pressure and supported his thesis in a long letter to NATURE in 1887 (vol. 36, p. 437). He also developed the theory that some of the barometric depressions which visit the British Isles originate in tropical cyclones, and he actually succeeded in tracing the course of one such storm from the Philippines to Scandinavia, more than half-way round the globe—no easy matter in 1882.

The capacity for painstaking research which characterised this paper also marked Mr. Harries' collection of occurrences of hail and thunder storms in Arctic regions, his study of the frequency, size, and distribution of hail at sea, and his paper on the great storm of November 1703, in which he brought to light some long-buried official records. The same thoroughness, in a different direction, was shown in his paper on "The Eddy Winds of Gibraltar", in which he displayed great ingenuity in the use of simple methods of aerological investigation. This paper was published in 1914 by the Royal Meteorological Society, of which he was a fellow from 1887 until 1914.

DR. FLORENCE BUCHANAN.

BY the death of Dr. Florence Buchanan on Mar. 13, a familiar figure is removed from the laboratories at Oxford. For the past ten years she had been handicapped by increasing blindness; but even so, occasional articles have appeared from her pen. Previously she had carried out many interesting studies in the fields of zoology and physiology. Her earliest papers, on the respiratory organs of decapods and on annelids, appeared in the *Quarterly Journal of Microscopical Science* while she was still a student at University College, London, and there the influence of Sir Ray Lankester turned her attention to zoological studies, particularly of the polychæts. Later, with Sir John Burdon Sanderson at Oxford, she turned to physiological experiments upon the electrical response of muscle, recorded photographically by a capillary electrometer, and as a result of her investigations she was awarded several prizes, received the degree of D.Sc. from the University of London, and was made a fellow of University College.

Throughout her physiological work, Dr. Buchanan retained her first interest in animal life, and to a biologist some of her most striking researches were concerned with the frequency of the heart-beat in small mammals and birds, with the varying rates of heart-beat in hibernating and waking mammals, and with the general problem of hibernation. Heredity may have accounted for Dr. Buchanan's scientific skill and enthusiasm, for she was a daughter of the late Sir George Buchanan, chief medical officer of the Local Government Board, and a sister of Sir George Seaton Buchanan and Lady Adam Smith, wife of the principal of the University of Aberdeen. J. R.

THE death occurred on Sunday, Feb. 15, of W. G. Robson, lecturer in natural philosophy in the United College of the University of St. Andrews. From 1892, when Mr. Robson was appointed assistant to Prof. A. S. Butler, he was almost continuously associated with the University either in St. Andrews or Dundee. During the War he was engaged in the Aircraft Instruments Department in London, and had charge of the Oxygen Research Laboratory. His wide experience, kindly disposition, and his knowledge of mathematics, physics, and electrical engineering made him a most valuable member of the University staff.

WE regret to announce the following deaths:

Dr. M. W. Beijerinck, founder and director of the Microbiological Institute at Delft, on Jan. 1, aged seventy-nine years.

Prof. G. Gehlhoff, of the Technical Highschool, Berlin, president of the Deutsche Gesellschaft für Technische Physik, vice-president of the Deutsche Glastechnische Gesellschaft and a director of the Osram G.m.b.H., who in recent years took a leading part in the development of glass technology in Germany and made a number of notable contributions from his own laboratory, died on Mar. 12.

Prof. D. Hepburn, C.M.G., professor of anatomy in the Cardiff Medical School of the University of Wales, formerly president of the Anatomical Society of Great Britain and Ireland, on Mar. 10, aged seventy-two years.

Prof. Carl Emil Hansen Ostenfeld, professor of botany and director of the botanical garden in the University of Copenhagen, on Jan. 16, aged fifty-eight years.

Prof. Enrico Sereni, head of the department of physiology in the Stazione Zoologica, Naples, on Mar. 1, aged thirty-one years.

Prof. Otto Wallach, emeritus professor of chemistry in the University of Bonn, who specialised in the chemistry and industrial uses of the terpenes and was awarded the Nobel prize for chemistry in 1910, on Mar. 1, aged eighty-four years.

News and Views.

THE Council of the Royal Society has agreed to recommend for election as fellows of the Society the following seventeen candidates: Percy George Hamnall Boswell, professor of geology in the Imperial College of Science and Technology; Alfred Joseph Clark, professor of pharmacology in the University of Edinburgh; Charles Davidson, assistant at the Royal Observatory, Greenwich; Reginald Ruggles Gates, professor of botany, King's College, London; Charles Stanley Gibson, professor of chemistry, Guy's Hospital Medical School; Hermann Glauert, Principal Scientific Officer, Royal Aircraft Establishment, Farnborough; Charles Robert Harington, reader in pathological chemistry in the University of London (University College Hospital Medical School); Isidor Morris Heilbron, professor of organic chemistry in the University of Liverpool; Sir Alexander Cruikshank Houston, Director of Water Examinations to the Metropolitan Water Board; Lieut.-Col. Sydney Price James, I.M.S., adviser on tropical diseases to the Ministry of Health; Charles Frewen Jenkin, lately professor of engineering science in the University of

Oxford; Stanley Wells Kemp, director of research, *Discovery* Expedition; Thomas Howell Laby, professor of natural philosophy, University of Melbourne; William Kingdon Spencer, palæontologist; Edward Charles Titchmarsh, professor of pure mathematics in the University of Liverpool; Wilfred Trotter, surgeon to University College Hospital; Miles Walker, professor of electrical engineering, University of Manchester.

THE Dalton medal of the Manchester Literary and Philosophical Society, which was awarded to Sir J. J. Thomson on Mar. 10 on the occasion of his visit to Manchester, was founded so far back as the year 1864, but, curiously enough, no allotment was made until 1898. The circumstances attending its early institution and production are somewhat obscure; at any rate it was a medallic gift to be adopted "for presentation on such occasions as the society may determine", a decision which left future bestowal an open matter, a point well seen in the awards, which have only occurred as follows: Dr. Schunck (1898), Sir Henry Roscoe (1900), Prof. Osborne Reynolds (1903), Lord Rutherford (1919), Sir J. J. Thomson (1931). The medal is struck in bronze; the obverse bears the head of John Dalton, and on the reverse, within crossed laurel branches, is a sphinx, with accompanying legend, "Knowledge is Power". The first presentation of what was apparently an original Dalton medal was made on Mar. 29, 1898, to Dr. Edward Schunck, in "recognition of his series of researches on the natural colouring matters, with which he has enriched chemistry". Schunck had been a member of the Manchester Literary and Philosophical Society for fifty-six years. It may be recalled that on the occasion of the gift, Sir Joseph Hooker attended to receive the Wilde gold medal, whilst Sir Michael Foster delivered the Wilde lecture, with the title "On the Physical Basis of Psychical Events".

THE discontinuance of a medallic gift by a scientific society is unusual. This has been the case, however, with the Wilde gold medal of the Manchester Literary and Philosophical Society. In 1895, Dr. Henry Wilde, a generous benefactor in many directions, established a fund, part of which was to be devoted to the annual award of a gold medal for distinguished services to science and philosophy. The first medal was given in 1896 to Sir George Stokes for "pre-eminent services to mathematical and physical science". Sir George visited Manchester in the following year, received the medal, and gave an address entitled "The Nature of the Röntgen Rays". The final gift of the kind was made in 1908 to Sir Joseph Larmor. Referring to the article on the sesqui-centenary of the foundation of the Manchester Literary and Philosophical Society in NATURE of Mar. 14 (p. 408), it has been pointed out by a correspondent that the Copley medal of the Royal Society was never awarded to John Dalton. Dalton received the Royal Society's Royal medal in 1826, the first presented at the time of institution.

THE election on Mar. 9 of Prof. Elie Cartan to the seat of the late Paul Appell in the Paris Academy of Sciences has added a prominent mathematician to the distinguished body of men of science of the Quai Conti. Prof. Cartan has specialised in the theory of groups and in higher geometry, and has developed these fundamental branches of mathematics in unexpected and far-reaching directions. We still remember the deep impression he made at the International Congress of Mathematicians in Bologna, when he showed how to determine a complete orthogonal system of functions in any Riemannian space with a positive curvature and symmetrical with reference to each of its points; and how to derive a geometrical representation of these series of fundamental functions by means of a special type of isometrical transformations. Indeed, in his numerous memoirs on these abstruse topics, Prof. Cartan has given a remarkable generalisation to the Riemannian spaces, thus preparing the way to subsequent developments in natural philosophy.

IN Newtonian mechanics, as is well known, gravitation has no influence on measurements as such. In Einstein's universe, however, all measurements follow so closely the structural character of the gravitational field in which they are immersed, that a knowledge of the geometry of that field is equivalent to a knowledge of its physical properties; so that mechanics is implied in geometry again, as was the case during the golden period of Greek science. It appears necessary, then, to labour in detail the manifold interpretation of the notion of space underlying the geometrical and physical description of the universe. The curved space discovered by Riemann in 1853, which found its practical application in 1916, has to be itself generalised and enlarged if the future claims of theoretical physics have to be satisfied. In this connexion 'Cartan's spaces', by reason of their greater generality and completeness, are of supreme importance. This was a new revelation to some of us who listened to his illuminating exposition at the International Congress of Philosophy at Naples in 1924, when Prof. Cartan spoke of the torsional properties of space and the difficulties created by magnetic phenomena in the single vectorial representation of material particles. The practical value of his intuitions has been confirmed since by the implications of De Broglie's wave-mechanics, which seems to demand a more complex theory of groups for its geometrical interpretation. As a mathematician, Prof. Cartan has had a distinguished career. Born in 1869, he studied at the École Normale Supérieure of Paris, and took his doctor's degree in 1894. He now occupies the chair of higher geometry, which was held previously by Darboux, at the University of Paris. His numerous mathematical memoirs earned for him, last autumn, the Grand Prix of £400 of the Paris Academy of Sciences.

AFTER a keen debate in the House of Commons, on Mar. 16, Clause 4 of the Representation of the People Bill, which had been before the House in committee, was defeated by 246 votes to 242. The special claim of Queen's University, Belfast, was first brought forward by Mr. Ross and supported by Col. Sinclair, pro-chancellor of Queen's University and its representative in Parliament. This claim, however,

was rejected by 178 votes to 168. The motion for the deletion of Clause 4 from the Bill was presented by Lord Hugh Cecil. He analysed the question of equalitarian democracy, which is based on the 'one vote, one value' theory, and declared it does not and cannot exist. He then appealed to the members not to spoil the tradition of true representation. Major Church opposed his own party by strongly supporting this appeal. He considers it intolerable that this bill should suggest that university education is not of special value, especially in view of the fact that the universities are no longer class preserves and produce advisers to governments and leaders of science and industry. Mr. Clynes refused the appeal for a free vote, pointing out that, at least, there is no justification for giving university voters twice the representation of other voters. He pointed out that university members have shown little special political capacity. The Government was also supported by Sir Herbert Samuel.

IN a pamphlet entitled "A National Policy" (London: Macmillan and Co., Ltd. 6*d.*), describing the programme advanced by Sir Oswald Mosley, M.P., there are some references to scientific research which, without trenching on questions of party politics, it may be of interest to summarise. No task, it is argued, is of more vital importance than that of mobilising our great scientific resources and attainments. Great Britain's industrial future depends on the rapid and effective adoption of new scientific results more than upon any other single factor. Our high degree of industrialisation, our unrivalled technical experience, the skill of our workers, our great resources of scientific ability and devotion, give us the opportunity to maintain our lead indefinitely. What is chiefly lacking is the effective co-ordination and application of our resources. The work of the Department of Scientific and Industrial Research is commended; but it is said that the scale on which it is allowed to operate is too limited. A method must be adopted by which new devices and inventions can be carried through the difficult intermediate stage between successful laboratory results and commercial exploitation. At present, the Department can only test inventions at the owner's expense and issue a report on the results. A certain maximum sum should be set aside each year for the Department's use for the development of a small number of selected inventions, which, after making a suitable financial arrangement with the patentee, should be taken right out of the laboratory stage and put on the market under public auspices.

SIR OSWALD MOSLEY also suggests the fostering of inventions and the extension of agricultural and medical research, while an organised attempt might be made to standardise many of the basic products of industry for mass production purposes, comparable to Mr. Hoover's remarkable campaign in the United States of America. The establishment of new industries under the direction of a National Investment Board is advocated where these industries might be of great value to the community though as yet they are not in a position to attract private enterprise. Thus, coal carbonisation appears to be insufficiently profitable to attract an adequate amount of private capital, but its establishment, it is suggested, might be justified on grounds of public policy, because (1) it might mean the 'salvaging' of a large amount of the community's capital which has been sunk in coal mining and would be rendered profitable again if a new market for coal were created, (2) it would lessen our dependence on imported oil fuel, (3) a smokeless fuel would be produced, and (4) the new work available in the coal-fields would mean a saving in unemployment relief.

THE Council of the Linnean Society of London has reached an important decision with regard to the publication of the *Proceedings* of the Society. The *Proceedings*, instead of being published in an annual volume, are being issued sheet by sheet of 16 pages, and in this way an abstract of a paper read before the Society may be in the hands of fellows and of the public between three and eight weeks after the reading of the paper. Each sheet of the *Proceedings* so issued will rank as a publication on the date of issue, so that the utmost is being done to conserve for contributors to the Society the priority of their discoveries, provided, of course, that in the case of new species a sufficient diagnosis accompanies the publication of the new name. This precaution has not been taken, for example, in the case of a new species of *Hoplophorus* described in a recent issue, so that the advantage of early publication is lost in this case. The importance in time of the arrangement which has now come into force is well illustrated by the first sheet of the new issue. The *Proceedings* of Nov. 20, 1930, were issued on Dec. 17, whereas the annual volume issued in January 1931 contains reports of 'proceedings' so far back as Nov. 7, 1929. Arrangements have been made whereby fellows, foreign members, and associates who still wish to possess the complete *Proceedings* in book form may obtain a copy each year at half the published price.

THE Belfast Naturalists' Field Club, for some time past, has had under consideration the advisability of making a survey of the antiquities of that part of Northern Ireland covered by it and its affiliated societies. Both the number and character of these antiquities and the risks to which the better known are exposed in modern conditions have been judged to make the matter one of such importance that the authorities of the Field Club have appointed a special committee to deal with it. Members and others have been asked to co-operate with the Committee by sending in lists, with full particulars, of any antiquities in their neighbourhood, especially those which are not included in the Ordnance maps. Plans, sketches, and photographs are to be included, with a statement of exact position. The topographical and full bibliographical details will be indexed and made available for consultation by students. The scheme will cover buildings, monuments, and other remains of both historic and prehistoric times. The chairman of the Committee is Mr. H. Albert Campbell, and the honorary secretary, Miss M. Gaffikin.

THE course of popular lectures on the native races of the British Empire given under the auspices of the Royal Anthropological Institute came to an end for the current session on Mar. 11 with Mr. E. Torday's lecture on "The Things that Matter to the African". Mr. Torday's lecture was a subtle but most illuminating interpretation of native life and tradition in West Africa, in which he showed that the frivolous, light-hearted individual of many travellers is far from being the real man. In fact, he appears to be something of an opportunist; for, while bowing to the domination of the sultanates, he has, at heart and in actual practice, remained a thorough democrat, in accordance with his long-established tradition. The case was well argued and convincingly supported by a wealth of detailed evidence which covered both religious belief and social custom. Full justice was done to the remarkable but too little known character and influence of the women. Mr. Torday's conclusion that the West African is capable of concerted and persevering action when he aims at social ideals, taken with what he said in the body of his lecture, is both a warning and a guide to our administrators. For it would appear that under the impact of European influences, a new culture is shaping which will differ from that of the past, but in which our share will depend very much upon our sympathetic understanding of native tradition. We trust that Mr. Torday's lecture will be given permanent form, for it is, without question, one of the most important pronouncements on the West Africans which has been made in recent years.

INTERNATIONAL telephony has made wonderful progress during the past year. At the beginning of 1929 radio telephony provided daily telephone service to more than twenty-six countries. In 1930 the total of international connexions wholly or partly effected through radio telephony was increased to 177. The most important groups of connexions can be divided into three classes, the first one linking North and South America. This group connects the United States, Canada, Cuba, and Mexico on one side with the Argentine, Chile, and Uruguay on the other. The second group involves three new channels between Europe and South America. They operate from Paris, Berlin, and London to Buenos Aires. Land line connexions bring a total of twenty other countries into these circuits. The third group involves the London-Sydney circuit—a distance of 9192 miles. These circuits connect most of the telephone users of the United States, Canada, Mexico, Great Britain, Hungary, and Italy with Australia. Many more lines are being constructed, including one connecting the United States and Australia directly. Spectacular conversations have been held from an aeroplane over the city of Buenos Aires with points in the United States, with the s.s. *Majestic* on the high seas, and with Sydney, Australia, a distance of 14,000 miles. A conversation has also been transmitted round the world from Schenectady and then broadcast. According to *Electrical Communication* for January, the international telephone directory (A.T.1) for 1929 contained about 12,000 entries from 1485 towns in 27 different countries; the 1930 edition contains more than 50,000 entries from 2718 towns in 38 countries.

THE tenth annual report of the Electricity Commissioners, which has just been published, shows clearly that the electric supply industry in Great Britain has been little if at all affected by the almost universal trade depression. Dividing the country into regional districts of supply, linking up all the efficient large power stations, and gradually eliminating where possible the less efficient stations, is leading to a better utilisation of our coal resources. The total number of units generated in the year ending in March 1921 was 5167 million units and the fuel consumption was 7·356 million tons. For the year which ended in March 1930, the total number of units generated was 11,961 million, with a fuel consumption of 10·141 million tons. It will be seen that although the number of units generated has been doubled, the consumption of coal has only increased by about 50 per cent. Last year was noteworthy because of the continued expansion of the supply and the many schemes that are being put in hand for the improvement and further extension of public supplies. The steady growth of the domestic supply has had a stabilising effect on the industry. The units generated last year show an increase of 10 per cent of the number generated in the preceding year. A number of small stations have been erected in isolated districts. On the estimated population of Great Britain (44·5 millions) the sales of electrical units represent 193 units per capita, as compared with 171 in the previous report. The question of rural development is discussed and it is pointed out that the prospects are favourable in certain cases.

THE prize for 1930 for an improvement in the science or practice of navigation offered by the Royal Society of Arts, under the terms of the Thomas Gray Memorial Trust, has been awarded to Messrs. Charles A. Stevenson and David Alan Stevenson, of Edinburgh, for their invention of the talking beacon installed at Cumbrae Lighthouse. The beacon, to which reference was made in NATURE of Jan. 24, p. 138, consists of an ingenious combination of fog signal and wireless transmitter. The fog signal consists of three blasts followed by a short silence and then two further blasts. At the same time, on a wireless receiver, a listener hears (*a*) the name of the beacon in speech (Cumbrae), (*b*) the three blasts of the fog signal, (*c*) counting in speech, in cables and sea miles up to five miles, and (*d*) the two blasts of the fog signal. This is followed by a silent interval lasting twenty-seven seconds and is then repeated. Immediately before each mile is spoken a bell is sounded. The distance which the observer hears in his receiver, coinciding with the end of the third blast heard through the air, gives him the distance of his ship from the lighthouse. The spoken words in the signal come from a gramophone record on a turn-table, which is engaged and disengaged by means of a clutch with another turn-table kept constantly revolving by air turbine or motor. The Council of the Royal Society of Arts is offering this year another prize of £100 to any

person who may bring to its notice a valuable improvement in the science or practice of navigation proposed or invented by himself in the years 1930 and 1931, and a prize of £100 for an essay on "The Stability of Ships, with special reference to the particulars which should be supplied by Shipbuilders, and also the value of any mechanical devices for ascertaining the M.G., with which you are acquainted". Claims and essays must reach the Secretary, Royal Society of Arts, John Street, Adelphi, London, W.C.2, not later than Dec. 31, 1931.

AT a conference at the Birmingham section of the British Industries Fair, Dr. C. H. Lander, Director of Fuel Research, discussed the "Gas Industry in relation to British Fuel Problems". He stressed the importance of its contribution to the smoke problem, as a purveyor of smokeless fuels, to the domestic heating problem, and to the problem of obtaining oil and petrol from coal. The carbonisation industries produce solid, liquid, and gaseous fuels and so all their problems are related and need to be considered together. The current abundance of liquid fuels should not blind us to the possible future need for deriving supplies from coal. The gas industry is well placed for marketing all the products of the carbonisation and hydrogenation of coal or its products. In view of the potential contribution of the carbonisation industries to the reduction of smoke, Dr. Lander pleaded for collaboration of the gas and coking industries in the utilisation and marketing of their products. Sir Arther Duckham contrasted the potential contribution of the gas industry to the fuel problems of Great Britain with the legislative shackles imposed on its development, the restrictions placed on the use of gas by some local authorities, arising from an imperfect grasp of fuel problems by the general public and even by our legislators.

THE first number of vol. 3 of the *Collection of Czechoslovak Chemical Communications* (Jan.-Feb. 1931) is a special issue dedicated to the memory of Prof. František Wald, who died suddenly in October of last year. His chief contributions to the advancement of science in central Europe were outlined in the obituary notice which appeared in NATURE for Jan. 10, p. 64. Had he lived, Prof. Wald would have attained seventy years of age last January, and the original intention of the editors of *Collection* was that this issue should have been a jubilee number in his honour. Right up to the time of his death, Wald was engaged in elaborating his phenomenalistic theory of phases and stoichiometry. These views are embodied partly in an article by his friend Dr. A. Kříž, and partly in a hitherto unpublished article by Wald himself, entitled "Foundations of a Theory of Chemical Operations". From these, it is clear that he disregarded much of the atomic theory and his definitions of elements and compounds do not coincide with those accepted generally. His ideas attracted the attention of Prof. Wilhelm Ostwald, whose friendship he enjoyed and who included him among the "Great Men of Science". Prof. Wald was for many years chief chemist to an important metallurgical undertaking at Kladno, and among his seventy contributions to various scientific periodicals are several dealing with the adaptation of standard methods of chemical analysis to the special needs of metallurgy, especially to the evaluation of ores and the analysis of alloys. In addition to appreciative articles on Wald's life and work, this special number of the Czechoslovak *Collection* contains several other articles of outstanding merit, including an account of some iron-carbon-silicon alloys (by Drs. Kříž and Pobořil) and further polarographic studies with the dropping mercury cathode by Prof. Heyrovský and collaborators, who find that in acid solution, nitric oxide is reduced to ammonia at a potential of 0·77 volt from that of the normal calomel electrode.

WE have received a copy of the Subject Index to volumes 1 to 60 of the *Journal of Physiology*, which has been prepared by Dr. J. G. Priestley, of Oxford. The Physiological Society recently published a history of its first fifty years, written by Sir Edward Sharpey Schafer, and an author index to the first sixty volumes has also been issued. These three volumes cover an important period in the history of physiology, a period which has seen its development into the science of to-day. An important part of this development is represented by the papers appearing in the first sixty volumes of the *Journal*. The index has been made as complete as possible: thus, where a subject can be considered from more than one point of view, entries referring to each of them are given. In addition, the species on which the observations were made is also noted. It runs to upwards of two hundred pages, and is published by the Cambridge University Press as a supplement to the first number of volume 71 of the *Journal of Physiology*, issued in January.

THE Ministry of Agriculture desires to notify poultry farmers that it is now issuing a fowl pox vaccine at a charge of one penny per dose, with a minimum charge of 2*s*. 6*d*. covering a supply of 30 doses, with an instrument and brush for application. The vaccine has been extensively tested, it is free from danger, and causes no constitutional disturbance. It confers definite immunity of at least four months' duration. Cash must be enclosed with each order, which should be addressed to the Director, Ministry of Agriculture and Fisheries Veterinary Laboratory, New Haw, Weybridge, Surrey. The Ministry has also issued a bulletin (No. 26) on Johne's disease, which gives a full account of this important disease of cattle. The bulletin, price 3*d*. post free, may be obtained from the Ministry of Agriculture and Fisheries, 10 Whitehall Place, London, S.W.1.

At the annual general meeting of the Society of Public Analysts held on Mar. 4, the following officers for the year 1931 were elected: *President*, Dr. J. T. Dunn; *Hon. Treasurer*, Mr. E. B. Hughes; *Hon. Secretary*, Mr. F. W. F. Arnaud.

AMONG recent appointments made by the Secretary of State for the Colonies to the Colonial Agricultural Service are the following: Mr. H. R. Surridge, as agricultural officer, Fiji, and Mr. H. E. Box, as entomologist, Antigua, Leeward Islands.

SIR ARTHUR SMITH WOODWARD will deliver the Huxley Memorial Lecture at the Imperial College of

Science and Technology, South Kensington, on Monday, May 4, at 4 P.M. His subject will be "Modern Progress in Vertebrate Palæontology".

AT the annual meeting of the Geological Society of London held on Feb. 21, the following officers were elected: *President*: Prof. E. J. Garwood; *Vice-Presidents*: Mr. J. F. N. Green, Prof. J. W. Gregory, Dr. H. H. Thomas, and Prof. W. W. Watts; *Secretaries*: Mr. W. Campbell Smith and Prof. W. T. Gordon; *Foreign Secretary*: Sir Arthur Smith Woodward; *Treasurer*: Mr. F. N. Ashcroft.

THE Masters' Memorial Lectures of the Royal Horticultural Society will be delivered in the lecture room of the Society's new hall in Greycoat Street, Westminster, on Wednesday and Thursday, April 8 and 9, at 3.30 P.M., by Prof. Erwin Baur, on "New Scopes and New Methods of Plant Breeding" and "The Problem of Evolution". Sir Daniel Hall and Sir Frederick Keeble will take the chair on these occasions.

IT is announced by Northern News Services, Ltd., that Dr. Hjalmar Broch, director of the marine biology station of the University of Oslo, has been appointed by the Jugoslav Government to be director of the Institute of Deep-sea Research and Fishery Investigations in the Adriatic. The Jugoslav institute is being built at Split (Spalato), where all branches of science concerning deep-sea research will be represented, including zoology, botany, and oceanography. Local methods of fishing will also be investigated, with the view of modernising and rationalising these.

A NEW article of association of the Royal Zoological Society of New South Wales, giving the council power to confer the title 'fellow' on any member or associate member of the Society who has rendered distinguished service to Australian zoology, has recently been formulated. The council has conferred this title upon Dr. R. J. Tillyard, H. J. Carter, W. W. Froggatt, T. Iredale, A. F. Basset Hull, and T. C. Roughley, all of whom have contributed largely to scientific journals articles dealing with the various branches of Australian zoology. The title is purely an honorary distinction.

ACCORDING to the records obtained at Kew Observatory, the epicentre of the destructive earthquake which occurred in the Balkans at 1 h. 50 m. G.M.T. on Mar. 8 was near 41° N., 21° E. The disturbance was about four times as violent as the shock which occurred in the same region at 0 h. 16 m. G.M.T. on Mar. 7. According to a revised estimate, the position of the epicentre of this earlier shock is 42° N., 23° E. The earthquake which was felt in Japan on Mar. 9 was recorded as a large disturbance at Kew Observatory. A United States Coast and Geodetic Survey broadcast message gives the epicentre as 43° N., 140° E.

ON Mar. 13, Sir Frederick Gowland Hopkins, president of the Royal Society, unveiled, in one of the principal laboratories of the London School of Hygiene and Tropical Medicine, a memorial plaque in memory of the late Lord Wandsworth, who left a sum of £10,000 to found a scholarship for the promotion of medical research in one of the London medical schools. The ceremony was performed in the presence of Sir William Hamer and Dr. E. Deller, Principal of the University, and others, during an official inspection of the School by the University of London. In unveiling the tablet, Sir Gowland Hopkins expressed the hope that the work already done and the opportunities for the future which the scholarship afforded would be an abiding source of inspiration.

THE Association of British Chemical Manufacturers has issued an "Index to Acts of Parliament and Statutory Rules and Orders affecting the Chemical Industry". Copies of this publication (price 2*s*. net) may be obtained from W. Heffer and Sons, 4 Petty Cury, Cambridge.

SOME years ago, Dr. Marie Stopes suggested that coital interlocking between the glans penis and the cervical canal occasionally occurred in man. The phenomenon was, on anatomical grounds, scarcely credited (see NATURE, Oct. 25, 1924, p. 601, and Nov. 15, 1924, 719). Dr. Stopes now states (*C.B.C. Bull.*, No. 2, 1930) that the occurrence has been confirmed in 48 cases attending the Clinic for Constructive Birth Control and in others, 59 cases in all.

THE Kodak Research Laboratories have just issued the thirteenth volume of abridgments of their scientific communications published in 1929. There are 37 of them in the volume, by 32 authors. The subjects include physical, photographic, and physiological optics; organic, physical, and colloid chemistry; photographic theory, and practical photography. The abridgments are very full, giving all the essential details of the original papers.

THE winter, 1930–31, issue of *The Fight against Disease*, the quarterly journal of the Research Defence Society, contains an article by Dr. J. H. Burn on the use of animals for the standardisation of remedies, in which he points out that animal tests of activity are necessary not only for antitoxins and insulin but also for the arsenobenzenes. An account is given of the debate in the House of Commons upon Commander Kenworthy's Bill to prevent the application of public money to vivisection experiments, which suffered the unusual fate of being refused a first reading.

As a result of long-standing trials, the National Institute of Agricultural Botany at Cambridge is well qualified to give reliable advice to farmers, and, as is pointed out by the Institute, the selection of the right variety of a crop may make all the difference between success and failure. The publication of *Farmer's Leaflets* Nos. 2, 3, 4, and 5, dealing respectively with cereals for spring sowing, potatoes, lucerne, and sugar-beet, should, therefore, prove of immediate benefit to the farming community. The leaflets may be obtained post free on application to the Institute at Cambridge.

UNDER the title of "Canada 1931", the Dominion Bureau of Statistics has published a handbook of the present conditions in Canada (Ottawa: Dominion

Bureau of Statistics. London: High Commissioner for Canada). The small volume supplements the larger and more purely statistical "Canada Year Book" and gives enough comparative statistics to present a survey of most aspects of Canadian activity. The reviews of agriculture, mining, and the development of water power are useful summaries. A statistical appendix gives tabulated figures for the last ten decades in population, production, trade, and other matters. There is also a list of official sources of information relating to Canada.

APPLICATIONS are invited for the following appointments, on or before the dates mentioned:—A male fishery officer in the Fisheries Department of the Ministry of Agriculture and Fisheries—The Secretary, Ministry of Agriculture and Fisheries, 10 Whitehall Place, S.W.1 (Mar. 31). A biochemical assistant at the Hannah Dairy Research Institute, Auchincruive, Ayr—The Secretary, Hannah Dairy Research Institute, Auchincruive, Ayr (April 1). A junior technical examiner in the Lands Branch of the War Department—The Secretary, Civil Service Commission, Burlington Gardens, W.1 (April 16). A head of the science and engineering department of Highgate School—The Headmaster, School House, Highgate (May 10). An adviser in entomology for the Bristol Province under the Advisory Scheme of the Ministry of Agriculture and Fisheries—The Acting Registrar, The University, Bristol.

Our Astronomical Column.

The Corona without an Eclipse.—M. B. Lyot's experiments with a sensitive polarimeter from the summit of the Pic du Midi, which is 9439 feet high, undoubtedly indicate the most hopeful means of observing the corona without an eclipse. They are fully described in a bulletin dated Feb. 14 issued by Science Service, Washington, D.C. A screen was used to cover the image of the sun's disc, and the prominences were then visible without the aid of a spectroscope. The polarised light that he ascribes to the corona can only be traced for 3′ or 4′ above the sun's limb, so that the method only extends to the bright inner zone of the corona. It is only observed in one position angle at a time; but by rotating the instrument round the sun's limb, it can be studied in all position angles. Dr. Deslandres is hopeful that it may be possible to photograph the images thus obtained. The article recalls that François de Plantade, an assistant of Cassini, used the Pic du Midi for astronomical observations two centuries ago. It also refers to the attempts of Prof. Hale and Dr. Steavenson to photograph the corona from high mountains; they did not, however, employ a polarimeter. A complete check of the new method will be afforded when the moon is very near the sun, but not actually encroaching on the disc; if the method is sound, the dark disc of the moon should be discernible.

The System of ξ Ursæ Majoris.—This has long been known as an interesting double star with a period of 59·8 years; it has been followed through more than a revolution. In 1905, Norlund detected an oscillation in the bright star with a period of 22 months, indicating that it has a close companion. The fainter star was found to be a spectroscopic binary, with a period of 9·8 days, by the Lick observers in 1918. *Lowell Observatory Bulletin* 432 contains a discussion of the spectroscopic orbit by L. Berman. The discussion is complicated by the double orbital motion; the light-time changes considerably during the description of the large orbit. The 22-month orbit is turned nearly edgewise to us, and observers are asked to watch for a possible eclipse on Feb. 4 or 5, 1932. We see the 9·8-day orbit nearly fully open, so the radial motion in it is small. A very accurate parallax can be derived from a combination of the data; the adopted value is 0·126″, giving a distance of 26 light-years. The combined mass of the brighter pair is $1\frac{1}{4}$ sun; that of the fainter pair is equal to the sun. Both the visible components are about $1\frac{1}{4}$ times as dense as the sun. The semi-major axis of the 9·8-day orbit is 7,319,500 km.; that of the 59·8-year orbit is about 20 astronomical units. The spectrograms were measured by Mr. Berman and Miss Hobe; they determined their personal equations by measuring spectrograms of Venus, the radial velocity of which is accurately known.

Annuaire Astronomique Camille Flammarion, 1931.—This useful almanac (Observatoire de Juvisy; 12 francs) contains details of the positions of sun, moon, and planets, diagrams of the orientation of the solar equator in different months, data of all oppositions of Mars up to 1956, elements of Pluto with a diagram of its orbit and details of the two total lunar eclipses of 1931, which are both visible in England and France. There is an excellent table of the elements of the orbits of periodic comets, compiled by M. Baldet; it includes comet Schwassmann-Wachmann III (1930 *d*). There are also meteorological data and many useful tables of physical constants. One notes the interesting fact that Mt. Canigou can be seen from Marseilles projected upon the setting sun on certain days in February and October; the distance is 253 km., and the straight line joining the points is 120 m. below the sea at the middle point; the visibility depends on refraction.

A table of Easter up to 2319 may interest some readers. One notes that Easter occurs in March once in $4\frac{1}{3}$ years; it will not occur on Mar. 22 (its earliest date) until 2285. It is, of course, assumed that the present mode of reckoning will be continued.

Report of the Leyden Observatory for 1930.—The Report begins with acknowledgment of the gift of 110,000 dollars from the Rockefeller Foundation. It is being used for the construction of a photographic equatorial of 40 cm. aperture, which will be erected at Johannesburg, thus strengthening the connexion between Leyden and the Union Observatory. Dr. van den Bos has now become chief assistant at the Union Observatory. Prof. Hertzsprung and Mr. van Gent are there temporarily.

The meridian circle at Leyden was used for observation of the Eros-reference stars. The proper motions of the reference stars in the selected areas are being discussed; also those of stars in the Pleiades in connexion with Prof. Hertzsprung's investigation. Mr. Kuiper has observed double stars with the 10-inch refractor on 63 nights.

Mr. van Gent has photographed several southern fields with the Franklin Adams camera, and has detected 82 known and 28 new minor planets. Prof. de Sitter and Dr. Oort have investigated the radial velocities of the spiral nebulæ in relation to the theory of relativity and the rotation of the galaxy.