

## The Silver Jubilee of the Indian Science Congress.

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IN the year 1914, the year notable in history as the beginning of strife, two British Chemists conceived the idea of uniting the various conflicting elements in the sub-continent of India, in a common devotion to the study of natural science. It is now 25 years since the Indian Science Congress was founded as the result of the inspiration of these two pioneers. Its membership has grown from a minimum of 270 in 1915 to a maximum of 800 on various occasions. The Silver Jubilee Meeting which is the subject of this article, attained a membership of approximately 2,300. During the period of 25 years whose close is celebrated by the Silver Jubilee Meeting the number of Sections has increased from 6 to 10. The Section of Agriculture was added in 1915, the Sections of Zoology and Ethnography combined, in 1917, and the Section of Medical and Veterinary Research in 1919. In 1921 the Section of Anthropology and Ethnography began, in 1925 the Section of Psychology, and in 1936 the Section of Physiology. The somewhat loose organisation of the early years has been converted into an ordered Association, with a defined constitution and membership, known as the Indian Science Congress Association. It may be fairly concluded also that other bodies devoted to various aspects of scientific inquiry as, *e.g.*, the recent Indian Statistical Conference in Calcutta owe their inception in part to inspiration derived from the Indian Science Congress Association.

Its influence on the output of research in India has been considerable judging by the number of papers contributed at the annual meetings. The total number of papers read in 1914 was only 35 from a membership of 300 or rather more than one paper for every 10 members. In 1935, 820 papers were contributed by a membership of 800 or rather more than one paper per head. 1935 represents the high watermark in membership and in the number of papers up to the present year, though other years have seen a greater per head production. How far this output of papers represents true scientific progress is matter for discussion but at any rate it shows a very considerable increase in zeal and

enthusiasm on the part of the younger generation of scientific workers.

The memorable meeting which has just closed gives perhaps a truer measure of the real advance which has taken place during the 25 years which have elapsed since the seed was sown by the pioneers. Among the intensive activities of the Silver Jubilee Week it is not easy to select those which were of fundamental importance, when nearly all were of interest. To obtain some idea of the work of the Silver Jubilee Week it may be convenient to classify these activities under various categories, namely, (i) Presidential speeches and addresses, (ii) Discourses by specialists on their own sphere of work, (iii) Joint discussions under a planned programme of subjects of special interest, (iv) Papers mainly contributed towards a specific objective, (v) Papers of miscellaneous interest, and (vi) Popular lectures by outstanding scientists. Apart from the various Addresses and Sectional Meetings and Discussions there were the Annual Meetings of at least ten scientific bodies. Added to these were lunches, dinners, garden parties and excursions.

It will be seen therefore that it is not easy to record in a necessarily brief article the outstanding impressions of such a varied gathering.

The opening addresses of the Vice-Chancellor of the Calcutta University in requesting His Excellency the Viceroy to open the Congress, His Excellency's own speech and, most memorable of all, the address prepared before his lamented passing, by the President elect, Lord Rutherford, all stressed the same ideal, the progress of India towards a higher standard of life and her contribution to world peace, through her emphasis on the spiritual aspect of scientific progress.

His Excellency pointed out that the aims with which the Indian Science Congress was founded were three-fold: firstly, to encourage research and to publish the results among scientific workers in India, secondly, to give opportunities of personal intercourse

and scientific companionship and thirdly, to promote public interest in science. These aims, he said, had been magnificently fulfilled.

In the exceptional interest taken by everyone, both scientists and laymen, in the wonderful advances associated with the name of Rutherford, it is sometimes forgotten that of late years, in addition to his main pre-occupation with research in pure science he has also, as Chairman of the Advisory Council of the Department of Scientific and Industrial Research, been closely connected with modern industrial developments in Great Britain. One half of his address was concerned with the subject of industrial research and there is no doubt that his references to the needs of India in this respect will be carefully considered.

Sir James Jeans in his Inaugural Address as President of the Congress, paid a magnificent tribute to the genius of Rutherford, speaking of him as the Newton of Atomic Physics. In the absence from his career of any bitter controversy, Rutherford was indeed more fortunate than Newton. "He was ever the happy warrior, happy in his work and happy in its outcome and happy in its human contacts." After a generous appreciation of the work of outstanding Indian Scientists Sir James devoted most of his address to reading extracts from the address prepared by Lord Rutherford prior to his passing.

Following the opening addresses, His Excellency conferred the Honorary Silver Jubilee Membership of the Indian Science Congress Association on a number of distinguished scientists, both Indian and European.

The addresses of the Sectional Presidents were necessarily of specialist interest and are not easily summarised by an outsider. Even Dr. Normand's address to the Section of Mathematics and Physics on the 'Sources of Energy of Storms,' is rather hard reading for the non-mathematically minded. Dr. Bhatnagar's address to the Section of Chemistry on a 'Survey of Recent Advances in Magnetism relating to Chemistry' is based on 204 references and the mass of information collected is somewhat overwhelming.

The impossibility of attending each day during the Week more than a certain chosen few of the great number of addresses and meetings available for attendance makes it also impossible to refer to all the numberless items of interest, which must have been brought forward during the meetings. Therefore those referred to in this article must necessarily be mainly such as came within the purview of the writer.

The second category, namely, discourses by specialists on their own sphere of work were undoubtedly in every case a privilege to listen to. The only one of these which the present writer was able to attend was by Professor E. C. C. Baly on his recent work in Photo-synthesis, and was a fine example of the closely critical methods which have to be followed if research in this field is to be established on sure foundations.

The discourse of Professor F. E. Fritsch on 'The Nature of the Subterranean Algal Soil Flora' prefaced an exceedingly interesting and prolonged discussion introduced by Professor M. O. P. Iyengar of Madras on algal problems peculiar to the tropics, with special reference to India. The discussion lasted the whole of one morning and malaria experts, chemists and engineers all spoke to the subject. Unfortunately no really satisfactory solution to the numerous problems ranging from malarial control to corrosion of condenser tubes seemed to be in sight.

Another discussion of great interest was held under the Chairmanship of Sir Henry Tizard, the subject being 'Chemistry and Industrial Development in India'. The speakers were rigidly confined by the Chairman to speeches of 5 minutes duration bearing on specific points which he had chalked out on the blackboard. In consequence the discussion was lively and useful, emphasis being laid on the training of students with a view to developing 'machine sense' or 'technical sense' as it was variously described, and on the need for collection of satisfactory data concerning production in relation to possible markets.

A discussion on the attractive and important subject of River Physics did not actually take place since the preliminary

papers, although of great interest and value, were too long and too specialist to permit of any immediate consideration.

The experience gained through the above-mentioned, and other more or less successful discussions, *e.g.*, 'On Colloids in Biology, Medicine and Agriculture' and 'The Absorption of Salts by Plants' will doubtless be useful in arranging future programmes. There can be no doubt that these discussions are of the greatest interest and value but for their success they need careful "planning". The introductory papers should be short and available to speakers in advance. The speakers should be chosen for their knowledge of the subject and also, if possible, for their capacity of "putting it across" to the audience, in such a way as to stimulate further discussion and research and not merely to add more facts to those already submitted.

A similar observation might be made with regard to the more or less routine papers submitted to Sections. In the Chemistry Section there was a total of 221 papers of which 137 came under the head of Organic and Biochemistry. Clearly justice could not possibly be done to such a list and a definite resolution was passed in the Committee to select in future for actual reading only such papers as were clearly of importance and of general interest.

The need for greater contact between activities of scientific bodies and the lay public has been emphasised of late years in the programme of the British Association. The Indian Science Congress Association is evidently following this example. The numerous important "Discussions" are a move in this direction and at every one of the public lectures the Senate House of the Calcutta University was filled 'to capacity'. Naturally such names as Eddington and Jeans were an unfailing attraction. Large audiences however listened to Professor Aston on 'Isotopes' and

Professor Fleure on 'The Idea of the Nation in Europe'.

The last public lecture was given on the Sunday morning, the closing day of the Congress by Viscount Samuel and formed a fitting conclusion to the deliberations of the week. Lord Samuel who is President of the British Institute of Philosophy took as his subject 'Science, a Basis for Philosophy'. He spoke of the age-old interest of India in things of the mind and her modern contact with physical science depending upon the observation of facts, upon experiment and measurement. It might be thought that the tendencies, ideas and practices of India would be antagonistic to this modern movement. Professor Radhakrishnan however had declared that Hindu thought has no mistrust of reason. On the other hand, there is a new movement in Philosophy specially in Great Britain and America which tends to link it with science and looks to the established conclusions of science as the premises for Philosophy. So it might be hoped that 'Philosophy coming out of its phase of classicism, science coming out of its phase of materialism and religion from its servitude to dogmas that are outworn, may join in constructing a spiritual and intellectual framework for the future.'

There can be no doubt that with these and many other thoughts of a like nature which have been voiced on one occasion or another during the vivid week of the Congress, those who foregathered in friendly intercourse either on the river trip or at the numerous lunches, garden parties and at the Congress Dinner, where a great assembly sat down together and listened to speeches of high idealism, will have come away feeling that the world is not yet at the mercy of blind and aggressive forces of destruction, that "there is no darkness but ignorance" and that in the light of truth, sought for its own sake, all that is best in Eastern and Western cultures may come together to build a better world.