

News and Views.

At first sight a student referring to a text-book would think that the evolution of the Proboscidea is a comparatively easy matter to understand. The picture of a straight line of descent from the little *Moeritherium*, through *Palæomastodon*, *Mastodon*, *Stegodon*, and so on up to the later mammoths and elephants, seems very easy to read. Closer examination, however, and a reference to the enormous literature on the subject, reveal a most complicated state of affairs. There is an immense number of families, genera, species, and sub-species of elephants already described, many of them still inadequately known; there is still no very clear agreement of what constitutes a specific character in an elephant; and there are many widely diverging views as to the real relationship of the various forms one to another. As species of elephants, e.g. *E. antiquus*, *E. trogontherii*, *E. primigenius*, *E. meridionalis*, are so often used as time markers, it is essential that we should have a clear idea as to what they are and as to their inter-relationships. Yet we find specimens described as intermediate by some authorities and the statement hotly denied by others.

THE fact is that the taxonomy of the elephant group is in the greatest confusion. Prof. Osborn's forthcoming memoir may confidently be expected to clear up the situation in some degree, in that it will present the facts so far as they are known at the present time. It cannot be expected to be a final pronouncement, because the evidence is not yet complete. Facts are still needed, and every new one that comes to light is important. The Upnor elephant, for example, now mounted in the British Museum, has yielded some new facts, and rather surprising ones, to what we know about *E. antiquus*. In producing some new facts, Prof. Dart's description in the Supplement to this issue of NATURE of new proboscidean material from South Africa is therefore greatly welcome. If this most interesting discovery adds for the moment to our perplexity, it is nevertheless additional evidence which, in time and with the discovery of further material, will in the future yield its quota to the solution of the filiation, distribution, migration, and general knowledge of the group.

At the anniversary dinner of the Royal Society, held on Nov. 30, Mr. Baldwin, the Prime Minister, as principal guest, proposed the toast of the Society, of which he was recently elected a fellow. It should be said that the inclusion of certain persons not actually engaged in scientific pursuits is a practice sanctioned by long usage. In the Society's original statutes of 1663, whether wisely or not—and there were mundane considerations—it was provided that every one of His Majesty's subjects having the title and place of baron, or any other higher title and place, and every one of His Majesty's Privy Council, might be elected. With slight variations these intentions were preserved down the years, until, in course of time, such persons formed a panel or privileged class: As regards foreign members, the pro-

cedure was different altogether. In 1765 it was resolved that no foreigner be proposed for election "that is not known to the learned world, by some publication or invention." Discussion in 1873 on a motion to require in the privileged class, "evidence of ascertained special power and disposition to forward the aims of the Society from exceptionally personal, or official advantages of position," ended by limiting the privileged class to princes of the blood royal and members of the Privy Council.

STATUTES enacted by the Royal Society in 1902, and still followed, abolished the clause relating to privy councillors, simply providing that once in every two years the Council may recommend not more than two persons who "either have rendered conspicuous service to the cause of science, or are such that their election would be of signal benefit to the Society." It is permissible to say that the implications of this statute seem clear enough. The opportunities of the chief officer of State in the scientific arena are recurrent and understood; as political moves they would be an affront to science. No one doubts that Mr. Baldwin will honour the bill, and that inclination and temperament will be allied in furtherance of aims which bring science into touch with schemes that affect the national well-being. We are mindful that Mr. Joseph Chamberlain, as a Government official, passed the word that research and preventive measures in tropical diseases were necessary and must be undertaken. What followed made history.

A CORRESPONDENT recalls the interesting fact, in connexion with Mr. Baldwin's election, that in recent times three precedents can be recorded for the election of a Prime Minister into the Society whilst holding the seals of office. The instances are: Mr. Disraeli, elected on Feb. 10, 1876; Mr. Gladstone, elected on Jan. 13, 1881; the Earl of Oxford and Asquith (then Mr. Asquith), elected Nov. 5, 1908. The first-named was formally admitted by Dr. J. D. Hooker on June 1, 1876, that being the day fixed for the election of ordinary fellows. Amongst these (and surviving) were Prof. H. E. Armstrong and Sir David Ferrier. Mr. Gladstone was admitted on May 19, 1881, on which occasion William Crookes read a paper, "On Discontinuous Phosphorescent Spectra in High Vacua." Sir William Thiselton-Dyer, who had been elected a fellow in the previous year (1880), survives, and, indeed, may have witnessed Mr. Gladstone sign the charter book.

CONSIDERABLE interest has been aroused by the report in the press that concessions were believed to have been granted to a British syndicate for the purpose of utilising the vast mineral resources of the Dead Sea. This interest was reflected in the very pertinent questions put in Parliament a few days ago. From the reply given in the House of Commons by Mr. Ormsby-Gore, it appears that although it has been decided in principle to grant a concession to

certain individuals, the terms and conditions are still under negotiation. The potassium salts of commerce are derived largely from the Stassfurt deposits in Germany. At the outbreak of the War in 1914, these supplies were closed to the Allies and a serious dearth ensued. The waters of the Dead Sea are heavily charged with mineral salts. They are estimated to hold in solution some 2000 million tons of potassium chloride, a quantity that may be regarded as practically inexhaustible from a commercial point of view. In the event of war, these supplies, if accessible, might be extremely valuable to the British Empire, and considerable anxiety has been manifested lest Germany or some other foreign power should acquire controlling interests over these supplies.

LORD LOVAT stated in the House of Lords that the Government is fully aware not only of the economic importance of the Dead Sea deposits, but also of the political questions that may arise in the event of these deposits being worked. This, in so far as it goes, is reassuring. It must be borne in mind that the whole scheme is at present merely in an experimental stage. Whilst, as a purely chemical proposition, it may not be difficult to prepare the different salts in a sufficient state of purity to meet modern requirements, the placing of these salts upon the European market at competitive prices may be no easy task. The level of the Dead Sea is some 1300 feet below that of the Mediterranean, and Jaffa, the nearest port, is hemmed in by rocks to seaward which effectively bar the approach of any but the smallest boats. Thus the problem of transport alone, in a country which is devoid of fuel, in the face of the ready accessibility of the Stassfurt deposits, is one of considerable magnitude.

THE Institute of Chemistry of Great Britain and Ireland, which was founded in 1877 and incorporated by Royal Charter in 1885, celebrates its jubilee on Dec. 14 and 15. In the proceedings the fellows and associates of the Institute will be joined by members of nine allied chemical societies and institutions and their ladies. On Wednesday, Dec. 14, there will be a *conversazione* and reception by the president, Prof. Arthur Smithells, and Council of the Institute, and on the following evening a dinner, at which the president will occupy the chair, both events taking place at the Wharnccliffe Rooms, Hotel Great Central, Marylebone. For this year the jubilee dinner will take the place of the annual Chemical Dinner. An exhibition of films illustrating British industries in which chemistry is applied has been arranged for Thursday morning, Dec. 15, and on both days the Council Room, Library, and Laboratory at 30 Russell Square, W.C.1, will be open to members of the participating organisations. Documents, portraits, apparatus, and prints of historical interest will be on view, and the Institute's collection of lantern slides illustrating the history of chemistry will be displayed. On Dec. 15, the Master and Wardens of the Worshipful Company of Salters will entertain the officers of Institute and representatives of other societies at

luncheon. The Institute of Chemistry, which is well known as a body which grants certificates of competency in various branches of the profession with the object of maintaining a high standard of scientific and practical proficiency, and deals also with questions of status and professional conduct, now has a membership roll of more than 5300 fellows and associates practising in all parts of the Empire, and 800 student-members. There are sixteen local sections, and a number of honorary corresponding secretaries who act for the Institute in the Dominions and Colonies, and in the Empire of India.

IMPERIAL CHEMICAL INDUSTRIES, LTD., has taken yet another important step in the direction of promoting close relations between so-called 'pure' and 'applied' chemical research. By its establishment of a research council, which will function as an advisory board and clearing house for ideas, a close liaison will be effected between industry and the universities. The connexion thus strengthened between those engaged in academic and industrial pursuits provides a stimulus for the flow of vitalising force in both directions; not only will the scheme lead to efficiency of action and economy of effort in the attack on industrial problems, but it should also lay the foundations of a greater appreciation of the industrial situation by academic research workers. This is the first body of its kind to be established in Great Britain, although the value of similar organisations has been amply demonstrated in other countries. The scheme will doubtless play a significant part in helping to place British practice on more than competitive terms with modern achievements and organisations elsewhere. The council will be presided over by Sir Alfred Mond, and the other members will be: Dr. G. C. Clayton, M.P., Col. G. P. Pollitt, Mr. J. Rogers, Dr. F. A. Freeth, Dr. E. F. Armstrong, Dr. R. E. Slade, Mr. H. A. Humphrey, Sir Frederick Keeble, Prof. F. G. Donnan, Prof. R. Robinson, Prof. W. A. Bone, Prof. F. A. Lindemann, and Dr. E. K. Rideal, with Major A. E. Hodgkin as secretary.

ON Nov. 23, Sir Alfred Mond gave his presidential address to the Institute of Fuel, which has resulted from the union of the Institute of Fuel Technology and the Institution of Fuel Economy Engineers. He announced that Mr. Frank Hodges would be the new president, and gave an account of the plans and policy of the new body. The address, which was of a general character, dealt with economic rather than scientific problems. There was, however, a hint of a method, now under probation, for reducing the ash of coal to 2 per cent.—an achievement so desirable that it seems too good to be true. A new application of pulverised fuel was mentioned—the use of coal dust in place of oil in the Diesel engine. The realisation of such an engine might open a new vista to the coal trade. Sir Alfred advocated more study and care to prevent size reduction of coal in transport and handling, for this usually involves a diminution in market value. On the economic side he pleaded for amalgamation of units, for reorganisation of the coal

industry, for reduction of the personnel by pensioning the older men, the relief of rates, taxes, and transport costs, the assistance of the State in raising the capital necessary for modernisation, as, for example, in the case of coke oven installations.

READERS OF NATURE will note with special interest Sir Alfred Mond's views on industrial research—his advocacy of its intensification by the use of whole teams where now individuals work. This he regards as necessary not merely to ensure progress but even to maintain our position. The coal industry seems to offer a wide field for the scientific advancement which is necessitated by international competition. This applies both to production and selling. Thus he holds that the sale of coal of a guaranteed uniform standard would assist the export trade more than the cutting of prices, which has been the normal economic weapon of our collieries. The programme of this meeting of the Institute of Fuel was interesting, and the papers of importance to actual problems. The aims of the new body are wholly beneficent, but appear to be covered by already existing organisations. Opinions differ as to whether it can accelerate technical progress. So far as the scientific worker is concerned, the multiplication of institutions, with attendant drain on purse, time, and energy, may hinder as much as help.

A PAPER on national electricity supply was read to the Institute of Fuel on Nov. 23 by Sir Philip Dawson. He pointed out that whilst in Great Britain only 40 per cent. of the total motive-power required for industry is electric, in Germany the percentage is 70, in the United States 65, and in Belgium 56. In Great Britain large reserves of coal remain unworked because of their high ash content. They could easily be worked with the rest of the seam and sold at a cost of from four to five shillings per ton at the pit's mouth. This fuel has a calorific value about double that of the brown coal so successfully utilised in Germany, but so far little or no attempt has been made to utilise it in Great Britain. In the future these poor qualities of coal, which it does not pay to transport, should be used in the form of pulverised fuel to produce electricity at the colliery. In England, only 14 per cent. of the coal mined is cut mechanically. This compares with 47 per cent. in Scotland. The excess gas produced in steel works should be utilised for generating electricity, as this could be profitably supplied to the network controlled by the Central Electricity Board.

SIR PHILIP DAWSON stated that we are only beginning to reap the benefits of co-operation and co-ordination in the generation and transmission of electricity. Wherever interconnexion has been carried out, it has resulted in greater safety and more perfect continuity of supply. In Sir Philip's opinion, the result of the 1926 Act should bring about, in the best sense of the word, a national and not a nationalised supply of electricity in Great Britain. In the discussion, Sir Arthur Duckham said that for the supply network in the Clydeside area, the first scheme put forward by the Central Electricity Board, not a single colliery has offered to supply electricity to the system.

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It is possible that in the future the collieries will utilise for their own purposes electric power from the network, some of which is generated by water, instead of economically generating it themselves by their own low grade fuel.

ONE or two years ago, Dr. Karolus, of Dresden, claimed to have achieved television by means of apparatus which transmitted 100,000 units of the image in one-tenth of a second. We now learn from the *Times* of Nov. 30 that his system of transmitting photographs and papers which may be coloured—except green, blue, and mauve, which are not recommended—by telegraph wires has been adopted by the Austrian telegraph department. The pictures sent may portray persons or drawings, cheques, structural plans, documents, or writings by hand or type. The size of the picture or type must not exceed 4 inches by 7½ inches, the minimum being 4 inches by 1½ inches. The paper must be opaque and the writing clear and easily read. It is stated that the largest strip will accommodate 400 words in pearl type. The charge for the transmission of the smallest permissible picture from Vienna to Berlin is 7s. 11d., each additional 1½ square inches costing 2s. A reduction of about 25 per cent. is made if the picture is transmitted during the night hours, that is, between 9 P.M. and 8 A.M. The Siemens' Electrical Company, which is producing the apparatus, has modified Karolus's original system. Full details will be awaited with interest, as the transmission of coloured prints and photographs by telegraphy has hitherto not reached the commercial stage.

MOST hearty congratulations are due to the veteran Prof. W. Cawthorne Unwin, F.R.S., who, on Monday next, enters on his ninetieth year. Born at Coggleshall, Essex, he was educated at the City of London School, and on leaving became a pupil in the firm of William Fairbairn, Manchester. Next he undertook the management of some engineering works, thereafter filling a post as an instructor in the Royal School of Naval Architecture and Marine Engineering, South Kensington. He was professor of hydraulic engineering at the Royal Indian Engineering College, Coopers Hill, from 1872 until 1885; afterwards, for twenty years (and these were fruitful in effort) he taught the principles of engineering at the Central Technical College, City and Guilds of London Institute. Prof. Unwin is a past president of the Institutions of Civil and Mechanical Engineers. At the latter there hangs a portrait of him by Mr. Harold Speed.

DR. R. T. A. INNES, who is retiring at the end of this year from the post of Director of the Union Observatory, Johannesburg, was born in Edinburgh, and when a young man went to Australia. To the *Monthly Notices* of the Royal Astronomical Society of 1892 he contributed a paper on the secular perturbations of the earth by Mars. In 1896 he joined the staff of the Cape Observatory as secretary, librarian, and accountant. Although forming no part of his official duties, he executed three valuable pieces of astronomical work: (1) A revision of the Cape Photographic *Durchmusterung*; (2) a general catalogue of

southern double stars, of which he discovered 280 with a 7-inch equatorial; (3) observations of variable stars. In 1903 he was, on Gill's recommendation, appointed Director of the Meteorological Observatory of the Transvaal. Gradually astronomical equipment was obtained for the Observatory, and many of the photographs of Mr. Franklin-Adams' survey were taken at the Johannesburg Observatory by Mr. Wood, Dr. Innes' assistant. Dr. Innes set his heart on a large visual refractor for double-star work. Owing to the difficulty of obtaining optical glass and to the War, he suffered the disappointment of long delay; and it was only two years ago that a 26-inch refractor was received. He continues his interest in the motion of sun, moon, and planets, and the cause of the small but persistent differences from tables based on gravitational theory. Following the example of Gill, he has welcomed at Johannesburg astronomers from the northern hemisphere, where he is able to supply sky and equipment and thus makes up for a small staff.

THE seventieth birthday of Prof. S. G. Navaschine, the distinguished botanist, will be celebrated in Moscow on Dec. 21 at a special meeting to be held in the University, where congratulatory addresses and greetings will be presented to him. Prof. Navaschine is a foreign or corresponding member of a number of national and botanical societies, and his botanical work is highly esteemed over a wide circle. Letters or telegrams of congratulation should be addressed to Prof. M. I. Golenkin, director of the Botanic Garden, University of Moscow, U.S.S.R.

ON Nov. 30, the portrait of Prof. J. A. Fleming, painted by Sir William Orpen, was presented to University College, London, by the chairman of the Portrait Fund Committee, Mr. Campbell Swinton. The gift was received on behalf of the College by Lord Chelmsford, chairman of the College Committee, and Prof. Coker, Dean of the Faculty of Engineering. In making the presentation the chairman gave an engaging account of the eminent artist's method of producing so strikingly successful a result. Lord Chelmsford, in acknowledging the gift, said that Prof. Fleming's life and work have shed lustre on the College, and that more than 2000 students have passed through his hands, three of whom have been presidents of the Institution of Electrical Engineers. Prof. Coker also testified to the distinguished career of Prof. Fleming, both as teacher and investigator. The chairman then presented Prof. Fleming with a copy of the portrait. In accepting it, Prof. Fleming briefly outlined the growth of his Department of the College, and stated that he intended presenting the copy to the Institution of Electrical Engineers. This he did on the following evening. The copy of the portrait was received by the president of the Institution, Mr. Page, who thanked Prof. Fleming for his gift in very cordial and appreciative terms.

AT the annual general meeting of the fellows of the National Institute of Agricultural Botany at Cambridge on Dec. 2, Sir Daniel Hall, who presided as chairman of the Council, submitted the annual report and presented to Sir Matthew Wallace the John Snell

Memorial Medal for 1926. Papers were then read dealing with different aspects of the testing and control of agricultural seeds. Mr. A. W. Monro, of the Ministry of Agriculture, dealing with the administrative aspect, recalled that the regular testing of seeds for purity and germination began in Germany in 1870 and Denmark in 1871. Ireland established an official seed-testing station in 1900, Scotland in 1914, and England and Wales in 1917. Legislative control in the United Kingdom began with the Irish Weeds and Agricultural Seeds Act of 1909, and was extended to the whole country by the Testing of Seeds Order in 1917. This was superseded by the Seeds Act, 1920. The basic principle of the Order and the Act is to let the farmer know what he is buying by compelling the seller to disclose the essential facts—origin, variety, purity, and germination—in the case of the principal agricultural seeds. Seed merchants, taken as a whole, comply readily with the regulations, but farmers who sell seeds to their neighbours are apt to ignore them. The information required by the Act is obtained by tests at the official stations—Cambridge, Edinburgh, and Belfast—or at one of the 88 private stations licensed by the Ministry. In the opinion of Mr. Monro, the principal effects of the Act have been to raise the quality of the bulk of the seed supplies, so far as purity and germination are concerned, to the high standard that has long been observed by the best merchants, and to drive off the market the lower grades of grass, clover, and root seeds.

MR. ALFRED EASTHAM, the Chief Officer of the Official Seed-Testing Station for England and Wales, read a paper on the technical aspects of seed testing. Essential high accuracy is in seed testing, it is now generally recognised that the efficiency of the routine work depends upon constant investigation of the underlying principles and their adaptation to the changing character of the seasons. In addition to these routine investigations, there are many special problems under examination at the Cambridge Station. Examples of these problems are (a) the loss of vitality in seeds and the bearing which storage conditions have upon the rate of loss, and (b) seed-borne diseases. Both are of much importance to all who are interested in seeds, and during the past four years a great deal of time has been spent upon them. A seed-testing station's first duty is to report on the purity and germination of the samples it tests; but, though high percentages of purity and germination are most desirable, too much value should not be placed upon them. The nationality of the seed, its vigour, and the nature of the impurities present must be kept in view. Strain is of the first importance, and, provided it is free from harmful impurities, seed of a good strain but of comparatively low purity and germination is much to be preferred to seed of a poor strain, however high its purity and germination; for the latter might easily fail to produce a satisfactory crop.

THE Library of the Chemical Society will be closed for the Christmas holidays at 1 P.M. on Friday, Dec. 23, and will reopen at 10 A.M. on Thursday, Dec. 29.

MR. S. ZUCKERMAN, of the University of Cape Town, has been appointed to the research fellowship in anatomy, and Miss Eleanor Margaret Brown, of University College, London, to the aquarium research fellowship, offered by the Zoological Society of London.

FOR the meeting of the British Association to be held next year in Glasgow on Sept. 5-12, under the presidency of Sir William Bragg, the following sectional presidents have been appointed: Section A (Mathematical and Physical Sciences), Prof. A. W. Porter; Section B (Chemistry), Prof. E. C. C. Baly; Section C (Geology), Mr. E. B. Bailey; Section D (Zoology), Prof. W. Garstang; Section E (Geography), Prof. J. L. Myres; Section G (Engineering), Sir William Ellis; Section H (Anthropology), Sir George Macdonald; Section I (Physiology), Prof. C. Lovatt Evans; Section J (Psychology), Prof. T. H. Pear; Section K (Botany), Prof. R. H. Yapp; Section L (Education), Prof. A. Smithells; Section M (Agriculture), Dr. J. S. Gordon. The president of Section F (Economic Science and Statistics) will be announced later.

AT an extraordinary meeting of the General Committee of the British Association, held on Dec. 2, the president, Sir Arthur Keith, in the chair, it was resolved to put forward an application for a Royal Charter for the Association. Mr. A. A. Campbell Swinton was warmly thanked for his generous offer to bear the cost of obtaining the charter. It was also resolved "that the General Committee gratefully accepts Mr. Buckston Browne's generous offer to vest Downe House in the Association, and authorises the president to make any suitable arrangements for the custody of the property in the interval between the acquisition thereof and the granting of a Charter."

A LIFE-SIZE bronze statue of the late Dr. John A. Brashear, well known as the maker of numerous large telescopes and astronomical instruments, and the founder of the new Allegheny Observatory, has been placed in the rotunda of the Observatory and was unveiled on Nov. 24, the anniversary of his eighty-seventh birthday. The statue is the work of Mr. Frank Vittor, and is a gift to the University of Pittsburgh from a number of Dr. Brashear's life-long friends.

THE following officers and new members of council of the Cambridge Philosophical Society have been elected for the session 1927-28: *President*, Dr. H. Lamb; *Vice-Presidents*, Prof. J. T. Wilson, Prof. A. Hutchinson, Prof. G. I. Taylor; *Treasurer*, Mr. F. A. Potts; *Secretaries*, Mr. F. P. White, Mr. R. H. Fowler, Mr. F. T. Brooks; *New Members of Council*, Mr. W. H. Mills, Mr. M. H. A. Newman, Dr. H. Hamshaw Thomas, Dr. J. Needham; *New Member of Philosophical Library Committee*, Mr. R. H. Fowler.

AN International Exhibition and Conference on Light and Heat in Medicine and Surgery will be held at the Central Hall, Westminster, on Dec. 13-16. The work of the conference will be divided into three sections, dealing with light and heat in medicine and surgery, scientific research in relation to the practice

of actinotherapy, and recent advances in optics, respectively. The exhibition will be opened at 2.30 p.m. on Dec. 13 by Sir Alfred Mond. The exhibition and conference are being organised by the *British Journal of Actinotherapy*, 17 Featherstone Buildings, London, W.C.1, from which tickets of invitation and vouchers for reduced railway fares can be obtained.

REFERENCE was made in our issue of April 30, p. 649, to the nineteenth meeting of the Australasian Association for the Advancement of Science, to be held at Hobart during the week commencing Jan. 16. A further programme recently received enables us to give more particulars of the meeting. The presidential address by Mr. R. H. Cambage will be on the development of some early Australian floras. Sectional presidential addresses are topical, and refer mainly to Australian conditions. In addition to papers in the various sections, discussions have been arranged on research in relation to manufacturing industries in Australasia (physics, chemistry, and engineering sections), animal nutrition and pasture deficiency (chemistry, agriculture, and veterinary science sections), structure of colloids (chemistry and physiology sections), the marketing of fruit (economics section), the pharmaceutical chemist in the community and micro-chemical methods in testing pharmaceutical products (pharmaceutical section).

A RUBBER Exhibition was opened at the Imperial Institute, South Kensington, on Dec. 2, by Mr. Hacking, Parliamentary Secretary of the Department of Overseas Trade, and will remain open until Dec. 31. This exhibition, admission to which is free, is the first of a series of short exhibitions of Empire products which will be held from time to time at the Imperial Institute. It has been arranged in conjunction with the Rubber Growers' Association and is divided into two parts, the first dealing with the production of raw rubber, and the second, with manufacture and application. A series of specimens of wild rubber plants, which were the only source of rubber until the modern plantation system was evolved, are shown; at the present time, this source is responsible for only about 5 per cent. of the total world production. Two allied rubber products are also exhibited, *i.e.* balata and gutta-percha. Both of these are chemically similar to rubber, although they differ in their physical properties. Further exhibits illustrate various processes of manufacture of raw rubber. The Research Association of British Tyre and Rubber Manufacturers has contributed an exhibit showing the compounding ingredients employed in the manufacture of rubber articles, and the Ceylon Rubber Research Scheme (which has its laboratories at the Imperial Institute) illustrates various investigations in connexion with the perishing of rubber and variations in its plasticity. About fifty firms have contributed to the exhibition. A film showing the production of raw rubber and its utilisation in manufacture is being displayed in the adjoining cinema. Lecture tours are also arranged for those who care to avail themselves of these facilities.

APPLICATIONS are invited for the following appointments, on or before the dates mentioned:—A junior secretary (male) in the External Registrar's department of the University of London—The Secretary, University of London, South Kensington, S.W.7 (Dec. 16). A graduate assistant in mechanical engineering at the Wakefield Technical College—The Director of Education, Education Offices, Town Hall, Wakefield (Dec. 17). A Paterson research scholar in the cardiographic department of London Hospital—The House Governor, London Hospital, E.1 (Dec. 19). An additional research fellow in the department of glass technology of the University of Sheffield—The Registrar, The University, Sheffield (Dec. 23). A junior assistant at the National Physical Laboratory with a good honours degree or equivalent qualifications in engineering—The Director, National Physical Laboratory, Teddington (Dec. 24). A principal of the Constantine Technical College, Middlesbrough—The Director of Education, Education Offices, Middlesbrough (Dec.

31). A lecturer in inorganic and physical chemistry at the Sir John Cass Technical Institute—The Principal, Sir John Cass Technical Institute, Jewry Street, E.C.3 (Dec. 31). An assistant lecturer in geography in the University of Manchester—The Registrar, The University, Manchester (Jan. 11). An assistant in the department of art of the National Museum of Wales—The Director, National Museum of Wales, Cardiff (Jan. 14). An entomologist and a plant breeder in the Agricultural Department, Iraq; the entomologist must have had specialised training in entomology and experience of research work and of pest control measures; the plant breeder must have had specialised training in genetics and, preferably, experience of plant breeding work—The Private Secretary (Appointments), Colonial Office, 2 Richmond Terrace, Whitehall, S.W.1. An adviser in mycology for the Bristol Province under the Advisory Scheme of the Ministry of Agriculture and Fisheries—The Registrar, The University, Bristol.

Our Astronomical Column.

NEW COMET.—The tenth cometary discovery of 1927 is reported from Melbourne in a telegram distributed by the I.A.U. Bureau, Copenhagen. It was made by Mr. F. Skjellerup on Dec. 3 at 17 h. 30 m. D.T. in R.A. $16^{\text{h}} 12^{\text{m}} 12^{\text{s}}$, S. Decl. $53^{\circ} 57'$. The comet was of the third magnitude, and had a tail 1° long; it was moving towards the sun.

It appears very probable that this is De Vico's long-period comet 1846 IV., which has been searched for by southern observers since 1920. If so, its period is $81\frac{1}{2}$ years, and its perihelion passage about Dec. 15. No one has computed the perturbations of this comet since 1846, and it is possible to represent the position within a few degrees by the unperturbed elements; moreover, if identical, it would be only one-third of a unit from the earth, so any departure from its predicted place would appear exaggerated. If the identity is right, it will cross the equator about the time of perihelion, and will then pass in to high north declination. The period is several years longer than the predicted one, but that causes no surprise. The comet Brorsen-Metcalf, 1847 V., returned in 1919, nine years before it was expected. Mr. Skjellerup made several cometary discoveries when he lived in South Africa, but this is the first he has made since he moved to Melbourne.

DETECTION OF A NEW NAKED-EYE CEPHEID.—*Harvard Observ. Circular* 316 contains the interesting announcement that the fourth magnitude star Beta Doradus has just been discovered to be a Cepheid variable, with a photographic light-range of 1.4 magnitude, and a visual one of nearly a magnitude. Miss Applegate was the first to suspect the Cepheid character, which she did by noting periodic changes in the type of spectrum; R. E. Wilson on the same grounds classed the star as a pseudo-Cepheid, not knowing of the light variation. This was not easy to detect photographically, the star's image being too large on most plates for accurate measures; but by a lucky chance, several images were found on plates with ten minutes' exposure taken in 1925 and 1926 for the light-curve of Nova Pictoris. The adopted period is 9.841696 days, and on plotting the observations with this period the variation is quite evident. The light-curve is symmetrical on each side of maximum and minimum, without any sign of a second harmonic. Prof. Bailey's visual photo-

metric observations made in 1899 at Arequipa were examined; it was found that his observations of this star showed an unusually large range, and in consequence he took a number of extra observations of it. These are now found to conform well with the adopted curve, but Bailey did not discover that the variation was regular.

Beta Doradus is one of the stars in the *Nautical Almanac* list, its magnitude being 3.81, spectral type *F5p*, proper motion according to Richelberger -0.0031 sec. in R.A., $+0.0005$ in decl. The absolute magnitude from the period-luminosity curve is -1.9 , giving a parallax of 0.0043 , and a distance of 760 light-years.

SOLAR ACTIVITY DURING 1926.—The final values for the mean daily area of sunspots and Wolf's sunspot number for the year 1926 have recently been published by the observatories of Greenwich and Zürich respectively (*Monthly Notices R.A.S.*, Nov. 1927, and *Astronomische Mitteilungen*, Nr. 116). The mean daily area of spots, corrected for foreshortening and expressed in millionths of the sun's hemisphere, is stated to be 1262 and the Wolf's sunspot number 63.9. Mean daily areas for periods of a solar rotation (Greenwich) and spot numbers for each month (Zürich) are also given in the respective publications.

The following table shows the progress of the present sunspot cycle since the last minimum in 1923:

Year.	Mean Daily Area.	Wolf's Number.	Mean Solar Latitude of Spots.
1923	55	5.8	$\left\{ \begin{array}{l} 6^{\circ}.4* \\ 24^{\circ}.4\ddagger \end{array} \right.$
1924	276	16.7	22.7
1925	830	44.3	20.2
1926	1262	63.9	18.6

* Old cycle spots.

† New cycle spots.

The average provisional spot-number for the first six months of 1927 is 79, but since June the sun's activity has fallen off somewhat. Judging from the trend of the mean latitude of the spots—a fairly sure indication—the maximum year of the cycle should be 1928.