MATHEMATICAL EDUCATION IN SOUTH ASIA

An international conference on mathematical education, with special reference to countries of South Asia, was held in Bombay at the Tata Institute of Fundamental Research during February 22–28, under the presidency of Prof. K. Chandrasekharan, of the Tata Institute.

In his presidential address, Prof. Chandrasekharan suggested that difficulties in South Asia stem from an inadequate recognition of the value of creative intellectual activity as part of the drive towards prosperity, and put forward five proposals to enable the creative scientist to come into his own. First, the gifted research worker must be given a suitable working atmosphere and adequate financial support; this might be done through a system of research contracts set up by a government and administered by a national committee for mathematics. Secondly, the facilities for training students in advanced mathematics must be increased, by providing graduate schools for advanced study. Thirdly, courses of study must be integrated, and the present very rigid examination system radically modified. Fourthly, the teaching staff in colleges must be reinforced, and the teacher must be given more leisure, more encouragement, and more opportunity for keeping in touch with new ideas in mathematics. Fifthly, suitable text-books must be provided; if need be, a national text-book committee, equipped with adequate funds, must be set up to seek out competent authors and induce them to write the much-needed books. Finally, the school course must be revised and rendered more elastic, since creative mathematics cannot prosper fully unless the foundations are firmly laid in the schools.

Invited addresses were given to the conference by Prof. A. D. Alexandrov (U.S.S.R.), Prof. E. Bompiani (Italy), Prof. T. A. A. Broadbent (United Kingdom), Prof. G. Choquet (France), Prof. H. Freudenthal (The Netherlands), Prof. E. Marczewski (Poland), Prof. A. Oppenheim (Malaya), Prof. M. H. Stone (U.S.A.), Prof. Hsio-Fu Tuan (China). Some of these addresses dealt with the problems of mathematical education arising in the speaker's country, and described methods which are being used in the solution of such problems. Others dealt with the application of new methods in psychology to mathematical education, with new ideas in teaching arithmetic, and with the best way of beginning the teaching of geometry.

For detailed discussion of special questions, and particularly of the five points raised in the presidential address, members of the conference were divided into three working groups, one for the school stage, one for the bachelor's or master's degree stage, and one for the postgraduate stage. Each group discussed, in its relevant context, the aim of mathematical education, the ideal scope and content of the course, the recruitment, maintenance and training of the teacher, the mode of selection of the students at the higher levels and maintenance of such students, and the necessary facilities and equipment to be required. It was concluded that, at the schools, instruction should be closely related to the needs, the capacity and the interests of the pupil, and an integrated and simplified course, including some statistics as well as the traditional subjects, should be offered. At the universities, the degree course should meet the requirements of society in general, should train those intending to teach mathematics in schools or universities, and should begin the training of the professional mathematician. The postgraduate training should fit students for research and for the teaching of advanced mathematics; here a course of lectures in the most recent developments is essential, though no formal examination should be imposed. Examinations at the lower levels should be more flexible, no student should be asked to stake his whole career on the results of a single examination, written examinations should be supplemented by oral examinations and by an evaluation of the student's total performance; where possible, teachers should participate in the examination of their own students. The provision of text-books, scholarships, summer schools and seminars, and research contracts, was examined in detail, and specific recommendations were made.

The working groups reported interim progress to plenary sessions, from which further instructions were received. Finally, the findings of the working groups were incorporated in a set of resolutions presented to and unanimously adopted by the last plenary session of the conference. This session further resolved to set up a permanent small committee for mathematics in South Asia, under the chairmanship of Prof. Chandrasekharan; this committee would bring the resolutions of the conference to the notice of responsible educational authorities in South Asia, and press for the rapid implementation of these proposals. It is hoped to have on this committee representatives of India, Pakistan, Burma, Ceylon, Indonesia, Malaya-Singapore, and Thailand.

No member of the conference could fail to be impressed by the vast problems confronting the teachers of mathematics in South Asia, the urgent needs of the students in those countries, and the enthusiasm of their teachers. Perhaps because of the magnitude of the problems, the conference worked harmoniously, national and sectional interests seldom being allowed to intrude. But above all, the success of the conference was due to the knowledge, skill, organizing ability and driving force of the president, Prof. Chandrasekharan. He focused attention on special problems, induced strong and definite resolutions, and left no doubt in members' minds that great efforts will be made to have these proposals accepted and implemented by the appropriate authorities in the countries of South Asia.

SCIENCE AND PEOPLE

In his presidential address to the American Association for the Advancement of Science at Atlanta on December 28, 1955, Dr. Warren Weaver, of the Rockefeller Foundation, examined the influence of science on people (*Science*, **122**, No. 3183).

Science, he said, has impressively proved itself to be a powerful way of dealing with certain aspects of our experience. These are, in general, the logical and quantitative aspects, and the method works superbly for linear and stable physical problems in two or three variables. The physical universe seems to be put together in such a way that this scientific