

truly a revolutionary. Like all great revolutionaries, he was a man of paradoxes: it was difficult to classify his views along accepted lines. He claimed to be a sanatanist, but advocated the equality of all castes; he was a lucid thinker, but an unhesitating dualist in theology; he dedicated his life to the economic and social upliftment of the masses, but unflinchingly advocated atavism in many fields of human endeavour; and finally, though the most doughty champion of the oppressed and the enslaved, he would have nothing to do with violent methods of emancipation.

The most outstanding achievement of Gandhiji, in the field of politics, has been the practice of truth. To him the means was far more important than the end. He has succeeded in showing to the world that diplomacy and tact can go hand in hand with honesty and sincerity of purpose.

Despite differences of opinion and ways of thinking, all men honoured him for his intense sincerity and enormous courage of conviction. His way of reminding the world, that no man has a right to possess more while another has less, was to lead the sim-

ple life of the poor in all its actuality; his way of asking men to be self-reliant was to weave his own cloth and cobble his own shoes; his way of preaching equality of men and religions was to live with them all in loving friendship. These demonstrations simple as they were, went far towards the promotion of self-respect among his countrymen and of peace between communities.

While India remains ever in his debt for his unrivalled leadership in the final phase of her historic emancipation, the world is grateful to him for the successful demonstration that political disputes between nations can also be settled in ways other than war—by moral force as against military might or machiavellianism, a method which spells failure to neither party, but like mercy, blesseth him that gives and him that receives. By this exalted method of persuasion Gandhiji exercised a power unprecedented in the history of mankind.

Let us hope that posterity will have no cause to accuse the men of his generation that his life and teachings were lost on them.

EDITORIAL NOTE

MISSIONS ON SCIENCE AND TECHNOLOGY

RECENTLY we have read an announcement that the United States will soon establish a Mission on Science and Technology in the American embassy at London. The object of the mission is to supply interested individuals and commercial firms with information on the latest developments in such fields as organic chemistry, biochemistry, physics, engineering, biology and agronomy, and to collect information on British developments for dissemination to government agencies and scientific societies in U.S.A. The mission will also assist in facilitating exchange of scientific personnel, develop and continue close personal contact with government agencies and research institutions in the United Kingdom, and generally stimulate exchange of reports of scientific and technological nature.

Such friendly contacts between different countries are of obvious benefit to scientists and technicians as well as to the people who depend on them for their material advancement. The establishment of such missions is, furthermore, one of the positive methods of promoting active co-operation in the international sphere. Countries like India and China, with enormous potentialities of economic development, the more technically advanced countries like the United States, Britain and Russia could, by establishing such missions, give a helping hand and accelerate their progress. The United States and Russia are in a particularly advantageous position in this respect, as the agricultural industry is greatly developed in the countries. With their help it is clearly possible to cut short the period of modernisation and to attain the peak of agricultural production and thus help in overcoming the critical shortage of world food supplies. We trust the Government of India will take the necessary steps for the establishment of friendly foreign scientific missions in India.

IMPROVING THE POSITION OF MATHEMATICS IN INDIA*

“It is not to our national interest to ignore the fact that the position of mathematics in the country is far from satisfactory”, observed Prof. M. R. Siddiqi in his Presidential Address to the Fifteenth Biennial Conference of the Indian Mathematical Society. Referring briefly to the glorious past that mathematics has had in India, he dwelt on the unsatisfactory present, analysed the causes therefor, and offered some useful suggestions for the future.

Recalling the past, Prof. Siddiqi said, “The whole civilized world acknowledges the debt of gratitude it owes to this great country of ours for its early pioneering efforts in systematic mathematics. The discovery of the numerals and of the positional notation in arithmetic are two of the most fundamental and far-reaching contributions made by this ancient land to the evolution of civilised society. It is hardly possible to calculate the innumerable benefits that the human race has derived by the use of the mathematical discoveries of our ancestors in this country.” He mentioned, in particular, the names of Aryabhatta and Bhaskara amongst the ancients and of Srinivasa Ramanujan of this age.

After this very brief reference to the past, Prof. Siddiqi deplored the fact that, at present, “compared to the size and the population of our great country, the number of mathematicians is much too small, and the number of those actively engaged in research is smaller still”, and that “there are hardly two people in the country working on the same subject”. He pointed out that the causes for this state of affairs are the defects in the present system of education, and the tendency of Government to encourage only “industrial research” losing sight of the importance of “fundamental research”.

“The present system of education”, said Professor Siddiqi, “introduces too early too narrow

a specialisation in the secondary school stage itself, and the young students naturally take up those subjects which enable them to pass the examinations easily, i.e., the arts subjects, or subjects for which there is more or less inflated market-value at present, i.e., Chemistry and Biology Of the students who take mathematics in the High School and Intermediate, the majority do so not because they are interested in the subject itself but because they wish to take a degree in Engineering or some other technical subject.” Students should not be expected to cram formulæ and reproduce them at examinations, nor should the specialisation be of the type of “knowing more and more about less and less”. A system of general education should be introduced with due predominance to mathematics. Reform is necessary even at the university stage, where “much valuable time and energy of the students are wasted in studying topics which have lost any importance that they once possessed”. Further, our educationists should appreciate the fact that “mathematics is woven inextricably into the structure of science and technology”.

As a possible line for future research in mathematics, Prof. Siddiqi suggested problems relating to the Foundations of Mathematics as the suitable trend for research in this country. He made a rapid survey of the growth of this branch of mathematics, and in doing so, he referred to the rigour introduced by Gauss and Cauchy, to the “arithmetisation” during the 19th century, and specially to the subsequent schools of thought, viz., the Intuitionistic school led by Brouwer and Weyl, the Logistic school of Russel, and the Formalistic or Axiomatic school of Hilbert. Prof. Siddiqi hoped that this branch of mathematics would prove congenial to our countrymen, who have “a reputation abroad for possessing an extraordinary flare for abstract philosophical speculations and reasoning”, and that “we may see some further developments in the subject in the near future”.

B. SEETHARAMA SASTRY.

* Extract of Presidential Address delivered by Prof. M. R. Siddiqi to the Fifteenth Biennial Conference of the Indian Mathematical Society, held at Waltair, on 22nd December 1947.

SOME ASPECTS OF PURE AND APPLIED WOOD ANATOMY*

FOREST wealth is one of our national assets endowed to us by bountiful nature. The towering giants of the Indian forests include species which yield us valuable timber. But in the absence of proper vetting much of this wealth may go to ruin. A sound knowledge of the interior make up of the trees is a *sin qua non* for the classification and understanding of our timber resources. Addressing the Section of Botany, Dr. K. A. Chowdhuri calls attention to the urgent need for sustained work in this branch of knowledge. Among the wide range of characters available to the anatomist only those that are not available are

of any use in classifying wood. Dr. Chowdhuri's studies lead him to believe that rays embedded in fibrous tissue show a remarkable constancy in their shape and of their component cells. Equally so are the ripple marks formed by the rays for quick classification of timbers of broad-leaved trees. The plastic characters cannot be ruled out as criteria of classification, but their limit of variation remains to be determined. Dr. Chowdhuri pleads for more work in this direction.

Thrown on our own resources during the war, we were compelled to look for local substitutes for imported timbers. A number of local timbers proved excellent substitutes: the Indian spruce (*Picea morinda*) and the silver fir (*Abies pindrow*) were found to be as good as Sitka spruce of U.S.A. and Canada for making aircraft.

* Extract of Presidential Address of Dr. K. A. Chowdhuri to the Botany Section, Indian Science Congress, Patna, 1948.