

News and Views.

THE retirement on Mar. 9, under the age clause, of Sir Sidney Harmer from the directorship of the Natural History Museum, South Kensington, will remove from active professional life one who has been for forty years conspicuous for his researches in zoology and influence upon this branch of science. Fellow of University College, London (1884), and later fellow, lecturer, and tutor of King's College, Cambridge, he made the latter his home until in 1908 he came to London as keeper in zoology at the Natural History Museum, afterwards becoming director in 1919. Trained under F. M. Balfour, his first researches were directed to the elucidation of the anatomy, embryology, and position of the Polyzoa; later, his interest shifted to the natural history, evolution, and classification of the group. With Sir Arthur Shipley he edited the "Cambridge Natural History," 1896-1909, which owing to his painstaking care is recognised as giving a complete epitome of the facts of zoology at the dates of publication. He was president of Section D of the British Association in 1908, choosing the Polyzoa as his subject—suggesting that there may be segregation in the formation of a bud analogous to the segregation of characters in the formation of gametes. In recent years his interest turned to the whales, and this was the underlying force in sending out the *Discovery* expedition to South Georgia to investigate these forms. It says much for his enthusiasm and determination that he induced the British Government, in a time of great financial stress, to send out this the greatest British expedition since the *Challenger*, the results of which will be the monument to him as director of the Natural History Museum.

SIR SIDNEY HARMER'S directorship has not been marked by any great changes in the main fabric of the exhibition building or in the arrangements of the exhibits of the Natural History Museum. A new wing to the Museum was projected and actually agreed to before the War, but this has never been proceeded with. It is true that a new spirit building has been erected, and most of the staff dealing with water-living animals has removed there. The space thus vacated in the basement was assigned to entomology; space intended solely for store purposes, but used also as research rooms by the staff. It is not too much to say that the congestion here is appalling, especially as housing has had to be found for the Imperial Bureau of Entomology. The best results, too, are not to be obtained by setting sedentary workers in relatively dark basements. Of new material, the large collection of deposits of the late Sir John Murray is housed in a temporary building in the grounds, and the exhibition of the Cetacea cannot be deemed satisfactory. The present condition of the Natural History Museum reflects the highest credit on the members of the whole staff, but there is no possibility of overlooking the fact that progress on all sides is being seriously impeded by the lack of storage and working space. If storage

space is provided, it will be possible so to rearrange and reduce the exhibits as the better to expose their beauty and scientific importance, thus adding to the attractiveness of the Museum to the public.

THE Commonwealth Council for Scientific and Industrial Research held its second session last November and made a number of important decisions regarding future policy. Prof. A. C. D. Rivett, a member of the executive committee, will devote his full time to the work of the Council during 1927, as its chief executive officer, having been granted leave of absence for this purpose by the University of Melbourne. Mr. Gerald Lightfoot is to be secretary to the Council. In connexion with work on fruit storage and transport, Dr. Kidd, of the Cambridge Low Temperature Research Station, will visit Australia during the first half of this year in order to survey the position and suggest a comprehensive scheme of work. Dr. W. J. Young, associate professor of biochemistry at Melbourne, will meet Dr. Kidd at Cape Town and with him study existing practice there before proceeding with the investigation of Australian conditions. It is hoped that Dr. Young will take charge permanently of later developments in Australia. Prof. T. Brailsford Robertson, of the University of Adelaide, has been invited to take the position of officer in charge of investigations into problems of the nutrition of stock. He will probably continue his present fundamental researches at Adelaide while organising and developing national investigations prompted by the needs of the wool, meat, and dairying industries.

INQUIRIES are being made throughout the British Empire by the Commonwealth Council for an entomologist and a mycologist to initiate and steadily develop organisations for research work upon the numerous insect and fungus pests that annually levy great toll on primary industry. A considerable scheme for attacking the diverse problems of the irrigation settlements in the Murray and Murrumbidgee river areas is being put into operation with the hearty co-operation of the departments of the State Governments concerned. Prof. Prescott, of the Waite Agricultural Research Institute, is to be asked to supervise and co-ordinate all soil survey work. The solution of certain problems in these irrigation areas is of importance in relation to possible increased settlement by migration from Britain. Forestry matters are also receiving attention, and it is expected that a prominent officer from the Indian Forestry Service will visit Australia early this year to report upon the establishment of a forest products research laboratory.

In these and other actions the Commonwealth Council is following the definite plan of seeking competent full-time officers to take charge of a number of departments of investigation. Committees will no doubt be formed to assist so far as possible in the work, but the system of relying on such com-

mittees to supervise extensive researches, the details of which are carried out by officers acting under their instructions, has been abandoned. It is hoped that the Council will very soon possess a highly trained senior staff and be able to proceed with intensive study of the seemingly innumerable problems which beset Australian industries. For the time being, attention will be directed mainly to primary industries, though decisions to proceed with radio research work and with the provision and maintenance of ultimate physical standards, in close co-operation with the physics departments of the universities and the Defence Department, indicate that advance in other directions will not be long delayed. Throughout its programme the Council aims at the closest possible association with the Department of Scientific and Industrial Research in London, from the officers of which it is receiving very valuable assistance and advice.

THE Friday evening discourse on Feb. 4 at the Royal Institution was delivered by Sir Arthur Keith, on "Human Races, Old and New." Five well-marked types or stocks are recognised among the living representatives of mankind: the white or Caucasian type, the Mongolian peoples—between them making up fully seven-tenths of the total population of the world—the black or Negro type, the brown or Dravidian race south of the Himalayas, and the Australoid. However numerous or extensive human migrations may have been in long-past times, they have left the great breeding grounds of the primary races of mankind untouched. How are we to account for the fact that each part of the world is populated by a distinctive breed of mankind? There is only one theory which offers an explanation, and that is the one put forward by Darwin. He held that the most favourable sites for the evolution of new forms were the centres of wide continental spaces. All that we know of the past and present distribution of human races favours this theory. If we accept such an explanation we must regard the Negro, the Chinaman, and the European as the most recent expression of their respective types. Each we may regard as the type of being best adapted for the country and culture in which it has been evolved. On each side of the racial frontiers of the world we find intermediate types.

THERE has been, beyond any doubt, much intermarriage and intermingling across racial frontiers, but such an explanation, although accepted by the majority of anthropologists, does not, in Sir Arthur Keith's opinion, account for the gradual transition which we usually find in passing from the centre of one racial area to the centre of another. Those who seek to explain the existence of intermediate types by interbreeding of primary forms forget that the first duty of an anthropologist is to account for the primary forms—the Nord, the Negro, the Mongol, or the Caucasian. If evolution is true, and Negro and Caucasian are the descendants of a common ancestor, then we ought to find, just as we do find, a series of intermediate types joining the centres where

the new types have been cradled; the extreme and most fully differentiated types represent the older and less-changed forms. Politicians and anthropologists differ altogether in their conceptions as to what constitutes a separate race. The politician concentrates his attention on tradition, language, and spirit; a race, to claim the title in an anthropological sense, must have characteristics which mark it off from all other peoples. In this sense the races of western Europe are very imperfectly separable—not because of the interminglings which have occurred, but because they are branches of the same stock, and time and space have been insufficient to permit more than a partial differentiation.

ON Tuesday, Feb. 1, the second lecture of the series being given at Bedford College for Women, London, was delivered by Sir Thomas Heath, who dealt with "Conceptions of the Cosmos in the Classical Period." Sir Thomas reviewed in detail the speculations of the early Greek philosophers. Thales showed little advance upon the popular cosmology derived from Egypt and Babylon; but original thought began with Anaximander (early sixth century B.C.), who held that the earth was a cylinder suspended in equilibrium in the centre of the universe, and explained the light of the heavenly bodies by hollow rings or hoops encircling it, containing fire visible only at one point. He said there were other worlds than ours, and also propounded a primitive theory of evolution. Anaxagoras strikingly anticipated Laplace when he traced the origin of the cosmos to a rotatory movement imposed by mind upon primal chaos and postulated centrifugal as well as centripetal force. While the geocentric conception tended to prevail, and was adopted both by Plato and by Aristotle (who worked out, under the influence of Eudoxus, an elaborate system of concentric spheres to explain the movements of the heavenly bodies), the Copernican theory was anticipated partly by the later Pythagoreans and by Heraclides of Pontus, and wholly by Aristarchus of Samos, who said that the earth revolves round the sun, while the sun and the fixed stars (whose sphere is of immense size) are unmoved. The method of Tycho Brahe was anticipated by Apollonius of Samos in his attempts to explain the movements of the planets. On the physical side, the atomic theory propounded by Leucippus and Democritus and adopted by the Epicureans was remarkably in accord with modern thought. Sir Thomas gave a masterly exposition of much of the detailed astronomical and mathematical work of these early thinkers, whose conclusions, often sounder than their methods, illustrate the saying of Aristotle that "not once nor twice, but times without number, the same thoughts occur to men."

ON Feb. 1 the University of Oxford was presented with the most valuable property that it has ever received. The Radcliffe Library, the great dome of which figures so prominently in the best-known of Oxford views; the freehold of the adjacent land on which it stands; the books in the Science Library at the University Museum, and an income of £1500

a year for the upkeep of that Library, were all conveyed by the Radcliffe Trustees as a gift and were gratefully accepted. The Radcliffe Library is a scientific institution of international importance, and so its future government, on which so much depends, is a matter for grave deliberation. Its success hitherto has been due to the strict observance of the Radcliffe Trust as defined by Dr. Radcliffe in his will, namely, the appointment of a librarian. For some unpublished reason neither the Trustees nor the Radcliffe electors have done anything to carry out their duty in this respect during the past three years that have elapsed since the death of the last eminent holder of the office, Dr. Jackson. During these three years the Library has lost many books by theft, the scientific world has been deprived of one of its most useful officials, and the Radcliffe Trust has not been carried out.

THE reason sometimes suggested for the inactivity of the Radcliffe Trustees is that this unique and admirably arranged scientific Library is to be reduced to the condition of an appanage of the Bodleian, a library that is primarily managed in the interests of literary and classical scholars, and the lack of accessibility of its books makes it unsuited to the every-day needs of the student of science. Moreover, scientific literature in the Bodleian is rarely quite up to date; a recent visit disclosed the fact that the 'current' number of NATURE was nearly two months old. Many have found it impossible to do scientific work in so lethargic an atmosphere, and all who are well acquainted with the condition obtaining in the two libraries fear that the substitution of Bodleian control for control by an independent scientific Radcliffe librarian will be a disaster rather than a gain to the cause both of academic and of international learning.

THE University of Oxford has every reason to be grateful to the generosity of the Evans family. During and after his keepership of the Ashmolean Museum (1884-1908) Sir A. J. Evans presented his Cretan collections as well as the magnificent series of Anglo-Saxon and Teutonic ornaments collected by his father, Sir John Evans, that have gone so far to elucidate the early history of Ægean and North European culture. His brother, Dr. Lewis Evans, has given those splendid examples of early scientific instruments which are now one of the established sights of Oxford in the Old Ashmolean Building, where they form the nucleus of a museum for illustrating the history of science. Now Sir Arthur has presented yet another of his father's collections, in illustration of the palæolithic, neolithic, bronze, and early iron ages not only in Britain but also in many parts of central, southern, and northern Europe, including a fine series of ancient British gold ornaments and of objects from the well-known cemetery of Hallstadt. A large number of the specimens have been figured in the classical works of Sir John Evans on the stone age, and with these are coming a number of Romano-British relics and some Egyptian antiquities of great variety. It is not easy to draw the

line between civilisation and barbarism, but the united gifts of the Evans family now cover both sides of the line, and in a manner which can never be accomplished again.

THE Italian Government has voted the sum of two million lire for the purpose of resuming the excavation of Herculaneum according to the plan drawn up by Prof. Majuri of Naples and approved by Signor Mussolini and the Minister of Public Instruction. This sum will cover the initial expenses of beginning excavation in the coming spring, and further sums, it is said, will be forthcoming year by year as the work proceeds. The greatest obstacle in pursuing the excavation hitherto has been the fear that the villages of Resina and Portici, which overlies the site, would have to be expropriated and the inhabitants evicted. According to a well-informed writer in the *Italian Mail* of Jan. 29, this step is not now considered necessary. Excavations will be carried on at the south-east of the ruins at a point midway between Resina and Torre del Greco, use being made of the shafts left by former excavators to penetrate the city. As much as possible will be laid open, but those parts which cannot be opened up will be lit by electric light. Both what is known of the status of the inhabitants of Herculaneum at the time of its destruction, and previous finds of objects of art and manuscripts, make it difficult to overestimate the additions to our knowledge of Italian life and culture at the beginning of our era, and of classical literature which may follow, should the Italian Government carry out the excavations on the scale projected.

PREPARATIONS are now being made for an expedition of anthropological investigation among the tribes of the south Abyssinian frontier. The expedition is to be conducted by Mr. J. H. P. Driberg, the author of a valuable book on the Lango, and formerly an official in East Africa, who will go out under the auspices of the Royal Anthropological Institute. If the arrangements are sufficiently far advanced and the funds received towards the expenses justify, the expedition will leave England some time during the month of April. The object of the expedition will be to investigate the physical anthropology and social organisation of the Pagan Galla of southern Abyssinia, and of various nomad tribes in Abyssinia and Kenya. Tribes on the north-eastern frontier of Uganda and the south-eastern Sudan will be on the way to Abyssinia, and it is hoped that it may be possible to get into touch with the Turkana of Kenya, a very important group of people which is but little known. In addition to the ethnological investigations, zoological observations will be made and economic plants, as well as plants and drugs used by the natives for magical purposes, will be collected. Mr. Driberg will be accompanied by Dr. J. O. Beaven, who will be responsible for physical anthropology, pathology, and zoology as well as the bulk of the photographic work. If funds allow, the expedition will last for three years, about eighteen months of which will be spent in a preliminary investigation of the smaller tribes before going on to the main objective, the Galla.

The expedition has the support of the Royal Society and the British Association for the Advancement of Science, both of which bodies have made grants towards the expenses.

MR. GORDON HUME, in *Discovery* for February, directs attention to an anomalous conclusion, drawn from the results of an inspection of strata and their contents on an excavated site in King Street, Cheap-side, which would appear to suggest caution in the chronological interpretation of archæological evidence in the City of London area. In a section measuring 4ft. 3 in. in depth were revealed eight archæological levels—seven well-marked, the eighth confused—between virgin soil (18 ft. below street level) and an upper stratum consisting of a series of deposits super-imposed closely one upon another. Samian ware was found in varying frequency in levels 1, 2, 6, 7, and 8—in the last named merely a tiny fragment. The eight layers, on the usual reckoning for the city of London of one foot per century, would represent at least four hundred years; yet, as stated, throughout the series there occurs Samian ware which is usually attributed to the period A.D. 1 to 110, and no specimen of post-Trajanic pottery was found. It would therefore seem either that material accumulated on this site at a rate unheard of in the rest of London—it shows no signs of exceptional circumstances such as the existence of a rubbish heap—or else that, if the four feet of deposit does really represent four centuries, Samian pottery of the first-century type was used and manufactured in London so late as the fifth century. As all the London Samian ware belongs to the type of that of the King Street site, Mr. Hume finds himself left with the dilemma that either the accepted scheme of dating of Dragendorff and Déchelette requires reconsideration or that the rate of accumulation of soil in London represents problems yet to be solved.

THE subject of Prof. Eddington's third Gifford Lecture in the University of Edinburgh on Friday, Feb. 4, was "The Running-down of the World." It began with a consideration of the random element in the world, the study of which rests on the law of chance, a law on which the physicist, perhaps, places greater trust than on any other accepted law of Nature. The scientific measure of that random element in the world is called entropy. From the point of view of the philosophy of science, Prof. Eddington thinks that entropy must be ranked as the great contribution of the nineteenth century to scientific thought. It made a reaction from the view that all that is essential can be found by applying a microscope to the world. While Einstein's theory of spherical space has removed all difficulty as to the infinity of space, we are still confronted with the dilemma of an infinity of time, especially the difficulty of an infinite past. But between us and the infinite past lies a more pressing difficulty, namely, the winding-up of the universe. The organisation of the energy of the world is being continually reduced by the continual increase of the random element; in the past we must attri-

bute a greater and greater degree of organisation, and it is impossible to follow such an increase back indefinitely.

WHILE deprecating any hasty inference that this involves the interference of a creator of organisation at a not infinitely remote time in the past, Prof. Eddington thinks we must recognise that current physics rests on the view that there is in the world not only chance but also the antithesis of chance. We may not be justified in relating this 'antichance' at all closely to that which appears to our consciousness in the guise of purpose and design. Chance requires its complement 'antichance' as much as positive electricity requires its complement negative electricity, and physics should not be regarded as wedded to one rather than to the other. The 'fortuitous concourse of atoms' which has been so much of a bugbear is now definitely limited in physics to a well-recognised type of system, namely, a system in thermodynamical equilibrium; physicists, however, would be the first to protest against the idea that that condition is typical of the world in general.

FURTHER details of the information acquired by the Dutch-American Expedition to New Guinea during its stay among the pygmies of the Nassau Mountains have been issued by the Smithsonian Institution of Washington. Dr. Stirling, the leader of the expedition, states that the pygmies are mild-mannered, quiet, and unobtrusive, and not in the least nervous. They are energetic agriculturists and entirely vegetarian, cultivating sweet potato, sugar-cane, taro, raspberries, tobacco, and a number of other plants not recognised. They raise pigs in considerable numbers and have dogs. Various implements of stone are in use—axes, knives, hoes, wedges, and so on. They have no knowledge of iron. Their principal weapon is the bow and arrow. In an interview with a representative of the *Times* at Port Said which appeared in the issue of that paper of Feb. 2, Dr. Stirling gave a further account of the culture of the negritos, in the course of which he referred to their use of tobacco in pipes and in cigarettes, and their trade by means of barter or with cowries as their medium of exchange. Each village is administered by a headman and elders, but there are no chiefs. Before marriage the bridegroom has to undergo an ordeal in which arrows are shot at him, and when a wife is divorced the top joint of the index finger is cut off; the same mutilation is performed on the other fingers for succeeding divorces. Polygamy is practised. Their religion is animistic, and they have a great faith in the virtue of amulets. The average height of the pygmies is said to be 4 ft. 2 in. and their colour quite black.

ON Dec. 27 last, Prof. M. Pupin, the retiring president of the American Association for the Advancement of Science, gave an address on "Fifty Years' Progress in Electrical Communications." He lays stress on the important part played by Maxwell's electromagnetic theory in the development of telegraphic and telephonic science. He also points out how invaluable thermionic tubes are in everyday

work. Perhaps undue importance is attached to those who gave the first experimental demonstrations of the new methods. For example, in 1853 William Thomson proved theoretically that in certain cases the discharge of a Leyden jar is oscillatory, and Feddersen deserves great credit for verifying this experimentally six years later. But Thomson's formulæ are still quoted in every treatise on radio communication. Heaviside describes clearly how the variables of his distortionless circuit are connected, and if the adjustment is not perfect we can easily see how it can be improved by varying any one of the four variables. A knowledge of what Maxwell has done does not help us to do this. One interesting point Pupin mentions is that, since Faraday, every great advancement in the art of electrical communication has originated in the research laboratories of the universities, and not in the test-rooms or research laboratories of manufacturing companies. He points out that the natural electrical disturbances which take place in electrical circuits, such as static disturbances, fading, earth currents in cables, etc., deserve close study, as they may enable us to find the secrets of the natural processes going on in the sun, the central power-station which supplies the moving power to all our organic and human activities.

AN account issued to the Press by the New York Electrical Society of an address on fused quartz given by Dr. Berry, of the American General Electric Co., would be singularly misleading to any one not familiar with the subject. We read that fused quartz is a "new and remarkable material" which by its property of inexpandibility "opens new scientific advances in fields as distinct from each other as astronomy and fire prevention." From this one might be led to conclude that fused quartz is an American discovery of recent date; and so with each application of the material to science and industry—the material being newly discovered, its applications must also be new. The application of fused quartz to fire-sprinkler bulbs, and again the suggestion of its use to replace glass in astronomical instruments and the like, scarcely merit the designation of "new scientific advances." Sprinkler bulbs of fused quartz were made commercially in England so long ago as 1912—and there seems little novelty in the suggested application of quartz to the second purpose mentioned, although the successful manufacture of blocks 8 ft. to 10 ft. diameter would certainly be an advance.

ONE of the activating motives of the work on fused quartz done in England in the last twenty odd years, has been the commercial production of really large pieces of transparent fused quartz (such as discs 2 ft. and upwards in diameter)—as yet such pieces are not available. The paper mentioned above suggests that sizeable 'blocks' of transparent quartz are available in America for astronomical purposes. This reference, occurring as it does in a paragraph immediately following reference to glass "blocks 8-10 ft. diameter," would make clearer reading if the actual size of the fused quartz 'blocks' were specified. No novelty attaches to the suggestion to use fused quartz for

astronomical purposes. An actual installation will, however, be a matter worthy of adulatory comment. Reading further, we find that Dr. Berry 'discloses' the use of fused quartz in experimental biological studies of the effects of ultra-violet radiation; what recent obscurity there has been about such a use must have been purely local. It is not to be doubted that the American scientific worker is as an individual anxious to acknowledge prior discovery and development in a field of activity which he may enter. It is unfortunate, therefore, that a statement issued by a well-known American society should be so misleading, and we are forced to the conclusion that there must have been in this case a singular lack of knowledge of the facts.

THE botanical library of Capt. John Donnel Smith of Baltimore, consisting of some 1600 carefully selected and beautifully bound volumes, with his plant collection of more than 100,000 specimens, which was presented to the Smithsonian Institution of Washington twenty-two years ago, has only now been deposited there, and constitutes the most valuable botanical gift ever made to the Institution. The library includes some valuable and very rare volumes, and is particularly rich in works descriptive of tropical American plants, especially those of Central America. At the time of presentation to the Smithsonian, Capt. Smith's herbarium was the finest in existence for Central America, and is of great scientific interest because it includes so many type forms. Besides American species, the collection includes sets of plants from all over the face of the globe, China, Tibet, Central Asia, India, Australia, Africa, and has already been the basis of much important work by the Smithsonian botanists. The results of the labours of one of America's most enthusiastic and indefatigable botanists thus become available for general reference.

THE January number of the *Empire Cotton Growing Review* (vol. 4, No. 1) is the first to be issued by the new publishers, Messrs. P. S. King and Son, Ltd., 14 Great Smith Street, London, S.W.1. The journal is the organ of the Empire Cotton Growing Corporation, and the work and aims of that organisation should be more widely known than they are at present. Any attempt to further the economic independence of the Empire is worthy of support; and it is the endeavour of the Corporation to extend the cultivation of cotton within the British Empire, for "an increase in the number of sources of raw cotton is a matter of the most urgent importance." With this end in view, the services of skilled plant physiologists, pathologists, geneticists, economists, and others have been concentrated on improving and extending the cotton yield, and the results of the researches of those specialists are published in the Corporation's journal. The present issue contains some interesting and useful articles, and preserves an even balance between the scientific and economic aspects of the problem. For those engaged in any branch of the cotton industry the "Notes on Current Literature" at the end will be found invaluable.

THE Rockefeller Foundation has issued a fifth series of "Methods and Problems of Medical Education." Descriptions are given of the Departments of Anatomy, Pathology, Bacteriology and Public Health, and Physiology of the Washington University School of Medicine, St. Louis, Mo.; of the Departments of Physiology, Botany, Anatomy, Zoology, Biochemistry, and Pharmacology of McGill University, Montreal; of the Institute of Pathology of the University of Utrecht, and others. The descriptions are by the heads of the Departments, are copiously illustrated and show plans of the buildings, while details of finance and research are also given. "Le Service de Prophylaxie Mentale du Département de la Seine, Paris," and the "Centre Régional de Toulouse pour la lutte contre le Cancer" are also described. Dr. Bela Schick gives the method of charting clinical records of children's diseases adopted at Mt. Sinai Hospital, New York, and Profs. Estor and Pech, of Montpellier, describe an apparatus for viewing an operation at a distance from the surgeon, or even in an adjoining room. It consists of two large mirrors, one above the other; the upper mirror receives the image of the operation and reflects it down into the lower mirror in which it is viewed, a special illuminating lamp being employed.

THE first congress of the International Association of Soil Science will convene on June 13 in Washington, D.C. The congress will be followed by a field excursion to visit the various important soil belts in the United States. Opportunity will also be given to the delegates to acquaint themselves with various agricultural industries, some of the leading agricultural experiment stations and, in general, with the agricultural resources of the country. The association is made up of six international commissions, each acting under an independent chairman, and the programmes of the commissions are now in course of preparation. Each will consist of papers presented by invitation by outstanding investigators in the respective fields, and of papers presented by various workers in the different branches of soil science, by members or non-members of the association. Titles of the papers to be presented and brief abstracts in English, French, and German should be sent to Dr. J. G. Lipman, New Brunswick, New Jersey, U.S.A. The congress will bring together workers interested in the different problems of soil classification, soil analysis, fertilisation and treatment, as well as the relation of the soil to plant growth. Extensive exhibits of various soil types, of apparatus used in soil analysis, and of the soil microflora and microfauna will be held during the congress.

SIR ERNEST RUTHERFORD will deliver the twelfth Guthrie lecture to the Physical Society of London on Friday, Feb. 25, taking as his subject "Atomic Nuclei and their Transformations."

WITH the view of encouraging original research in sanitary science, scholarships of the yearly value of £300, plus an allowance for apparatus, etc., are being offered by the Grocers' Company. The scholarships will be tenable for one year, but renewable for a

second or third year. Applications must be made before the end of April to the Clerk of the Grocers' Company, Grocers' Hall, E.C.2, upon a form obtainable upon request.

THE Edison Medal of the American Institute of Electrical Engineers for 1926 has been awarded to Dr. William David Coolidge, the assistant director of the research laboratory of the General Electric Company, for the production of ductile tungsten and the fundamental improvement of the X-ray tube. Dr. Coolidge, who is an honorary member of the Röntgen Society, was born in Hudson, Massachusetts, on Oct. 23, 1873, and is a graduate of the Massachusetts Institute of Technology and a Ph.D. of Leipzig. After some years as a teacher of physical chemistry at Massachusetts he became associated with the General Electric Company in 1905, and was made assistant-director of research three years later.

PROF. J. BRONTÉ GATENBY, Zoological Department, Trinity College, Dublin, informs us that, in conjunction with Dr. E. V. Cowdry, of the Rockefeller Institute, N.Y., he is editing a new edition—the ninth—of Lee's "Microtometist's Vademecum." He invites research workers and others to forward to him, as soon as possible, any new information suitable for incorporation in the forthcoming edition. It is not proposed to include bacteriological technique.

THE seventieth birthday of Prof. D. A. Low, of East London College, was celebrated on Feb. 9 by a dinner arranged by his old students. Prof. Low came from Dundee, and after serving his apprenticeship as an engineer, studied at Owen's College, Manchester, and at the University of Glasgow. In 1887 he was appointed headmaster of the Day Technical School for boys at the People's Palace, London, and on the formation of East London College he was made professor of engineering, a post which he held for twenty-six years. During this time he served on the Faculty of Engineering of the University of London, later becoming secretary, and on his retirement he was made emeritus professor. Prof. Low is the author of many textbooks on machine drawing and allied subjects.

At the general committee which closed the fourteenth annual meeting of the Indian Science Congress held at Lahore during the week Jan. 3-8, the president, Sir J. C. Bose, announced that since meeting in Bombay the past presidents had associated themselves in a presentation to Dr. J. L. Simonsen on his retirement from the office of honorary general secretary. In taking this action the past presidents were confident of thus giving tangible form to the feeling among members of the Congress, that the development of scientific thought and practice in India will remain heavily indebted to Dr. Simonsen, who has not only served as honorary general secretary during thirteen years, but to whose activity and enthusiasm in its early stages the foundation and survival of the Congress are substantially due. The general committee approved this action of the past presidents,

and unanimously elected Dr. Simonsen president of the fifteenth annual meeting of the Indian Science Congress to be held in Calcutta during the week Jan. 2-7, 1928.

A NEW and cheaper impression of Prof. A. N. Whitehead's "Science and the Modern World" is to be published almost at once by the Cambridge University Press, and at a later date a new impression of the same author's "Religion in the Making." The same house also promises a new book by Dr. C. Davison entitled "Founders of Seismology," being in effect a history of the study of earthquakes ranged round the founders of the science from John Bevis and Elie Bertrand down to Prof. John Milne and Prof. Fusakichi Omori.

APPLICATIONS are invited for the following appointments, on or before the dates mentioned:—A full-time assistant lecturer in pharmaceuticals at the Cardiff Technical College—The Principal, The Technical College, Cardiff (Feb. 19). A keeper of the laboratories of the Royal Horticultural Society at Wisley—The Secretary, Royal Horticultural Society, Vincent Square, S.W.1 (Feb. 22). An assistant entomologist

at the Rothamsted Experimental Station—The Secretary, Rothamsted Experimental Station, Harpenden (Feb. 26). A lecturer in the department of botany (special subject—plant physiology), King's College, London—The Secretary, King's College, Strand, W.C.2 (March 2). A professor of physiology in the University of Birmingham—The Secretary, The University, Birmingham (April 23). A head of the agricultural department and farm director of the Harper Adams Agricultural College, Newport, Salop—The Principal, Harper Adams Agricultural College, Newport, Salop. An assistant bacteriologist at the Wellcome Tropical Research Laboratories, Khartoum—The Director of the Laboratories. A head of the department of bakery and confectionery of the Borough Polytechnic Institute—The Principal, Borough Polytechnic Institute, Borough Road, S.E.1. A technical officer, grade II., at the Royal Aircraft Establishment, South Farnborough, for duties in the technical supervision of the application of all equipment used in aeroplanes built under contract for the Air Ministry—The Chief Superintendent, Royal Aircraft Establishment, South Farnborough, Hants (quoting A 127).

Our Astronomical Column.

COMETS.—An orbit of comet 1927 *b* (Reid) has been telegraphed from South Africa, from which it appears to have passed perihelion in 1926, so it will presumably be numbered as 1926 VII. The orbit indicates that the motion in R.A. in the former telegram was erroneous; it was sent as +44 sec., but it should be about +11 min. The comet has begun to travel northward, and should be visible in Europe about the middle of March.

$$\begin{aligned} T &= 1926 \text{ Dec. } 30.54 \text{ U.T.} \\ \omega &= 224^\circ 45' \\ \Omega &= 108 \quad 42 \\ i &= 83 \quad 40 \\ \log q &= 9.87703 \end{aligned}$$

Annals of Moscow Observatory, Vol. 8, No. 1, contain definitive elements of comet 1904 I. (Brooks) by M. S. Kasakov.

$$\begin{aligned} T &= 1904 \text{ Mar. } 7.138756 \text{ G.M.T.} \\ \omega &= 53^\circ 32' 34''.0 \\ \Omega &= 275 \quad 47 \quad 25.4 \\ i &= 125 \quad 7 \quad 42.5 \\ e &= 1.0013646 \\ \log q &= 0.432643 \end{aligned} \quad \left. \vphantom{\begin{aligned} T \\ \omega \\ \Omega \\ i \\ e \\ \log q \end{aligned}} \right\} 1904.0$$

As the comet was observed from April 16, 1904, until June 5, 1905 (besides a photograph on May 14, 1903, not used in the above orbit), the hyperbolic character is well established.

MERCURY AS AN EVENING STAR.—Mercury will be well placed as an evening star in the second half of February, reaching elongation on Feb. 25, when it is 18° from the sun and $8\frac{1}{2}^\circ$ north of it. The latter point is of importance for increasing its height above the horizon at sunset. Herr Carl Schoch, who is well known for his researches in ancient astronomy, contributes an article to the *Steglitzer Anzeiger* of Jan. 20 in which he points out the assiduity with

which Mercury was observed in Babylon, and the importance of the *arcus visionis*, or length of time of visibility of the planet. On Feb. 22 it will set $1^h 40^m$ after the sun, and should be visible to the naked eye for nearly half an hour. This is the best evening elongation of the present year. The presence of Venus some 5° further east will add to the interest.

Herr Schoch asks naked-eye observers to send him notes of the duration of visibility of Mercury, that he may compare them with the Babylonian records.

PHOTOGRAPHS OF MARS IN 1926.—An extensive series of photographs of Mars during September and October of last year was made by Mr. F. E. Ross at the Mount Wilson and Lick observatories. A preliminary account of the results obtained are given by him in the *Astrophysical Journal*, vol. 64, p. 243. A special enlarging camera was used, attached to the 60-inch telescope at Mount Wilson, and photographs were taken in light of five different colours (ultra-violet, blue, yellow, red, and infra-red) with the aid of suitable filters. At the Lick Observatory the camera was attached to the 36-inch refractor, the photographs being taken only in yellow and infra-red light. The photographs discussed in this preliminary paper are extremely interesting in showing that surface markings appear only in light of long wave-lengths (yellow to infra-red), whereas clouds and atmospheric effects require short-wave light to render them visible in the photographs. This is the reverse of what might be expected, especially as the prominent rim light in the ultra-violet photographs seems to point to the existence of a strongly scattering atmosphere. The decrease of diameter in the infra-red photographs, discovered by Wright in 1924, is confirmed. The method appears to be a very valuable one for studying atmospheric conditions in Mars, and a further discussion of the photographs will be awaited with interest.