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PROBLEM OF TEXT BOOKS IN ENGINEERING EDUCATION.

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(N.V.Krishna Warrior)  
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Since the dawn of history books have been the chief media of the dissemination of knowledge, and even after the electronic revolution this state of affairs is likely to continue. Hence in any discussion of education the problem of text books and books for additional reading should be given a place of importance.

In order to assess correctly the magnitude of the problem ~~of text books in Engg. Edu.~~ <sup>of text books in Engg. Edu.</sup>, we should form an idea of the rapid expansion of Engineering and Technological education in our country. In 1950-51 there were 31 Engineering colleges in India. The number of these colleges shot up to 106 in 1969-70. The number of Engineering and Technology students ~~xxxxxxx~~ ~~xxx~~ at the University level in 1950-51 was 12,094. In 1967-68 this number went up to 1,04,266. Owing to subsequent restrictions in admission this number went down to 97,889 in 1969-70. It does ~~not~~ seem likely that this number may not be reduced substantially in the near future. On the contrary, if the schemes for generating more jobs are successfully implemented, considerable expansion in the Engineering and Technological education may come about as corollary.

In 1960-61 the University Grants Commission gave as grant rs. 9698412.00 for Engineering and Technological Education. Within ten years, in 1969-70 this grant went up to rs.2,68,13,687.00. The resources which went to this field from private and state sources are in addition to this.

The above statistics relate to education at the University level. I do not have figures relating to Polytechnics, Junior Technical schools, I.T.I.s and other Training institutions in which Engineering and Technological Education is imparted at Diploma and still lower levels. Though lower, they are ~~also~~ very important sectors of Engineering and Technological education.

The purpose of the above discussion is to show the enormous number of students and teachers involved in Engineering and Technological education in India and the amount of national resources being diverted to this field year after year. This is as it should be, for our traditional and utterly poor society can be modernised and enriched only by massive use of Technology. And massive use of Technology presupposes technological Education on a mass scale.

University education in India is mostly dependent on foreign books, and the dependence on foreign books is the most in Engineering Education. In 1971 Sri U.S. Mohan Rao made a study of the syllabi of 15 Universities in India to discover the proportion of Indian and Foreign books recommended for reading and reference in different disciplines both at the undergraduate and postgraduate levels. He found that in Engineering and Technology, out of a total of 237 books listed, only 14 were Indian.

Now, the use of books written and published abroad is inevitable to some extent, especially because the concepts in technology being the same all over the world, a good book published in one country should be useful in any other country. But most of the foreign books are oriented to the methods of teaching, approach to subjects and the scope of syllabi in the countries of their origin. The purpose of technological education is the solving of our problems, which may be very different from the problems obtaining in developed countries from which we import most of our text books.

There are very capable teachers in India, who, given a chance, will certainly prove to be capable authors of standard text books. Now their talents are mostly unutilised and sadly running waste.

Education at the University level is in somewhat better position, for it can at least depend on foreign books. But education at Diploma and still lower levels is in a very deplorable state, for ~~they have~~ the students at these levels have largely to go without any books. They are entirely dependent on hand-written notes dictated in class ~~room~~ rooms. The utter lack of ~~books~~ books on technological and engineering subjects in regional languages which could be easily understood by students at diploma and lower levels and also by artisans actually engaged in work has been bedevilling our attempts at imparting technological and engineering knowledge to our young men, and has stood as a bulwark against rapid social change towards modernisation.

Our national Policy on Education is to introduce regional languages as media even at the highest level, and in some states this policy has been ~~implemented~~ already implemented while other states are proceeding along the same road at ~~va~~rying speeds. Still, the medium of Engineering education at the highest levels, for some time at least, ~~may~~ But instruction at polytechnical and lower levels is at present mostly in the regional languages and this process now cannot be reversed.

This means that we will require in the near future two types of text books and books for additional reading on Engineering and technological subjects. We would require books at graduate and post-graduate levels, which may be either in the regional languages or in English, but which should be fully oriented to Indian conditions and Indian need. More than this type of books, we would be requiring a large mass of books at the diploma and lower levels, both as texts and as additional reading material. These books should be in the regional languages and written in simple style and full of illustrations.

To whom shall we turn for producing these books? There can be on one answer to the above question. It is the proud privilege and



sacred duty of the teachers in the Engineering and Technological institutions to bend their energies for meeting this urgent national need. Practising Engineers and Research Scholars can also be assistance. But the main responsibility of creating a corpus of Engineering and Technological literature in India should be borne by teachers of Engineering and Technology. During the time when India was under foreign domination, our teachers remained mainly as ~~purveyors~~ purveyors of second hand knowledge, and largely forgot the times when their ancestors composed classics on almost all branches of knowledge and expanded the horizons of human wisdom by their original contributions.

Now freedom has been ours- not only political freedom, but the freedom to mould our ~~destiny~~ national destiny and also the freedom to follow in the footsteps of those illustrious forefathers of ours who have ~~as~~ have made their immortal contributions to the field of knowledge. The world can never forget the contributions of Charaka and Susruta to medicine, Aryabhata and Varahamihira to astronomy, Bhaskara to mathematics, Kautilya to politics ~~and~~ ~~and~~ to law. and Sankara to philosophy.

The creative genius of India has been slumbering through long centuries. It is high time that this slumber came to an end. The awakening of the national genius, as the dawning of renaissance, expresses itself through a mass of intellectual adventures by a large number of people, small when taken singly, but assuming large proportions and gaining importance when taken collectively. I believe that India is at threshold of such a renaissance, and attempts now being done in all the States of India to vitalise our national languages by pouring modern scientific knowledge into them is a significant aspect of this renaissance.

It is for the teachers of Engineering Colleges and Technical Institutions to take up this challenge of the

Institutions to take up this challenge of the times. Let not their children have occasion to complain that when the call from the nation came, the present academic generation in India, which is being given a favoured and even pampered treatment out of all proportion in so poor a country, were found woefully wanting.

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