

News and Views.

It was announced last week that Lord Bledisloe is resigning his post as Parliamentary Secretary to the Ministry of Agriculture to take up the appointment of chairman of the Imperial Grassland Association, which is being formed under the auspices of Imperial Chemical Industries, Ltd., with the object of improving the pasture land of Great Britain and of the Overseas Empire. Lord Bledisloe has rightly earned a great reputation as one who has taken the keenest interest in all phases of agriculture and has devoted so much of his energies to the furtherance of its well-being. Whilst his loss to the Government will be keenly felt, his new position will offer plenty of scope for his great enthusiasm and his wide experience of agricultural matters. The formation of the Imperial Grassland Association, further details of which will be awaited with great interest, is a further step in the developments which have been fostered in recent years by Imperial Chemical Industries, Ltd., through their associated companies, Synthetic Ammonia and Nitrates, Ltd., and Nitram, Ltd. The former company, at its great works at Billingham-on-Tees, now possesses plant with a total output capacity of fixed nitrogen equivalent to about 1000 tons of ammonium sulphate per day, and further big extensions are planned involving the production of a wide range of fertilisers. Nitram, Ltd., besides being responsible for the sale of the ammonium sulphate and other fertilisers produced at Billingham, as well as for most of the by-product ammonium sulphate produced in Great Britain, has recently established an agricultural research and advisory department, under the directorship of Sir Frederick Keeble, and with a strong scientific staff and well-equipped laboratories and experimental farm.

ONE of the chief directions in which the activities of Nitram, Ltd., have been exercised is in the development of the intensive system of grassland management. This system aims at greatly increasing the productivity of grassland by the application of a complete manure, including nitrogen. Trials have been carried out all over England during the past two years, with most encouraging results. The stock-carrying capacity of pasture land has been doubled or trebled, with a proportionate increase in the milk production per acre. Thus, in one trial the milk produced during the grazing period, from treated pasture, was raised to 713 gallons per acre, which is equivalent in food value to the production of arable land giving a yield of $4\frac{1}{2}$ quarters of wheat per acre. Hitherto the stock farmer has been dependent for a large proportion of the protein in his feeding stuffs on imported concentrates (oilcakes). The price of nitrogen in this form, always high, is now much higher than before the War. Nitrogen in the form of artificial fertilisers, on the other hand, is now actually cheaper than before the War. The new system of grassland management, therefore, holds out to the farmer the possibility of using this cheap nitrogen for the production on his own land of a large proportion of the protein food needed for his stock,

and that in the ideal form, as young grass. Moreover, the money paid for that nitrogen remains in the country, instead of going abroad in payment of imported concentrates. Much has still to be done in working out the details and the economics of this system, both in Great Britain, already famous for the quality of its grassland, and in the Overseas Empire, in many parts of which, as for example in New Zealand, grassland husbandry is a major industry, but the prospects are encouraging. The modern developments of the synthetic fertiliser industry make it abundantly clear that the manufacturer and the farmer are united by a common bond of interest in promoting the prosperity of the agriculture of the British Empire both at home and overseas. This bond is notably strengthened by the association of an agriculturist of the eminence of Lord Bledisloe with the great industrial interests represented by Imperial Chemical Industries, Ltd.

SIR JAMES WALKER, whose impending retirement from the chair of chemistry in the University of Edinburgh is announced elsewhere in this issue, received his early training in chemistry in Edinburgh under Crum-Brown and at Leipzig under Ostwald. He also carried out research work at Dundee with Carnelley, and then went to University College, London, as an assistant to Sir William Ramsay. In 1894 he was appointed professor of chemistry at University College, Dundee, and in 1908 was appointed to succeed Prof. Crum-Brown at Edinburgh. Sir James has been an indefatigable worker. While his name will always be associated with the development of physical chemistry, his work has covered a great range of subjects—the theory of solution, hydrolysis, the theory of amphoteric electrolytes and the electrolytic synthesis of organic acids, to mention only a few of the problems at which he has worked. As an author of chemical text-books he is equally well known. His "Introduction to Physical Chemistry," originally published in 1899, now in its tenth edition, is still widely used in both Great Britain and the United States; amongst his other text-books may be mentioned his "Organic Chemistry for Students of Medicine," and a most useful introductory work on "Inorganic Chemistry."

DURING the War Sir James Walker rendered valuable services by erecting and equipping, in conjunction with some of his colleagues in the Chemistry Department of the University of Edinburgh, a factory—acknowledged to be a model of its kind—for the manufacture of T.N.T., which produced this explosive at an exceedingly economical rate. After the War the increase in the number of students and the development of the science made it necessary for the University to undertake the erection of the new chemical laboratories. Sir James had the principal share in the conception and execution of this project, which has resulted in the possession by the University of a Department of Chemistry at King's Buildings which is unrivalled in Britain. The foundation stone

of the Department was laid by His Majesty the King in 1920, and it was opened on completion in 1924 by the Prince of Wales. In addition to his teaching and research work, Sir James has been an active member of the various learned societies connected with his subject. He is a fellow of the Royal Society and is at present serving on its Council. He was president of the Chemical Society (1921-23), and in 1913, at the invitation of the Council, delivered the Van 't Hoff Memorial Lecture. He received the degree of LL.D. from the University of St. Andrews in 1895 and was knighted in 1921.

A THOROUGH trial of geophysical prospecting methods will be carried out in Australia during 1928 and 1929 under an agreement concluded between the Commonwealth Government and the Empire Marketing Board. The Australian arrangements will be in the hands of the Council for Scientific and Industrial Research and the Development and Migration Commission. Mr. Broughton Edge will be in charge of the survey party and, with two of the assistants who have been with him in Rhodesia, will commence his work next March. The rest of the staff will probably be Australian, and will include a gravimetrist, an electrician, two surveyors, and a laboratory assistant. A suggestion that the Department of Scientific and Industrial Research should appoint a physicist to accompany the party has been cordially welcomed in Australia. In order that the best available information may be placed at the disposal of Mr. Edge, a conference is being arranged of the heads of State Departments of Mines, Geological Surveys, and Physics Departments of the universities to discuss the general position, and particularly the question of the most suitable localities for the tests. Later, a smaller body will be constituted to ensure intimate touch with State Government organisations during the progress of the work.

At a meeting of the Surveyors' Institution on Monday, Jan. 9, Mr. C. H. Bailey read a paper on "The Reports of the Royal Commission on Mining Subsidence." In the printed version available he gives a summary of the position and main recommendations contained in the Final Report of the Commission by way of an appendix, whilst his paper was devoted to a discussion of these points. Upon the whole, Mr. Bailey has dealt very fairly with the Report of the Commission, except for the fact that he does not seem to have borne in mind the exact terms of reference. Thus he states that "the questions which are discussed by the Commissioners are these: (1) Can damage due to subsidence be prevented or lessened? (2) Does the existing law bear unfairly on any section of the community?" In actual fact it is only the latter of these two questions which was, strictly speaking, before the Commission, the terms of reference being "To consider the operation of the law relating to the support of the surface of the land . . . and to report what steps should be taken, by legislation or otherwise, to remedy equitably to all persons concerned any defects or hardships that may be found to arise in existing conditions."

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THE first of Mr. Bailey's questions was only discussed incidentally by the Commission, and therefore no recommendations are made with respect to it. The main recommendation of the Commission referred to small house property, and Mr. Bailey states it in the following terms: "The proposal to restore the right to support or compensation to houses of £40 or less rateable value." This statement involves a somewhat serious error; the Commissioners definitely do not attempt to restore the right to support (where this for any reason has been lost); they limit their recommendation to compensation, and the reason for this limitation is very clearly and fully stated in the Report of the Commission itself, in which it is pointed out that the legal position has been profoundly modified by the Mines (Working Facilities and Support) Act, 1923, which enacts that when property entitled to support is injured, the owner is entitled to pecuniary compensation, but must be content with such compensation, and in view of the very definite terms of the Act the Commission could not attempt to restore any right of support, but could and would only recommend means for awarding pecuniary compensation. The point is rather an important one, but apart from this it may be said that Mr. Bailey's review of the Commission's Report is a very reasonable one.

ORDINARY telegraph lines are often seriously affected by auroræ, storms, and floods. A novel way of overcoming these difficulties has been successfully tried in Canada. The offices of the Canadian National Railways at Montreal and Winnipeg, a distance of 1300 miles, are now in direct telephonic communication with one another. Before the line was installed, calls from Winnipeg had to go by Chicago and St. Paul. The telephone messages are transmitted over the same wires that convey telegraph messages in the Morse code, the carrier current system familiar to radio engineers being employed. The telegraph and telephone messages can be sent simultaneously, there being no interference. At the receiving end of the line the messages are sorted out by special apparatus, each tuned to a particular frequency. The telephone messages are practically unaffected by electrical storms which throw the older telegraph services out of commission. Experience has shown that earth currents have no effect whatever on the service. Poles and wires may be submerged without affecting the transmission. Even when one of the wires was cut, it was still possible to work the line successfully.

THE nomenclature of disease has at present no principles. Since it was delimited from other vague fevers by the discovery of its causative agent, the fever which prevails round the Mediterranean, and is caused by the *Micrococcus melitensis*, has generally been known as 'Malta fever.' The inhabitants of Malta think that this association is prejudicial to their moral and material interests, and want the term 'undulant fever' substituted. Surely they should rather be proud that their island was the scene of one of the best pieces of modern work in bacteriology and hygiene. They would do better to devote their energy to commemorating the name of Sir David

Bruce by placing the causative organism in the genus *Brucella* instead of *Micrococcus*, and in dealing so effectively with their goats (which are the reservoir from which human infections are derived) that the island stands out as the one place where the fever cannot possibly be caught. At present 'Malta fever' is obviously the appropriate name for a disease due to a *melitensis* microbe: to change it would do no good and only create confusion. About the right name of the organism there is fortunately no doubt: *melitensis* is its first and only title.

IN the Friday evening discourse delivered at the Royal Institution on Jan. 27 on "Prehistoric Cave Art," Miss D. A. E. Garrod stated that although remains of Upper Palæolithic man are found all over Europe, the artistic impulse which gave rise to the animal paintings of the caves appears to be a local development, practically confined to central and southern France and northern Spain, the three chief centres being the Dordogne, the Pyrenees, and the Cantabric region. Cave art takes the form of painting, engraving, and sculpture. Owing to the fact that the paintings and engravings are often superimposed, it has been possible to work out their relative ages, and to establish a series showing a more or less continuous development from simple outlines, through monochrome shading, to the great polychromes which reach their zenith in the cave of Altamira. Remarkable sculptures in high relief are found in the rock-shelter of Cap Blanc near Les Eyzies, buried in deposits of early Magdalenian age, while in two Pyrenean caves which have been rendered nearly inaccessible by running water, clay models of animals have been preserved. It is clear from internal evidence that the art of the caves was inspired by a double purpose. In some cases it was directed to the promotion of fertility in the animals on whom man depended for his food; in others to ensuring good luck in the chase.

PROF. S. LANGDON'S report on the work of the Oxford-Field expedition's excavations during the current season at Kish, in his letter to the *Times* of Jan. 28, is of greater interest in its general bearing than for the actual finds recorded. The expedition is now bringing to light from the lowest levels of this city, which tradition says was the first capital of Sumer after the Flood, similar painted pottery and pictographic tablets to those found at Jemdet Nasr, 17 miles to the north-west. The civilisation of the two sites is not that of Sumer; both the pictographic script and the system of numeration are different. The painted pottery also differs from the painted ware of the southern area, that is, Sumer proper; but it is related to that of early Elam. Some of the pictographs are strikingly like those of the seals from Harappa and Mohenjo-Daro in India. This script is one of a group of five independent scripts belonging to the same prehistoric civilisation which spread over Asia from China to the Mediterranean before 4000 B.C., the other members of the group being Sumerian, proto-Elamite, Indus Valley, and early Chinese. The existence of a new branch of this homogeneous culture characterised by monochrome and polychrome ware in the region of Central Mesopotamia, between Babylon

and the Tigris, is, Prof. Langdon points out, a new factor in ancient history. The discovery by the expedition of good Sumerian tablets at levels dated at 3500 B.C. proves that this culture ceased to exist at Kish before that date. Numerous seals and shell plaques also testify to the Sumerian occupation after its disappearance.

MUCH ingenuity has recently been expended in devising a code which would enable any listener anywhere to identify at once the broadcasting station to which he may be listening. Amongst the suggestions are various ways of sending morse signals by bells, hooters, and trumpets. In an article in the *Wireless World* for Jan. 11, Captain Eckersley points out that the vast majority of listeners to broadcasting have no interest in trying to identify the distant broadcasting station, the attenuated waves from which produce a curious noise in a multivalve receiving set. It would be foolish to handicap every item of a performance by a discordant signal merely to enable a few researchers to identify a particular noise. If it is essential that they satisfy their curiosity, then they should use a wavemeter, and look up a list of stations. It is difficult to see what useful purpose is served by identifying a very weak signal received on a large multi-valve set. The ether is full of strange noises, but those due to natural phenomena are of the greatest importance to physicists, and we are only slowly learning how to identify them. Excellent work is being done at the present time in attempting to link up European broadcasting stations to Great Britain by land telephone cables. In this way the local station can radiate the performances taking place abroad, the announcer telling what we are to hear and where it comes from. We look forward to hearing in this way in London an opera in Vienna or a German orchestra in Berlin. Direct listening to foreign and distant stations, whether identified or not, is rarely pleasurable. It is probable that, in the future, by utilising short wave transmissions, broadcasting programmes from any part of the world will be radiated with but little distortion from many local stations.

IN the construction of the Scottish section of the British national 'grid' of electric overhead wires, steel cored aluminium conductors are being used. Some engineers have expressed doubts as to the permanence of the qualities of these composite conductors. It is satisfactory, therefore, to read a paper by E. T. Painton in the *Electrician* for Jan. 27 giving both experimental and practical results on these wires extending over a period of years. It is known that pure aluminium does not corrode even in the neighbourhood of cement works. On the other hand, aluminium is strongly electro-positive, and unless a junction can be kept perfectly dry, it should not be used in contact with other metals. We might expect that the natural tendency of steel to rust would be increased in the case of composite wires by electrolytic action. Practical experience, however, has proved that over long periods of operation no case of corrosion has occurred. In order to test whether a single layer of aluminium wires was sufficient to protect the

galvanised steel core, Mr. Painton erected steel cored aluminium wires along the sea wall of a harbour in Northern Ireland. On stormy days the wires are wet with sea water and subjected to the penetrating action of the wind. Every six months short lengths of the wires were cut off and their mechanical and electrical properties were measured and their appearance noted. After five years, there has been no diminution in the strength of the aluminium strands, and although the galvanising of the core is no longer bright, there is no sign of rust. The galvanising still withstood three full minute immersions in copper sulphate. These results are important, as steel cored aluminium is 80 per cent. stronger mechanically than the equivalent copper cable. The huge State network in France, which forms an important section for the rehabilitation of the devastated areas, consists almost entirely of steel cored aluminium wires.

THE use of electricity for baking ovens was discussed by E. Styles in a paper read to the Institution of Electrical Engineers on Jan. 19. In Great Britain very little progress has been made in the application of electric heating to bakers' ovens. This is generally attributed to the high cost of electrical energy. But the author showed that the cost of the energy is only about three per cent. of the price of the bread when energy can be obtained at $\frac{3}{4}$ d. per unit. The oven can be heated very quickly by electric current, and it can retain its heat for many hours after the current has been switched off. As baking is generally carried out during the night, most electric supply companies would allow special rates for these ovens. When an electric oven is used, there is a considerable saving of floor space and of labour, as dirt and ashes are eliminated and no cleaning of flues is necessary. Owing to the ease with which the temperature can be maintained constant, there is an appreciable saving in the quantity of ingredients used. On the Continent and in the United States, the number of bakeries which heat electrically is rapidly increasing. In several towns in Great Britain they could be installed economically at the present time.

A RECENT addition to the Department of Zoology in the British Museum (Natural History) is a mounted specimen of a young Sumatran rhinoceros, presented by His Highness the Sultan of Perak; the specimen is of exceptional interest as exhibiting the very hairy nature of the skin in the young of this species. The Department has also acquired the skin and skeleton of a gorilla collected for the Museum in the Belgian Congo, by special permission of the Belgian Minister for the Colonies. Through the generosity of Sir George H. Kenrick, the series of types contained in the Museum has received a valuable addition in the shape of 218 specimens, of which 197 are types, of New Guinea and Madagascar butterflies and moths. This donation comprises the types of 21 species of butterflies and 176 species of moths, many of which were described by Sir George Kenrick himself, and also the Malagasy Geometridæ described by Mr. L. B. Prout.

AMONG recent purchases for the Geological Department the most interesting is a curious fossil from the

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lithographic stone of Solnhofen in Bavaria. It looks like two pieces of a large curved feather, and is thought to be a colony of hydroid polyps related to the modern Sea Fir. This fragment was no doubt torn up by a storm from a neighbouring sea-floor and swept on to the flats of the Solnhofen lagoon at the time when Kimmeridge Clay of Britain was being laid down. A small lot of fossils recently obtained from the London Clay included the shell of a Pinna in which were several pearls. Recent donations include the pupa-case of a dragon-fly found by Mr. W. H. Wickes in the Rhætic plant bed near Bristol; 147 shells from the Cretaceous and Pliocene rocks of Angola, collected by Mr. Beeby Thompson; five bony fishes from the Eocene of Egypt, including a new sole and a new form of primitive eel, discovered by Mr. C. Crawley. The total number of visitors to the Museum during 1927 was 569,318, and constitutes a record. The highest attendance in any previous year was 535,116 in 1909. The number of visitors on August Bank Holiday, 13,431, while not quite the largest recorded on any one day, is in striking contrast with the number, 506, on Boxing Day. These figures illustrate the effect on museum attendances of two different types of bad bank-holiday weather.

DR. C. G. Abbot, who is well known for his work on the measurement of the solar constant, has been elected secretary of the Smithsonian Institution of Washington.

THE annual meeting of the Iron and Steel Institute will be held on May 3-4, at the house of the Institution of Civil Engineers, Great George Street, London, S.W.1, under the presidency of Mr. Benjamin Talbot. The autumn meeting of the Institute will be at Bilbao during the week commencing Sept. 24.

THE Geological Society of Stockholm has elected the following to corresponding membership: Dr. F. A. Bather, London; Prof. Reginald Daly, Cambridge, Mass.; Prof. P. Niggli, Zurich; Prof. Charles Schuchert, New Haven, Conn.; Dr. E. O. Ulrich, Washington.

THE Ministry of Health has issued "Amendment Regulations" dealing with the labelling of condensed and of dried milks. They are primarily designed to secure that in the labelling of condensed and dried skimmed milks, greater prominence shall be given to the words "Unfit for Babies." These Regulations are to come into force in May and in September 1928, respectively.

OWING to the occurrence of a number of cases of smallpox among casuals during recent weeks, the Minister of Health has directed that from now until Mar. 31 next, the medical officers of all Unions shall examine all casuals admitted, with the view of detecting cases of smallpox (Circular 859).

SEVERAL letters on sun images through window glass, referring to Prof. S. Russ's letter in our issue of Jan. 14, have been received, which record similar observations. It seems probable that the formation of these images is due to parts of the glass having an appreciable convexity, which cannot, however, be detected by the naked eye.

At the anniversary meeting of the Royal Anthropological Institute, held on Jan. 24, Prof. J. L. Myres was elected president in succession to Mr. H. J. E. Peake, whose term of office has expired. The vacancy for a vice-president was filled by the election of Prof. H. J. E. Fleure, and Mr. G. D. Hornblower was elected to the office of honorary treasurer in succession to Dr. F. C. Shrubbsall, who has resigned on account of pressure of other work.

THE twentieth annual general meeting of the Institute of Metals will be held in London on Mar. 7 and 8, under the presidency of Dr. W. Rosenhain, Superintendent of the Department of Metallurgy and Metallurgical Chemistry in the National Physical Laboratory. The papers to be read and discussed include contributions from metallurgists in Germany, Japan, and the United States, as well as Great Britain. The autumn meeting will be held at Liverpool on Sept. 4 to 7.

It is announced in *Science* that the Edison medal, conferred annually by a committee of the American Institute of Electrical Engineers for "meritorious achievement in electrical science, electrical engineering, or the electrical arts," has been awarded for the year 1927 to Dr. William D. Coolidge, assistant director of the research laboratory of the General Electric Company, "for his contributions to the incandescent electric lighting and to the X-ray arts."

THE ninetieth meeting of the German Society of Naturalists and Physicians will be held at Hamburg on Sept. 16-28 next. Special emphasis will be given in the general meetings and in the sections to the relationship of German science and medicine to maritime studies and to overseas countries. Particulars of the meeting can be obtained from Prof. B. Rassow, Geschäftsstelle der Gesellschaft Deutscher Naturforscher und Ärzte, Leipzig C.1, Gustav-Adolf-Str. 12.

THE Registrar-General has issued the provisional figures for England and Wales of the birth-rate, death-rate, and infantile mortality during the year 1927. The birth-rate and the death-rate per 1000 of population are respectively 16.7 and 12.3. The birth-rate is 1.1 per 1000 below that of 1926, and is the lowest rate recorded since the establishment of civil registration. The death-rate is 0.7 per 1000 above that of 1926, the excess being due to the high mortality in the first and fourth quarters of the year. The infantile mortality rate (deaths under one year per 1000 births) is equal to that of 1923, the lowest on record.

As is generally known, an interest in the business of Messrs. Adam Hilger, Ltd., was acquired by Messrs. Vickers, Ltd., in 1916. On the conclusion of the War, this connexion in great part lost its utility for both parties, and an arrangement has now been made whereby the whole of the shares will be held by Mr. F. Twyman, F.R.S., and the widow and children of the late Mr. Otto Hilger. One of the latter, Mr. John Adam Hilger, now becomes a director of the firm.

LLOYD E. JACKSON and George H. Johnson, senior industrial fellows of the Mellon Institute of Industrial Research, University of Pittsburgh, have been elected

to honorary membership in the U.S. National Association of Dyers and Cleaners. Mr. Jackson, who is in charge of the research of the Mundatechnical Society of America, has made a number of notable contributions to garment-cleaning practice and is the joint inventor of a successful process of moth-proofing wearing apparel and house furnishings. Mr. Johnson has enjoyed much success in the investigational work he is carrying on for the Laundryowners' National Association; he is also the author of standard treatises on textiles and laundering.

PROF. E. N. da C. Andrade's recent course of Christmas Lectures at the Royal Institution on "Engines" is to be published in book form this spring by Messrs. G. Bell and Sons, Ltd.

MESSRS. Bernard Quaritch, Ltd., 11 Grafton Street, W.1, have just issued another of their well-known Catalogues (No. 413). It gives the titles, and in many cases other particulars, of nearly 700 works relating to astronomy, chemistry, physics, engineering, electricity, mathematics, and navigation. The Catalogue should be seen by readers interested in these subjects.

THE returns furnished for 1926 have afforded the first opportunity for a comprehensive survey of the work done by local authorities in Great Britain under the national scheme for the treatment of tuberculosis since its initiation. The Ministry of Health has therefore considered it desirable to issue a memorandum containing an analysis of these returns (Memo. 131/T.). The items are arranged under forty-six headings, and are reduced to a percentage standard for all the authorities, county councils and joint committees, county borough councils, and metropolitan borough councils. By this arrangement the different local authorities and their officers will be able to compare their own figures and results with those of others. Thus, columns 4 to 6 of the Table give some idea of the efficiency of the notification of tuberculosis in each area, which varies from 100 per cent. in some areas to so low as 70 per cent. in others. Column 7 gives the percentage of tuberculosis cases on the Dispensary Register per 100 of notifications, and the figures vary from 98 in some areas to so low as 10 in one. For England as a whole, the death-rate from all forms of tuberculosis in 1926 was 957 per million population, but in different areas it varies from a maximum of 1776 (South Shields) to a minimum of 530 (Peterborough). Of the metropolitan boroughs, Shoreditch and Bermondsey have the highest tuberculosis death-rate, and Hampstead the lowest. We notice an error in the return for Wandsworth, given as 165: it should be 865. This statistical analysis should be very valuable, and ought to be a stimulus to some of the authorities to improve their tuberculosis administration.

APPLICATIONS are invited for the following appointments, on or before the dates mentioned:—An assistant lecturer in mathematics at the Bradford Technical College—The Principal, Technical College, Bradford (Feb. 11). A male senior secretary in the Academic Registrar's department, the University of London—The Principal Officer, University of London, South Kensington, S.W.7 (Applications for form by

Feb. 6, return of form by Feb. 11). A professor of public health at the London School of Hygiene and Tropical Medicine—The Academic Registrar, University of London, South Kensington, S.W.7 (Feb. 16). A professor of pathology at the London (Royal Free Hospital) School of Medicine for Women—The Academic Registrar, University of London, South Kensington, S.W.7 (Mar. 1). An assistant in the botany department of the University of Aberdeen—The Secretary, University, Aberdeen (Mar. 1). A science master under the Agricultural Department, Nigeria—The Secretary, Board of Education, Whitehall, S.W.1 (marked C.A.(N.)), or The Secretary, Scottish Education Department, Whitehall, S.W.1 (marked N.) (Mar. 31). A whole-time research worker, for research work on infectious diseases of the bowels, with special reference to industrial areas, at the Calcutta School of Tropical Medicine—The Director, School of Tropical Medicine and

Hygiene, Calcutta (April 15). An assistant pathologist at the Royal Infirmary, Leicester—The House Governor and Secretary, Royal Infirmary, Leicester. Civilian education officers in the Royal Air Force Educational Service—The Secretary, Air Ministry, Adastral House, Kingsway, W.C.2. A temporary post in the department of mycology of the Rothamsted Experimental Station, for research work on wart disease of potatoes—The Secretary, Rothamsted Experimental Station, Harpenden, Herts. A senior unqualified assistant in the biochemical department of the Wellcome Physiological Research Laboratories, Beckenham—The Director.

ERRATUM.—Through misunderstanding of a telegraphed correction to the first footnote to the table in Mr. E. J. Williams' letter in NATURE of Jan. 28, p. 135, the expression for $(\rho - 1)/(\rho + 1)$ was wrongly printed $(15/8)\sigma\alpha \div (15/8)\sigma\alpha/8$ instead of $(15/8)\sigma\alpha$.

Our Astronomical Column.

PHOTOGRAPHY OF THE CORONA WITHOUT AN ECLIPSE.—G. Blunck describes in *Astr. Nachr.*, 5539, some interesting experiments on obtaining photographic images of the corona in full sunlight. He points out as the probable cause of the failure of previous attempts of this kind that they were made in too short a wave-length. He gives the percentage difference of illumination between the corona and the sky background as 0.2 per cent. at $\lambda 5000$, 0.8 at $\lambda 7000$, 1.7 at $\lambda 8500$, 2.5 at $\lambda 9500$; he states that Pinazyanol gives a maximum degree of sensitivity at $\lambda 6500$, Dizyanin at $\lambda 7500$, Neozyanin at $\lambda 8000$. The last named makes corona photography just possible, but the author claims to have obtained a new sensitising dye called Prozyanol, which gives a maximum sensitivity at $\lambda 8500$.

Full directions are given in the paper as regards the exposure, development, and subsequent treatment of the plates; there is a warning that the author himself suffered from the poisonous nature of some of the chemicals employed. Reproductions are given of three images obtained on Sept. 6 last, which strongly suggest that they are real photographs of the inner corona. An obvious test would be to take photographs by this method when the moon's disc is just outside that of the sun. If the coronal image is real, the dark outline of the moon should be traceable upon it.

M. ANTONIADI'S OBSERVATIONS OF MERCURY AND THE JOVIAN SATELLITES.—Allusion has already been made in this column to M. Antoniadi's examination of Mercury during the last three years with the great Meudon refractor, which confirmed the 88-day rotation. He gives further details of his observations in *L'Astronomie* for January, and notes that on several days observations were continued for several hours, during which no shift of the markings was discernible. He considers that there is evidence of some atmosphere on Mercury, producing thin veils of mist at times over the markings, since their darkness appeared to vary from time to time, though the conditions of our own atmosphere were appreciably the same. He gives a diagram illustrating the libration of the illuminated region arising from the eccentricity of the orbit. This was constructed by utilising the proposition that the angular motion of a planet about the empty focus is very nearly uniform.

During the same period, M. Antoniadi examined

the satellites of Jupiter, of which he gave interesting drawings in *L'Astronomie* for last August. He notes the extremely high albedo of satellite II., which he states to be the highest of any body in the solar system. There had previously been no certain detection of any markings on this satellite, but a dusky marking was discerned on Sept. 14, 1926. The presence of a bright equatorial belt on satellite I., first announced by Barnard in 1893, was confirmed. Occasionally in transit across Jupiter this bright zone was alone visible, the rest of the disc being indistinguishable from the planetary background.

PARALLAXES OF BINARY STARS DEDUCED FROM ASSUMPTIONS OF THEIR MASS.—It has for a long time been the custom of the computers of the orbits of binary stars to append to their resulting elements the 'hypothetical parallax,' which is that resulting from an assumed mass of the system, generally taken either equal to that of the sun or double this. A further refinement was possible when Prof. Eddington showed that mass and absolute magnitude were correlated. Assuming the mass-luminosity relation we can make a closer approximation to the dynamical parallax than that based on the assignment of a uniform mass to all stars.

Mr. R. O. Redman applies this method to 803 stars in *Mon. Not. Roy. Ast. Soc.* for November. 120 of the stars have determined orbits; the method can be applied with greater confidence to these. The remaining stars have arcs observed which are too short for the deduction of individual orbits, but they can be used statistically, as suggested by Russell and Hertzsprung. The results for the dwarf stars are fairly consistent, and give absolute magnitudes agreeing with the Russell diagram. The mean absolute magnitudes for different spectral types are: *F*0, 2.7; *F*5, 3.4; *F*8, 3.8; *G*0, 4.1; *G*5, 4.9; *K*0, 4.7. The mean result for the solar velocity comes out 21.67 km./sec., and the mean kinetic energies for stars of the different types come out fairly uniformly, though the results for types *B*0 to *B*6, and for the giants from *F* to *K*, appear to be rather high.

On the whole, the paper adds fresh evidence in favour of the mass-luminosity relation. The individual parallaxes are printed for all the stars with determined orbits. They are especially useful for the smaller parallaxes; for the larger ones the trigonometrical values are more trustworthy.