom instruction only.

The problem is complicated by required attendance at school, in some places until a person is 18 years of age, and by an educational theory that school offerings should fit the needs of each person in view of his differences, environment, and potential goals.

These factors have introduced into American education a group of tools, techniques, procedures, and administrative provisions expressed under the general heading of guidance and personal services. Staff members are trained in specific parts of this programme and in its activities.

LOCAL PROGRAMME OF GUIDANCE AND PERSONNEL SERVICES

A school supplying reasonable services in this field would do the following things for its pupils:

Through observation, psychological tests, and other means of appraisal, determine their characteristics, record them, and maintain developmental and cumulative records throughout the school course.

Provide means for interpreting these differences as one basis for what these children can and should learn, and for evidence of reasonable goals in their growth and development.

At all times provide for consideration and help for any particular child in problems not soluble through class instruction. As the child grows older and must make personal choices about education, vocation, and other problems, prepare him for wise choices by helping him acquire a knowledge of himself and of the extra-personal elements in his problems, a process involving individual attention and interviewing by a trained "counsellor."

Provide a picture of vocational opportunity throughout the range of geographical scope, levels of skills, and essential preparation, especially in terms of any particular person's abilities, aptitudes and interests.

Supply various aids to a pupil's progress and adjustment, such as referral to professional or clinical assistance, placement at work, access to technical and professional education, and other assistance supplementing the ordinary administrative and instructional resources of the school.

In a secondary school a person (sometimes several persons are involved) called a school counsellor is supplied to carry on the

technical elements of this programme, to offer skilled counselling for the individual, to help the rest of the school staff utilize these resources in their respective duties, and to provide liaison with extra-school agencies involved in achieving objectives. This person is not only a technician, but also a leader in the school in these particulars. In many places a ratio of one such counsellor to every 250 to 300 pupils enrolled is considered desirable. All members of the school staff have some share in the guidance and personnel programme, since the principles apply to every phase of school purpose.

PRESENT STATUS OF THIS PROGRAMME

The provision of a well-trained counsellor and the auxiliary resources of this programme may be expected at present in perhaps one-sixth of secondary schools, with more services supplied in the cities and consolidated schools than in rural areas with smaller units. In elementary schools the modern training of elementary teachers provides a recognition of the principles concerned. At present, however, specialists, whether called counsellors, or by a similar title, are available to few individual elementary schools, although outside resources, such as psychometrists, psychologists, visiting teachers, mental and physical health specialists, and others, are often available in the community,

On the level of higher education, guidance and personnel services are present in most institutions in a great variety of organisations under the general heading of student personnel services. The same principles are applied, with variations in provisions suitable to the age level, needs, and characteristics of college students.

Guidance and personnel services are also commonly supplied in many places for adults no longer attending any kind of school. A variety of organisations, such as the Veterans Administration, the state employment service, and vocational rehabilitation agencies, public and private, apply the same principles, tools, and techniques.

TRAINING AND STANDARDS FOR GUIDANCE AND PERSONNEL SERVICES

More than a thousand higher institutions of learning supply one or more courses for preparation in this field, although a much smaller number offer comprehensive training, or concentrated work leading to the master's or doctor's degree. Approximately 20 states require some form of certification for school counsellors paid from public funds and entrusted with duties in this area. Several learned societies are nationally engaged in studying goals for training, content and method, standards of licensure, and in fostering research and evaluation.

ORGANISATION FOR ADMINISTATION, SUPERVISION, AND PROGRAMME OF GUIDANCE AND PERSONNEL SERVICES

In the Federal Government the professional staff in the Office of Education carries on responsibilities in the guidance and personnel area, which includes not only resources in tools and techniques, research and evaluation, but also assistance to states which use funds under the Federal Vocational Acts to promote states and local programmes. Many Federal agencies, including the military forces, apply the principles of guidance and personnel work in their programmes and sometimes supply directly or indirectly services to individuals. Among these are specific programmes of the Veterans Administration, Office of Vocational Rehabilitation, and the Bureau of Employment Security.

Each of the more than 40 state departments of education has a special official assigned to the supervision and promotion of guidance and personnel services within these states. Some of these states have larger staffs with a wide variety of duties and responsibilities.

A local school system of considerable size may have a person with the title of director of guidance and personnel services, or a related title, who has staff responsibities for the supervision and development of

provisions in the individual schools of the system.

It is impossible to understand the American educational scene without taking into account the importance being given to individual differences. This movement has resulted in wide but uneven provisions for specific functions and trained staff to carry them out and in growing requirements for training and standards of competency. Guidance and personnel work pervades all educational endeavour from elementary school into post-school life and is found in large numbers of industrial, military, and other social and economic agencies. Well-organised professional societies, as well as the Federal, State, and local organisations, support the guidance and personnel movement and aid in its growth.

EXTENDED SCHOOL SERVICES

Types of Extended School Services:—Modern schools are developing programmes to help children and youth use their leisure time constructively, through an extension of hours, after school, on Saturdays, and during the summer months. In many instances it has become necessary to provide services for children whose parents are employed outside the home. Under the direction of the school staff, school buildings and equipment are used to provide children living in crowded city areas with opportunities for companionship and worth-while recreation. Whether for an hour or two in the late afternoon or for a 6 to 10 weeks' period in the summer, the extended service provides an opportunity for children to enjoy games, crafts, dramatics, music, art, and other creative activities.

Another type of extended school service benefits younger children through the establishment of nursery schools, play groups, or children's centres. Eagerness of parents to profit from the body of scientific knowledge on the development of children has been a major factor in the growth of these services for young children. Nursery schools, largely initiated by parents, supplement home guidance and provide a good environment for the physical and emotional development of young children.

Support:—Although only a few states provide financial assistance to local schools for extended school services, they are encouraged to plan year-round programmes both by extending hours and by including more age groups. During World War II, centres which were established with Federal aid to care for children of employed mothers also safeguarded and strengthened home life. Again, as the country is mobilised for national defence, extending school services for children is considered an important measure in facing a national emergency. When fathers are away from home, perhaps on the firing line, more mothers are employed; when families are on the move or live in crowded areas, special services are needed to give children a better environment for living. Parents, teachers and citizens are cooperating in planning and operating programmes which make the community a good place for children.

VISITING TEACHER SERVICES

The modern school aims at giving every child a school experience appropriate for him. Sometimes it is impossible for the teacher to give each child in the groups the individual help he needs. In every school at least a few children have problems which make them unable to make good use of opportunities the school offers. Because of these difficulties, they may fail in subjects, tend to be aggressive and anti-social, withdraw from both children and adults, stay out of school and develop symptoms of illness.

To help such children make a better adjustment, the school often has a visiting teacher or school-home counsellor on its staff. This specialist works with the child who has difficulty in school, as well as with his parents, teacher, principal and school nurse. As another source of help, referral may be made to a social agency in the community which knows the child and his family.

DEVELOPMENT OF SERVICE

Visiting teacher services have grown out of a new attitude toward enforcement of

compulsory attendance laws. A greater understanding of reasons for maladjustment in school children has resulted in studying the causes of children's difficulties rather than in strict enforcement of attendance laws.

Public schools differ in the type of guidance services provided, but cities of 10,000 or more frequently have a visiting teacher on the school staff. Although recent surveys indicate rapid growth in this programme, expansion of visiting teacher service includes teacher training, classroom experience, and specialisation in school social work.

STATE PROGRAMMES

Six states have enacted legislation establishing visiting teacher programmes on a state-wide basis. With state funds available, local schools often add a visiting teacher to their staff, and gradually replace the attendance officer with staff trained to understand children and the problems related to emotional and social adjustment.

PARENT EDUCATION

Modern schools find that they can no longer guide a child's education successfully unless teachers and parents work as partners. When parents have a part in the school's programme, they understand what children are learning and how the home can help.

In order to establish good home-school relationships, many schools have developed parent education programmes. These programmes have come about largely because parents themselves are in search of help and desire to profit from what is known about children's growth and development.

Schools provide opportunities for parents through study groups, guided observation of classroom activities, visits to community agencies, parent-teacher conferences, and committee work, films, exhibits, special parent-teacher projects, such as curriculum or report card revision, and many other activities which bring parents into the school programme. Usually the entire staff assumes responsibility for working with parents. However, large school systems have a parent education consultant or coordinator of home-school relations to help the regular staff develop ability in working with parents and community leaders to train lay leaders, and give professional guidance to the Parent-Teachers Association.

Two states—New York and California—have established a special division of parent education in the state department of education to assist local schools in developing more effective programmes with the early childhood education programmes.

HEALTH SERVICES IN THE SCHOOLS

The American school is more and more recognising and accepting its responsibilities for helping children, youth, and adults live fully, healthfully, and safely. School people work with their colleagues in public health and in medical, dental and other health professions, to develop broad programmes of health education.

Health services are directed toward determining individual health status, taking steps toward encouraging children to maintain their good health status, toward correcting remediable disabilities, toward adjusting to correctable conditions, and toward developing a positive outlook on medical, dental, nursing and other health services.

MEDICAL AND DENTAL EXAMINATIONS

Effort is being directed toward more thorough, and therefore more time-consuming, medical and dental examinations of boys and girls. Where resources are limited, it is considered better to give thorough examinations. A commonly accepted objective in the schools of the United States is for each student to be given a medical examination upon entrance to school and about three times thereafter during his elementary-secondary school career. Provision is also made for children who give evidence of needing them to have additional examinations—as shown by observation of teacher or nurse, by lack of progress in school, or by other means.

Generally, effort is made to have candidates for athletic teams in high school or college examined before each season of competition or at least once during the school year before the period of athletic participation.

TEACHER OBSERVATION AND SCREENING

The teacher who sees the child day after day and who observes him under many conditions is in an advantageous position to learn about his health needs. Increasingly, teachers, particularly in the elementary schools, are asked to watch the health status of their children and to record and report significant conditions.

Many teachers, often with the help of the school or public health nurse, carry out "screening observations"—that is, they measure pupil's height and weight periodically, check vision and hearing, and make other nontechnical observations of health status. Teachers do not diagnose. They merely keep alert to note children who should be referred to the physican or other health service personnel who usually welcome the teachers' comments as helpful to a good examination.

FOLLOW-UP

It is wasteful for schools to have pupils examined by physicians and dentists and observed and screened by nurses and teachers without following up the findings. In many communities, schools are working with other agencies to encourage parents to provide for medical care of children who have disabilities, and to find resources to care for children of indigent parents.

OTHER HEALTH SERVICES

Certain health services have been receiving particular emphasis through:

(a) Programmes for reduction of incidence of dental caries by applying sodium fluoride to the surfaces of the teeth or by fluoridation of community water supplies.

(b) Programmes for diagnosing and treating children with defective vision.

(c) Programmes of audiometric testing, diagnosing and treating children with impaired hearing.

(d) Programmes for dealing with special endemic health problems in the community that affects school-age children.

INDIVIDUAL GUIDANCE AND COUNSELLING ON HEALTH PROBLEMS

From information gained through the health services, adjustments in the school programme, such as seating, rest periods, and modified physical education, can be made for children who need them. Health teaching can be personalised when the teacher has information about a child from health examinations, home visits by the nurse, health history, the teacher's own observations, and the results of many other health services. All of these enable the teacher to help the child to recognise his strong points and his health needs and to improve his health practices.

HEALTHFUL ENVIRONMENT

A nation-wide programme of construction of new school buildings is now under way. In the design and construction of these buildings, many features favourable to healthful, safe, and comfortable living are being provided. Because school construction has not kept pace with increased enrolment, many schools are faced with problems of overcrowding and other unhealthful conditions.

In many places school administrators and teachers, and sanitary engineers and other members of state and local health departments are working together to improve school environmental conditions.

HEALTHFUL SCHOOL LIVING

In many schools, and particularly in the elementary grades, the mental and emotional health of teachers and students is being given careful consideration. Better human relationships are being stressed. Many traditional practices, such as home work, school schedules, and grading and promotion policies, are being revaluated.

HEALTH INSTRUCTION

To-day's schools in the United States are, on the whole, making good progress in providing significant experiences through which children will learn to live healthfully in home, school and community.

Children are encouraged to base their health practice on accurate information about health and disease, to assume responsibility for their own health and the health of others, and to achieve emotional stability.

A larger number of high schools are now offering separate courses in health education. Formerly in these schools—as is still the case in many—health was integrated into other courses in the curriculum, or taught in combination with physical education or other subjects. In a few high schools organised on a "common learning" or core curriculum basis, health is made part of the "core."

Teaching materials to aid functional health teaching are being provided in increasing amounts, such as textbooks varied in reading level and subject-matter content, films, charts, models and pamphlets.

A growing number of schools offer instruction in mental hygiene and sex education. Those programmes seem to be the most successful that bring parents and other community members into the planning and that have their support and cooperation.

There is increasing recognition of the importance of physical education and recreation in the social and emotional development of children and youth.

COORDINATION OF SCHOOL AND COMMUNITY HEALTH PROGRAMMES

Co-operation at state and local levels:—The pattern of administration of school health services varies. In some communities — mainly large urban centres — the school boardemploys physicians, nurses, and other school health personnel. In other cities and many rural areas, the local health department provides the service. Most school health service is preventive, but some local systems do provide limited corrective services, usually dental corrections, for children of indigent parents. Recently a few states have provided funds through the state department of education to local communities for medical or dental treatment of indigents. These funds are used to supplement treatment services for indigents that are provided by state and local departments of public welfare, by maternal and child health and crippled children's programmes, or other services from state and local departments of health, or by other governmental agencies.

An important development in recent years has been the formation of official groups to encourage coordination of services and thus avoid unnecessary duplication. Almost all states and many municipalities have an interdepartmental committee on health education, or some similar unit. The membership of such groups includes representatives from departments of health, education, public welfare and others.

Community health councils or school-community health councils composed of representative citizens, school and public health people, physicians, dentists, and parents have made rapid growth. Members work together to solve local school and community health problems and to improve conditions affecting health and safety. Often these councils are related to a larger council that deals with over-all community problems. Within many schools a similar groups works cooperatively on health problem of the immediate school neighbourhood.

THE SCHOOL LIBRARY

Libraries are an integral part of the elementary and secondary school. School libraries are growing rapidly in number and importance. According to data based on statistics collected by the Office of Education, there are at least 28,000 centralised libraries in the schools with about 50,000,000 volumes and more than 440,000 classroom collections.

In the library, elementary school children find instructional materials that enrich their study, attractive picture books that provide

art experiences and often practical information, and an abundance of easy-reading books that provide satisfying experiences to beginners eager to use their newly acquired skill and curious about the wide variety of information thus made available. Boys and girls in the high school, on the other hand, find biography, history, science, and literature to challenge their thinking and extend the subject far beyond the school curriculum. Many of these books are on an adult level, but within the interest range of youth.

Books and materials organised and arranged according to the Dewey Decimal Classification and a catalogue of library resources in elementary and secondary schools help children become independent in using the library.

Simple library procedures soon become familiar to small children. The use of the library is taught as soon as pupils feel the need to find materials in relation to their own individual interests or to group interests. The lessons may be taught in class groups or to individuals. Often children begin to distinguish between different types of picture books in the kindergarten. As they progress, they need to find information like the names of other books by the name of the author or the names of books about an area of interest, such as electricity, airplanes, music, baseball. Later, the use of common reference books and magazine indexes is necessary for study in school or for work with a hobby at home.

Helping children develop wide reading interests is an important objective of the library. Children of almost every age group and level of reading ability find books to suit their needs and interests in school and out; thus books further pupils' self-education. Through wide reading under the guidance of teachers and librarians, children learn to evaluate information, improve their reading ability, and gain an appreciation of books.

The trained librarian is important to the school's library programme. She is informed about teaching materials and professional literature and makes this knowledge available to both teachers and pupils. She is aware of the activities of pupils and teachers in relation to library resources and serves constantly as a consultant to individuals and groups, undertaking new units or studying outcomes of their work. She is alert to the school's needs for different types of learning materials and secures these for the individual or group through purchase or loan. Is is important that the librarian's personality be such as to create a stimulating atmosphere in the library.

INSTRUCTIONAL RESOURCES

In American schools, a wide variety of instructional resources are used. Teachers in most schools supplement the textbook with many other types of learning aids. Children are taught to find information about studies from varied sources and materials. They are helped to use and evaluate these materials according to their interests, problems, and needs for knowledge and understanding.

Among the types of materials and activities used are:

(1) *Reading materials*: text-books, supplementary books, encyclopedias and other reference books, pamphlets, magazines and newspapers.

(2) *Audio-visual materials*: specimens, models, television, radio, recordings, films, filmstrips, slides, pictures, charts, graphs, diagrams, maps and globes.

(3) *Apparatus and equipment*: machines, tools and laboratory apparatus.

(4) *Supplies*: paper, paint, clay, crayons, metal, yarn, ink, paste, chalk, wood, and many others.

(5) *Pupil-made materials and activities*: construction, drama, art, music, dance and literature.

(6) *Community resources*: field trips, field studies, surveys, service projects, interviews, and visitors.

The preceding list indicates the range of materials and ways they may be used to aid learning. Materials, like methods of instruction, are used to achieve the specific purposes which teacher and students have in mind.

In the selection and use of instructional materials, teachers try to provide pupils with opportunities for as much experience as possible. For example, a teacher might use several ways to help students learn how a garden is planted and maintained, including:

(1) *Direct experience*: The children plant and take care of a school garden.
(2) *Field trip*: The children visit a truck farm and have a more direct experience if they interview the farmer.
(3) *Motion pictures*: The children see work on a truck farm and hear the farmers discuss their problems.
(4) *Still pictures and charts*: The children see pictures of work on a truck farm and study a record of production.
(5) *Words*: The children read an account describing vegetable farming.

Text-books and other printed matter for pupils today are designed to appeal to the interests of the age groups for which they are published. The many illustrations, which are often in colour, may be photographs or artists' drawings. More and more authors and editors are adapting books to the reading abilities of pupils who will use them.

EFFECTIVE USE OF MATERIALS

Two types of planning are essential if instructional materials are to be used efficiently: (1) the teacher and students plan together for a unit in which major problems and related experiences and materials are agreed upon; and (2) the teacher plans in advance for the use of essential basic learning aids in order to make sure that needed equipment is available, distracting elements are avoided, and necessary arrangements are made.

TEXT-BOOKS

Although text-books are considered only one of many instructional resources, the fact remains that many teachers are greatly dependent on them. This dependence is usually due in part to the meagerness of resources and even more to the inability of teachers to recognise and use available instructional aids. Generally speaking, text-books play a more prominent role in high school instruction (grades 7 to 12) than in the elementary grades. In some schools the course of study for a given subject is still determined by the contents of the text-books.

Most of the text-books used in schools in the United States are produced by private publishing houses. The variety and number of books used by students in all levels of education make text-book publishing a large-scale business. With one or two exceptions, state departments of education exercise no direct control over text-book publication However, publishers keep in close touch with school programmes to determine the type of books which will be needed. Furthermore, most authors of text-books as well as many of the staff members of publishing firms have had experience in education.

More than half the states either select the text-books which are to be used by the public schools, or have a list of text-books which are approved for use in the schools. State selection of text-books is made in different ways in different states, but usually by a state text-book commission appointed by the chief state school officer or the state board of education or both. In the remaining states, text-books and other instructional resources are selected by the local school authorities, often with recommendations from committees of teachers and supervisors, and in numerous instances by individual school staffs.

Free text-books are provided pupils in most states and cities, and the trend is moving in this direction. In about one-third of the states, the text-books are furnished to all pupils by the state. In about a dozen states, purchase of free text-books is divided between the state and local school districts or counties. In approximately 20 states the text-books are supplied by local units, such as the county, city, town, or school district.

Editorial

Extra-academic considerations

THE deplorable state into which our Universities have fallen is illustrated by two important recent pronouncements. Sri G S. Bajpai, in the course of his convocation address to the Karnataka University graduates, observed that there was little correlation between the types of graduates produced and those needed by various professions. He was inclined to take the view that some kind of correlation should be established, even though it might mean a limitation on the number of those to whom University education might be imparted. Another pronouncement from high quarters in Bombay suggested that high standards in physical culture should be made one of the qualifications for admission to the University. The extra-academic considerations which are increasingly brought to bear on academic matters nowadays clearly show that our statesmen are facing considerable difficulties in meeting the greatly expanded demand for University education. They are trying to solve it by denying it to all those on whom their political favour does not fall. Whether there are other ways in which they can be solved has been discussed in three interesting talks recently arranged by the A.I.R., Madras. They surveyed respectively the provision of more colleges, the resources of private study and the use of evening classes. These are the lines on which pressure on the universities may be sought to be relieved. The easier alternative of restricting admissions and imposing communal and political preferences is fraught with disastrous consequences.

Backward Pupils

The September issue of *The Journal of Educational Research* contains two interesting reports about backward students. In one, Jesse A. Bond of the University of California analyses the factors adversely affecting the scholarship of high school pupils. The reactions of 225 pupils were studied in respect of the reasons for the gap between their potential and actual scholastic achievement. Some of the causes listed for backwardness are significant. Many pupils complained that tney found it difficult to read efficiently and to remember and apply what had been read. In either words, they experienced serious difficulty in thinking and expressing themselves through words. Some indeed declared that they preferred to learn and express themselves through other means than words. Lack of persistence in working at hard tasks was another important cause of backwardness. So it has been suggested that pupils should be taught to derive values from working in unfamiliar fields and performing difficult and sometimes distasteful tasks. Daydreaming, another of the reasons suggested, might have been more an effect than a cause of backwardness. Qlenn G. Martin of Santa Monica City College gives an interesting report about interviewing the failing student. 'Lack of motivation' accounts for as many as 24% of the backward pupils interviewed. Many of them seemed to have just drifted into courses they did not care for. Another 16% gave evidence of poor study techniques. To many of them, it did not at all appear that study demanded an active role from them. "Questioning soon brought out the naive assumption that one reading satisfies all obligations in the matter—after that the responsibility rests entirely on the instructor." Interviewing the students about their backwardness had some morale effect which stimulated attendance and persistence, but it did not lead to scholastic improvement. Evidently the roots of backwardness lie very deep, and the problem can be solved only by patient collaboration among the pupils, their teachers and their parents.

How Science should be taught.

Professor T. L. Green of the University of Ceylon has made a stimulating survey of science teaching in Ceylon in a recent issue of *The Ceylon Teacher*. The diagnosis that he makes of conditions in Ceylon reveals to us a state of affairs similar to that in India. In Ceylon, as in India, science teaching is "abstract, formal and unpractical." As Professor Green observes, "Science" is looked upon as a body of knowledge to be remembered, never as skills, experiences, attitudes, or resourcesfulness to be gained through doing. Project work, model making, the building of make-shift apparatus, metal shops and wood-working hobbies, model train clubs, model aero clubs—there are few if any of these things : there is no 'fun' in science." Yet another feature that he notes is that school science in Ceylon is bound by

a syllabus copied from the West and that it has little or no relation to the local environment.

This truly deplorable state of affairs is traced to foreign rule both in India and Ceylon. Professor Green is unwilling to lay too much stress on this. He would trace it to other factors in the life of the people and here too his analysis is interesting, though we cannot agree with it. He includes among these factors the conflict between objective science and the religious beliefs of the East, the low status afforded to the practical worker, the verbal tradition in education, the search for government jobs, the lack of concern about individual social conditions and the antipathy to social mobility which conflicts with the ideas of caste and predestination. Here we have simply a jumble of many things which the average Westerner finds irritating or ununderstandable in the life of Eastern peoples. There is no particular conflict between the religious beliefs and objective science in Eastern countries, not even such a conflict as obtained between, say, the Bible chronology and geology in 19th century Europe. The alleged antipathy to social mobility has not prevented the rise of a factory system, or the growth of plantations in Ceylon. The passion for government service is a common ambition of the educated classes both in India and Ceylon, not only because government continues to be the greatest employer of labour in both these countries, but also because the kind of education provided in schools fits students only for clerical jobs in the government. In fact, it cannot be gainsaid that the educational systems of dependencies were intended mainly to get candidates for subordinate posts in administration. Science teaching here seems fruitless because we do not have industrial systems which can absorb scientists. Of course, we have here a vicious circle in the reciprocal dependence of scientists and industry, but it is a problem which has to be faced by every country trying to industrialise itself. There is no necessary reason to think. as Professor Green does, that the students lack inventiveness, resourcefulness and creativeness because they are debarred from the experimentation and search for experience common in Western culture patterns. Here we seem to have a simple restatement of the popular Western view about the immobile East.

However, Professor Green's practical recommendations are of the utmost interest. He asks for a critical reconsideration of the syllabus in relation to social needs. He insists on more and better practical work. There is again the need to develop in schools informal scientific activities.

All these proposals are no doubt well conceived. But there will be a real and perceptible growth in scientific education only when technology advances in the countries concerned, and methods of production change. In the meanwhile, the more closely related science education is to the environment, the better it is likely to be.

News and Notes

The 27th All India Educational Conference will be held at Nagpur from the 27th to the 31st of December 1952. Professor Diwan Chand Sharma, M.P., and Head of the Department of English in East Punjab University, will preside. Sri V.K. Dube, Vice-Chancellor, Nagpur University, is ceairman of the Reception Committee.

Further particulars can be had from the General Secretary, All India Educational Conference, C/o Bharat Guides and Scouts Office, Dhantoli, Nagpur.

We have received a communication from Sri C. Krishnaswamy Rao, Secretary of the Moral and Religious Education Section of the Conference, inviting papers to be read. There will be a Symposium on the Questionnaire issued by the Secondary Education Commission so far as it relates to Moral and Religious Education. The relevant questions ask for opinions on the place of moral and religious instruction in Secondary Schools and methods of organising such instruction, alternative ways for character building and training in leadership, and measures for ensuring better discipline in schools. Papers may be sent to the Local Secretary, Professor S. M. Kulkarni, M.A., S. B. City College, Nagpur, so as to reach him before the 20th December.

A Diagnosis and Remedy of Carelessness in Children

By Sri K. Sathyanarayanamurthy, *Headmaster, Board High School, Nagari.*

THE disease of carelessness has been spreading so rapidly that it can now be said to have gained the proportions of an epidemic. Unless proper steps are taken, its toll may increase and result in a greater fall in standards.

The method of diagnosis of the disease is quite easy for a careful teacher or parent. But more often than not, a curriculum conscious teacher or a busy parent may mistake anything for carelessness. A wrong application of a grammar rule or not rewriting an exercise properly or not doing any household duty or absence or playing truant from home or school etc. are beset with so many other sidetracks that the child cannot be dubbed careless on any one or two counts only. It is a complex affair. The child has to be studied under different situations before the diagnosis is confirmed.

I tried the following method in my school; it is one way, but a novel, simple way, and I request the teaching world to give it a fair trial.

The quarterly examinations of my school began on 8-9-52. On Friday, 5-9-52, I announced to the children in the morning assembly class that they should prepare answers to all questions of all subjects during the holidays and bring the "holiday work" on the reopening day (29-9-52) We had examinations from 8th to 17th September and holidays from the 18th to 28th. The children had 11 days' time to prepare the answers. They were offered 5 marks gratis for a well-prepared "holiday work" of each paper.

Also, the masters were specially requested to complete the correction work as early as possible and return the answer scripts to children so that they might know the scope of the answers expected. However, even without them, the children could prepare answers with the help of text-books, study circles or squads as they are now called. This affords an opportunity for extension of citizenship activity outside the school. I was ready with my work, sitting in the verandah of the school, giving the children the answer papers (corrected) as they came, and discussing any doubts with them during the later part of the holidays.

Some children finished their holiday work much in advance—really careful children. I was anxious to know how many of my V Form pupils would do the work. I deliberately chose V Form because VI Form pupils necessarily prepare for the public examination, and it would be confusing the issue.

The bonus or a maximum of 5 marks was to be given to the "holiday work". It was left to the examiners to award 1 or 2 or 3 or 4 as the case may be. Zero was to be awarded only for those who were absent on the reopening day or those who did not do the work. One who was absent on the reopening day by an unavoidable circumstance sent his holiday work through a friend—the child was on the right road to responsibility.

I was visualising within myself the working of the school on the reopening day. To facilitate the award of 5 marks for the holi-

day work, all teachers must return the answer papers on the reopening day, as otherwise the carefulness and responsibility which we want to develop in the child would be found wanting in the masters themselves. The children were made to assemble form-wise and show their holiday work in an orderly manner. It was a very pleasing sight to see the children coming to the examiners and taking the answer scripts and also getting the marks for holiday work.

I may also point out here that such a method prevents the careless habit of children in our schools, absenting themselves on the reopening day of the school.

One young man who always argued for arguments' sake pointed out that the child would have no freedom during the holidays for pursuing his hobby, or improving his games etc. I feel that it is a lame excuse. The child can have enough time for such pursuits even after his holiday work is completed.

Let me point out the result of the experiment in V Form of the school. Out of 90 children, as many as 30 did not take up the work. When questioned why they did not do it, they answered with a smile of carelessness that they had " work "—what work it was God only knows. This serves as the temperature reading of the thermometer of carefulness.

Do not standards fall if the pupils do not apply themselves to their duty sincerely? I therefore feel that if this holiday work be continued sincerely, we stand to gain in many ways.

I request other institutions to give it a fair trial.

Printed by C. Krishnamurthi at the Ramakrishna Printing Works, 19-B, Woods Road, Madras-2. and Published by M. R. Sampathkumaran M. A., 14/A, Sunkuwar St., Triplicane, Madras;
Hon. Editor : **Sri A. N. Parasuram, M. A.**