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Editorial Notes

Engineering Education:

Great attention has recently been focussed on the needs of and facilities for Engineering Education. Several proposals are under consideration as to the manner in which such education should be provided.

Emphasis is laid on the need of certain standards of technical education to qualify one for selection to certain posts in public or private service. But the standards imposed are often much higher than is necessary for the posts, or was required formerly. To provide those standards of education several institutions have recently arisen. Stringent requirements are imposed for entry into those institutions which have official recognition.

The enticement of the prospects of a secure and lucrative service draws applications from many candidates for entry into those Institutions and the fees imposed for consideration of those applications and the fees for examination of candidates are a source of profitable income for those Institutions.

While education of a high standard is an asset, employment of a highly educated person in a post requiring less knowledge than that for which he is educated may be looked upon as an "exploitation" of highly educated personnel.

The demand for education beyond that actually necessary, the imposition of excessive fees: for provision of such education,
for admission examinations,
for consideration of applications,
all have a tendency to form a kind of "blackmail" on aspirants to those posts.

There must be some fair relationship between the requirements of the post and the standard of education required for admission to it.

Facilities should be provided to employees in lower posts to obtain, during course of service, the higher education that is deemed necessary for the higher posts. No employee should be doomed to service for life in a lower post because of his initial standard of education. And no one should be debarred from appointment to a lower post because he has not the education necessary for a higher one.

Apprenticeship Training :

Due to the demand for a standard of education beyond actual requirement many students spend many years in educational Institutions unprofitably while they could have been usefully employed in engineering concerns, had they been given the opportunity; and on completion of their education they find to their own discomfiture that they are treated as unsuitable for a job because they are less conversant with certain operations than an ordinary workman who has had no technical education. Blame for this is generally cast on the educational institutions. But that is not right. For if an ordinary workman can learn by experience certain operations without technical education, so can an educated graduate or Diploma holder. It is wrong to expect him to be conversant with operations that require experience, if he is not provided with that experience.

An educational institution can only supply theoretical knowledge of principles, and mere descriptions of best practice. It cannot provide the experience. Opportunity for experience must be given by practical training through apprenticeship.

Apprenticeship is not easy to obtain. Even after passing qualifying examinations of the Board of apprenticeship training many are unable to secure an apprenticeship. There is no compulsion on any firm to provide apprenticeship for any one. Some do not take in apprentices at all. Some take in only a favoured few whose presence in the firm affords prospects of securing orders through the influence which the guardians of those apprentices are likely to bear. There is thus not equal opportunity for all, as there should be under our constitution, to obtain apprenticeship and employment.

There is here a basis for legislation and a strong need for it to enforce a system by which an adequate period of training may be provided for all

from whom technical education is required, and for the impartation of technical education to all who are employed in lower grades due to lack of education.

For every class of work there must be fixed a minimum ratio of the number of apprentices to the number of workers that may be employed, just as there is fixed by legislation a ratio of depreciation to Capital for income tax allowance; and a minimum wage for workers having any particular standard of education should be fixed according to the expense incurred in acquiring it.

Medium of Instruction :

There has been much discussion as to the language which should be the medium of education in this country. The question has evoked much emotion and temper followed by violent breach of peace. There has been conflict of opinion between idealist and practical men, between politicians with patriotism divided between state and country. Some are in favour of a single official language for the whole country, the language to be Hindi, others are in favour of retaining English as the medium, others again prefer their own regional language.

What they mean, however, and the cause of all the trouble is not really the language by which education should be imparted but that by which selection for appointment should be made.

There can be no doubt that the best means by which any one can be taught is by the language which he understands, and that anyone who wishes to make himself understood must speak or write in the language which the person listening or reading best understands. When a teacher explains any subject to a student he uses examples which the student can most easily understand. Similarly, the language he uses is the language the student best understands.

It is easier for a teacher to learn the language of a student than for a student to learn an unfamiliar language of the teacher. It is more economical for one teacher to learn a new language in order to teach many students a subject which he knows well than for many students to master an unfamiliar language in order to learn a totally new subject known only to the teacher.

The matter should be looked upon from this point of view, whether it be English or Hindi or a regional language that is under discussion and be given proper practical consideration before introduction of any regulating legislation regarding the language to be made the medium.

International Technical Co-operation in Atomic Energy—On the 16th January, 1961, at Trombay in the presence of International representatives including scientists and politicians India's second atomic reactor was inaugu-

rated for peaceful purposes by the Prime Minister of India, Sri Jawaharlal Nehru. The products of this reactor will be available to at least 20 hospitals and several industrial concerns for testing the safety and reliability of materials of construction. The scientific knowledge gained will be available to all nations.

This Reactor, the Canada-India Reactor (C.I.R.), has been established with the cooperation of Canada under the Colombo Plan at a cost of 10 crores and the responsibilities are shared by both countries.

This is in sharp and happy contrast to the ways of thought of those days when it was thought right to electrocute one for divulging one country's knowledge of atomic energy to another which was not even an enemy country. There was then fear that misuse might be made of that knowledge. But today it is thought that knowledge that is of benefit to mankind is best utilised when it is shared by all ; and its misuse is most likely to be prevented if all have the power and chiefly the desire to prevent it.

It is gratifying to note the great international cooperation represented at this inauguration.

SCIENCE CONGRESS.

The Indian Science Congress Association, founded in 1914, is as old as the Association of Engineers. From 1942, the Science Congress introduced a section called Engineering. It is time that Engineering should develop into a full-fledged Congress instead of remaining a section under Science Congress. Overseas Engineers may be invited to attend the Indian Engineering Congress. With the active co-operation of Engineers throughout the country it would not be difficult to organise the Engineering Congress.