

fact, only just commencing scientific sugar-cane work. Recent work in India was discussed, especially the efforts to improve the local varieties and the raising of seedling sugar-canes in the newly founded cane-breeding station at Coimbatore. Mr. F. R. Parnell, of Coimbatore, read a very interesting paper on some Mendelian characters of the paddy plant. Dr. W. Burns and Mr. S. H. Prayag described experiments on inarching inflorescence of the mango when a union was made and the fruit of one tree was thus borne on a tree of another variety. Prof. P. F. Fyson discussed the phanerogamic flora of the patana regions of the Nilgiris and Pulney Hills, pointing out the affinities with Ceylon, the Vohasia, and Himalayan regions.

Other papers were by Mr. M. O. Parthasarathy Iyengar, on the defoliation of some Madras trees; by Dr. C. A. Barber and Mr. D. Vekataraman, on the depressed habit in the sugar-cane; and Mr. C. Tadulingam on the Madras flora.

The meeting of the Geological Section was presided over by Dr. W. F. Smeeth, State Geologist of Mysore, who read a paper on the geological history of southern India, and gave an account of the character and distribution of the various components of the great archæan complex as developed in Mysore. Babu H. C. Das Gupta described an occurrence of crystalline limestone from the Daltonganj coalfield. Mr. E. Masillamany dealt with certain basic dykes in Travancore, including gabbro, dolerites, and norites, the petrology and field relationships of which were discussed.

The Section of Ethnography met under the chairmanship of Mr. H. V. Nanjundayya, whose address was on some aspects of ethnographic work. He said that the lower castes are aspiring to a higher status; Gotras are claimed, and customs which enable the observer to recognise the lower caste are suppressed. According to legend the Castes claim descent from God, but actually Castes are considered to be tribal distinctions. By the adoption of Samskaras of higher castes and practising them for several generations higher status is claimed, and renders investigation a matter of considerable difficulty. Dr. Annandale, in a paper entitled "Anthropometric Notes of Calcutta Eurasians," dwelt on the importance of regarding physical anthropology from a zoological point of view. He expressed the opinion that the primary classification of the races of man should be conducted on exactly the same lines that would be adopted in investigating those of any other species. Unfortunately the characteristic features of the different human races were still very imperfectly known, and existing systems of anthropometry were unsatisfactory in many respects. He had no new system to expound, but laid stress on the value of a large series of photographs taken on a definite system and illustrating as far as possible the actual external structure. He put forward a proposal for a photographic survey of the people of Calcutta, and especially of those of mixed race. Dr. Keitkar, of Bombay, read a paper on Indian sociology as a theoretical and applied science. Dr. S. C. Roy read a paper on totem worship amongst the Oraons. The author showed that Kachchapa (tortoise) must have given rise to the Gotra, now known as Kasyapa. The existence of a wooden figure of the tortoise and pig seemed to bear out the theory suggested by him. Other papers in this section were contributed by Mr. Gopinatha Rau, on viragals and mastigals—the memorial stones set up in honour of heroes who fell in battle and women who died for their husbands; Mr. L. K. Ananta Krishna Iyer read papers on prehistoric monuments in Cochin, and on the Vettuvans of North Malabar.

UNIVERSITY AND EDUCATIONAL INTELLIGENCE.

CAMBRIDGE.—The subject proposed for the Adams Prize Essay for the period 1915-16 is "The Course of Evolution of the Configurations possible for a Rotating and Gravitating Fluid Mass, including the Discussion of the Stabilities of the Various Forms." The investigation of the forms that can be assumed by a mass of gravitating fluid endowed with motion of rotation was initiated by Newton with reference to the figure of the earth, developed by Maclaurin, Clairaut, and Laplace, and extended by Jacobi. It was consolidated in Lord Kelvin's hands, as an example of the doctrine of the dissipation of energy, into a single problem illustrating the course of evolution of stellar and planetary systems. The sequence of the forms that can be assumed by a rotating fluid mass, first announced partially by Lord Kelvin, has been extended and systematised by the work of Poincaré, and expanded in new directions by Sir G. H. Darwin and other investigators. Further elucidation of this succession of forms, especially in the direction in which a tendency appears for the mass to divide into separate parts, is desirable, in view of its possible bearing on the modes of evolution of double and variable stars and the interpretation of other remarkable celestial objects. The case in which the mass is in whole or in part in the gaseous state may also present opportunities for investigations possessing astronomical interest. Some contribution to the further theoretical development of this subject is asked for. The prize is open to the competition of all persons who have at any time been admitted to a degree in the University. The value of the prize is about 220*l.* The essays must be sent to the Vice-Chancellor on or before the last day of December, 1916.

OXFORD.—On March 9 Congregation approved the appointment of Dr. H. M. Vernon, fellow of Magdalen College, as University lecturer in chemical physiology for four years, in succession to Dr. Ramsden, fellow of Pembroke College, who has been elected to the post of Johnson professor of biochemistry at Liverpool University. Congregation has also approved the re-appointment of Dr. J. W. Jenkinson, Exeter College, as University lecturer in comparative and experimental embryology for five years.

The Hebdomadal Council has lately put out an important statement dealing with the financial position of the University as affected by the war. It is estimated that, after allowance has been made for a considerable saving in the conduct of examinations, the statutable and necessary expenditure for the current year will exceed the ordinary receipts by at least 15,000*l.* This deficit may be reduced by various expedients, such as savings in respect of grants, and the suspension of repayment of loans (should the necessary powers be granted by the Bill now before Parliament), to a sum of about 6000*l.* The remainder may ultimately have to be made good by borrowing; but before the necessity for this step arises, the situation will, it is hoped, be to some extent relieved by the voluntary contributions of many of the officers and other members of the University.

It is stated in *Science* that Dr. William J. Mayo and Dr. Charles H. Mayo, of Rochester, Minn., the distinguished surgeons, have decided to establish a 200,000*l.* foundation for medical research and to place the foundation, under certain restrictions, in the hands of the University of Minnesota.

WE have received from the University Press of Liverpool a copy of a report of the Senate of the University upon research and other original work by members of the University published or completed during the session 1913-14. The titles of papers and other publications are arranged under faculties and numbered consecutively, those published during the session being placed first. The abbreviations adopted in the titles of scientific periodicals are those used in the "International Catalogue of Scientific Literature."

At a meeting held in New York, on January 27, in connection with the inauguration of the Engineering Foundation, it was announced, says *Science*, that the initial gift had been made by Mr. Ambrose Swasey, past-president of the American Society of Mechanical Engineers, who has given 40,000*l.* for "the advancement of the engineering arts and sciences in all their branches to the greatest good of the engineering profession and for the benefit of mankind." The administration of the fund will be entrusted to the Engineering Foundation Board, elected by the trustees of the United Engineering Society. From the same issue of our contemporary we learn that the sum of 8000*l.* has been given by Mr. Andrew Carnegie to Allegheny College for a chemical laboratory to replace that recently destroyed by fire; and that Mr. Patten, who has already given 100,000*l.* to the medical school of Northwestern University, has now added 5400*l.* for scholarships.

THE Department of Agriculture and Technical Instruction for Ireland has issued particulars of the summer courses of instruction for teachers to be held this year in Ireland. The courses, with the exception of that in rural science for national school teachers to be held in August, will begin on July 6 and close on July 30. Among the courses arranged may be mentioned that on chemical manufactures intended for teachers of chemistry in technical schools who hold a university degree in chemistry or equivalent qualification; and those on the testing and working of electrical machines, practical mathematics and mechanics, hygiene and sick nursing, experimental science, and rural science (including school gardening). Teachers who attend the courses from the beginning to the end are allowed a sum of 3*l.* 10*s.* towards their expenses while living at the centre; and those who travel more than twenty miles to the centre of instruction are allowed, in addition, third-class railway fare for one return journey from the railway station nearest their school.

THE metallurgy laboratory for the mechanical testing of metals and alloys, presented to the Sir John Cass Technical Institute by the Worshipful Company of Goldsmiths, was formally opened by Sir Boverton Redwood, Senior Warden of the Goldsmiths' Company, on March 3, in the unavoidable absence owing to illness of Sir Robert Mowbray, Prime Warden of the company. The work of this new laboratory, which will form an important extension of the metallurgy department of the institute, will be carried on from the metallurgical rather than from the engineering point of view, and will be closely related to the instruction already provided in connection with the metallographic and pyrometric examination of metals and alloys, including iron and steel and the materials used in the motor-car industry and in the construction of aeroplanes, high-speed machinery, and the like. Previous to the opening of the laboratory, Sir Boverton Redwood distributed the prizes gained by students of the institute during the past session, and delivered an address, the chair being taken by Sir Thomas Elliott, who has succeeded the late Sir Owen Roberts

as chairman of the governing body. In speaking of the work of the institute, Sir Boverton Redwood said that such work as is being done was never more needed than at the present time. Among other things which the war has done for us, it has shown us that there must be a much more intimate relation between science and industry in this country; and it is to be hoped that the students will avail themselves to the fullest possible extent of the facilities which the institute affords them of becoming better qualified to discharge the duties with which they will be entrusted. If one result of the war is to bring about a better recognition of what is needed in this direction we shall have some compensation for the sacrifices which we are making. In referring to the courses on fuel and power, arranged at the institute, Sir Boverton pointed out the all-important part that is now being played by liquid fuel both in the Navy and on the field of battle on land, especially in connection with the "all-oil boilers" now in use on the battleships of the *Queen Elizabeth* class, all of which are driven solely by oil fuel.

SOCIETIES AND ACADEMIES.

LONDON.

Geological Society, February 19.—Annual General Meeting.—Dr. A. Smith Woodward, president, in the chair.—Dr. A. Smith Woodward: Presidential Address. The progress of geology depends on so many lines of research, that each specialist does well at times to pause and consider the relation of his own small part to the whole. The president therefore reviewed some results of his study of fossil fishes in their bearing on stratigraphy. However necessary detailed lists of species of fossils might be for comparative work with sediments in restricted areas, he hoped to show that in dealing with broader questions names were really of small importance. Certain general principles had been arrived at, which would serve for all practical purposes. Each successive great group of fishes began with free-swimming fusiform animals, of which some passed quickly into slow-moving or grovelling types, while others changed more gradually into elongated or eel-shaped types. There was also a constant tendency for the primitive symmetry of the parts of the skeleton in successive members of a group to become marred by various more or less irregular fusions, subdivisions, and suppressions. Some of the successive species of each group increased in size, until the maximum was reached just before the time for extinction. These and many other more special inevitable changes had now been traced in most groups, and the various geological dates at which they occurred had been determined by observations on fossil fishes from many parts of the world. Even fragments of fish-skeletons, too imperfect to be named, were often therefore of value for stratigraphical purposes.

Royal Anthropological Institute, February 23.—C. Dawson: Flint implement cultures of the Sussex Ouse Valley, with special reference to the Piltdown gravel-spreads and deposits. Among the exhibits were originals and casts of the rude iron-stained Palaeolithic implements discovered at Piltdown. They are really large flakes worked on one face, rather after the Chellean culture. The other face is unworked, like those from the Mousterian cultures. The large elephant-bone implement trimmed to a point like a stake at one end, and roughly rounded by cuts at the other end, was exhibited. By comparison it is found that this implement is made from one of the thigh-bones of a large species of elephant not yet discovered