

been repeated in later ages to a similar extent or magnitude. After giving a brief account of the nature and distribution of these deposits in India, he said that though iron and manganese occur in close association in rocks and minerals, on going into solution, they tend to be segregated during deposition—the abundance of oxygen determining whether carbonates or oxides will be deposited.

Prof. H. H. Read (Liverpool) believed that the conditions of pre-Cambrian sedimentation were more or less the same as those of later times, and saw no reason to appeal to any 'non-uniformitarian' principle. He said that almost all the rock types of the pre-Cambrian period are matchable among post-Cambrian formations, except the biogenic rocks of the latter.

Prof. P. G. H. Roswell (London) said that according to the idea of uniformitarianism as modified by Sollas, it is possible that the dynamical agents, though they have never varied in kind, may have still varied in the intensity of their action during former geological periods; and this will probably serve to explain all aspects even of pre-Cambrian geology. Talking of the limestones, he said that in their formation, it is often very difficult to draw a line between chemical precipitation and organic origin—the two agencies were so closely intermixed. It is quite probable that life played quite an important part in their deposition. The iron ores, which form such a unique feature of the pre-Cambrian in many parts of the earth, very probably owe their origin to the action of

bacteria. Algae and bacteria were the two groups of primitive life which seem to have played a large part in pre-Cambrian sedimentation. He thought a spectroscopic analysis of pre-Cambrian graphites may throw some light on their origin.

Prof. W. G. Fearnside (Sheffield) said that in reviewing earth history in general, it will be seen that each major formation has some particular type of rock constituting its speciality. In the case of the pre-Cambrian, the iron ores occupy this position. These must have been formed due to a peculiar combination of special conditions.

Prof. F. K. Morris (U.S.A.) talking of the life of the pre-Cambrian, said that the highly organised character of Cambrian life makes it absolutely necessary to believe in a long process of evolution of pre-Cambrian life from the primitive unicellular condition to the Cambrian stage. We should also realise that the protozoan cell itself is really not so simple and primitive a structure as it is commonly believed to be; it is a most complicated structure, and must itself have been derived as a result of an equally long process of evolution from much smaller and simpler specks of life which may be termed 'moleculobiontia'. There is no doubt that the pre-Cambrian seas were literally teeming with life which must have played a large part in the formation of contemporaneous marine deposits.

L. RAMA RAO.

## The Tenth Conference of the Indian Mathematical Society.

THE Tenth Conference of the Indian Mathematical Society was held at Lucknow under the auspices of the Lucknow University on the 15th, 16th and 17th of March 1938. Dr. R. P. Paranjpye, the Vice-Chancellor of the Lucknow University, served also in two other capacities as the Chairman of the Reception Committee and as the President of the Indian Mathematical Society. In his welcome address, Dr. Paranjpye referred to the good and continually enlarging sphere of work done by the members of the Society, and laid emphasis on the need for a detailed scheme of work regarding the History of Mathematics in India. He pointed out that the Indian Mathematical Society was pre-eminently fitted to make authoritative investigations in this field, and suggested that the Society should immediately set to work in this direction.

The Conference was declared open by the Hon'ble Mr. Govind Vallabh Pant, Premier of the United Provinces, in an *extempore* and exceedingly humorous speech, in the course of which he referred to the outstanding contributions of early Indian Mathematicians, such as the introduction of the decimal system. The Premier expressed the hope that the holding of the present Conference of the Society at Lucknow would serve as a stimulus to the progress of mathematical research in the U.P.

Dr. R. Vaidyanathaswamy of the Madras University, then delivered the Presidential Address

on the 'Philosophical Foundations of Mathematics'. A full text of his address will appear in the *Mathematics Student* in due course.

About forty papers dealing with diverse mathematical topics were presented to the Conference, and many of them elicited useful discussions on the subject. Besides these, a symposium was held on the 'Relative Merits of Einstein's and Sulaiman's Theories of Gravitation,' the symposium being led by Sir Shah Sulaiman, Prof. Narlikar and Prof. A. C. Banerjee. There was also a brief address by Prof. Vijayaraghavan on Tauberian Theorems.

There was also a brief discussion as regards methods of teaching mathematics. Finally, as regards the systematisation of research on the history of mathematical development in India, a Select Committee was constituted to draw up a report to be submitted to the Committee of the Indian Mathematical Society.

Three popular lectures, meant for the general public, were delivered: "The Theories of Gravitation," by Sir Shah Sulaiman; "Stars and Galaxies," by Prof. A. C. Banerjee; "Properties of Numbers," by Prof. T. Vijayaraghavan.

The Conference was attended by delegates from almost all parts of India. The success of the Conference was due to the enthusiasm of Dr. R. P. Paranjpye, assisted by Prof. Srang, Dr. A. N. Singh and a band of energetic volunteers.