

News and Views.

IN September next an important meeting of the International Illumination Commission, which was formed in 1900 and includes both the gas and electrical interests, is to be held in America. The objects of the Commission are the study of all subjects bearing on illumination and its cognate sciences, and the establishment of international agreements in illumination matters. There are at present National Illumination Committees in Austria, Belgium, France, Germany, Great Britain, Holland, Italy, Japan, Switzerland, and the United States of America. For the first time in the history of the Commission, a British president has been elected, namely, Mr. C. C. Paterson, Director of the Research Laboratories of the General Electric Co., Wembley. The Commission has already established an international standard of light, and is now dealing with such subjects as definitions and symbols, factory and school lighting, automobile headlights, heterochromatic photometry, photometric accuracy, fundamental research on glare, colorimetry. The British National Illumination Committee, which is closely associated with the Sectional Illumination Committee of the British Engineering Standards Association, the membership being practically identical, will be responsible for nominating delegates to represent the British viewpoint and British interests, and is anxious to secure adequate representation at these meetings. It is hoped that the delegates will include representatives of the Government departments, municipalities, the National Physical Laboratory, the electrical industry, the gas industry, and the principal associations interested in illumination matters. Mr. Buckley, of the National Physical Laboratory, Teddington, who is the secretary of the British National Illumination Committee, will gladly furnish full particulars.

THE Report on Scenery-Preservation for 1926-27, issued by the Department of Lands and Survey, New Zealand, makes pleasant reading. Among many interesting reservations recently added is the Te Koru Pa in the Taranaki District. The pa, which was at one time the headquarters of the Ngamahanga Hapu of the Taranaki Tribe, is situated in a horse-shoe bend of the Oakura River, and, apart from its historic interest, has long been held in high regard as a favourite picnicking-ground. It forms one of the very few remaining examples of a pa with stone-faced glacis or parapets surrounding the tiki or citadel. The narrow neck connecting the pa with the mainland was in the old days defended by a very deep trench backed by three terraces, all of which were faced with stone to a height of 15 feet in places. This area was a gift to the Crown from the native owners. Mr. Wilkinson's report on Kapiti Island, which is in his care, contains much that will appeal to the naturalist. For example, he writes: "Nearly all over, or at least in places where the forest-roof is open, the *Uncinia riparia* is becoming a pest and is a menace to bird-life. . . . Not only does it hold small birds, but even the morepork is not able to extricate himself when once he is properly caught. The unfortunate

part about it is that the plant is seeding, and therefore in its dangerous stage, just when the young birds are beginning to fly about. I have several times rescued birds, and in nearly every case they were adult birds, so that young birds caught must eventually die of starvation or be taken by the wekas."

THE Report also notes the improvements effected by an Amending Act of 1926. This gives permission for the destruction of certain troublesome animals under stringent provisions. Power is conferred on local authorities to contribute towards the cost of acquiring scenic reserves and towards their improvement and maintenance. So far as possible, the control of reservations is vested in local authorities or special boards, and honorary inspectors are appointed. This affords enthusiasts an opportunity of performing useful service of value to the State, and encourages among the general public a regard for natural beauty. In England we have to protect our downs from the seaside bungalow. In our antipodes, "The advent of the seaside dwelling in the Sounds has proved an important factor in the improvement to the scenery during the past few years. Most of the owners of these are enthusiastic nature-lovers, and, besides protecting the remnants of native bush on their properties, have extended these by planting more native or introduced trees. In this way many hundreds of acres which a few years ago were in bracken or burnt bush are rapidly becoming reforested, and prove a welcome addition to our efforts in conserving what we can of the original native bush that beautified the Sounds."

THE Ministry of Agriculture and Fisheries has issued a statement of the measures taken to prevent the introduction into Great Britain of foot-and-mouth disease from South America. Epidemics of this disease have been traced to carcasses imported from Europe, and the research committee investigating the subject has determined that the virus, if present, remains active in frozen carcasses for 76 days. Negotiations were conducted with the Governments of Argentina, Brazil, and Uruguay, and the Ministry's Senior Veterinary Inspector, Mr. J. L. Frood, visited those countries and conferred with the officials there. Finally, Lord Bledisloe agreed to undertake a mission to the three countries to modify, if necessary, and to ratify agreements awaiting final approval. Agreement was reached respecting the measures necessary to prevent the importation of the foot-and-mouth disease virus with the frozen meat which comes from the three countries named. The two principal clauses institute veterinary inspection of the animals before removal from the *estancias*, and of the animals at the freezing establishments before and after slaughter, with isolation of herds in the event of symptoms of contagious disease appearing among them.

THE Folkestone Natural History Society, which was founded on April 4, 1868, has been celebrating its diamond jubilee. On Saturday, Mar. 24, a visit was

paid to Snowdown College. At a public meeting held on the following Wednesday, short addresses were delivered by Mr. A. H. Ulyett on the history of the Society, by Dr. Walcot Gibson, on the value of local natural history societies, and by Mr. C. A. B. Garrett, on natural history in schools. During the evening especial attention was directed to the part the Society has played in the inception of the excellent Town Museum now under the able curatorship of Captain Moody-Foster. Occasion was also taken to present a set of silver-plate to Mr George Chapman Walton, in recognition of his long services to the Society as honorary secretary and as president—an office which he has filled since 1905. A lecture by Prof. Julian Huxley on the progress of biological science during the past sixty years, delivered on Friday evening; and a *conversazione* with exhibits and demonstrations, held on Saturday, Mar. 31, terminated a very successful anniversary of one of the oldest natural history societies in Great Britain.

A MEETING for the discussion of geophysical surveying was held at the Institution of Civil Engineers on Mar. 28, under the chairmanship of Sir John Flett, Director of the Geological Survey of Great Britain. The chairman, in his introductory remarks, emphasised the value of geophysical methods in the study of geology and mining, and indicated that the results recently obtained by the Geological Survey have proved entirely satisfactory. Dr. W. E. P. M'Clintock described a survey with the Oertling torsion balance over the Swynnerton Dyke in Staffordshire, by the Geological Survey, and showed the closeness with which the position of the intrusive dyke had been located and its features investigated. Not merely could the limits of the dyke be established, but also it was shown that the dyke was inclined slightly to the vertical. He stressed the convenience of the Oertling protecting hut, and the general convenience and portability of the apparatus. Mr. E. Lancaster-Jones outlined the evolution of a new instrument recently constructed for the measurement of gravity gradients. This instrument, termed a 'gradiometer,' is unaffected by curvature, and may be readily transported by one man. In speed of operation it is a considerable advance on previous instruments, and it should enable both reconnaissance and detail gravity surveying to be effected with greatly increased economy and efficiency. An account of field work with this instrument was given by Captain H. Shaw, who showed results that have been obtained in tidal areas. In one case an important fault showed up prominently, and was located with accuracy and interpreted in detail. In a second area, a noticeable subterranean feature was revealed, and by means of a dense station network it was possible to delimit this anomaly, and to give a complete interpretation of its characteristics. The sensibility and reliability of the instrument were shown to be quite up to standard, while the resulting gravity gradients were unusually consistent, and conformed completely to those previously obtained in adjacent areas. Captain W. H. Fordham spoke on the magnetometer and its appli-

cations to geology and mining, and described a new type of magnetometer recently produced by Messrs. Oertling Ltd., on the lines of the earlier Thomson-Thalen instrument.

SEMI-DESTRUCTIVE earthquakes occurred in north-eastern Italy near Udine (about 40 miles north-west of Trieste) on Mar. 26 and 27. The later and more violent shock was recorded at Kew at 8 hr. 34 min. 56 sec. A.M. (G.M.T.); the other at 2 hr. 43 min. 1 sec. P.M. The district visited by them is one in which earthquakes are of moderate strength and frequency. About 50 miles west of Udine is Belluno, a small town that almost coincided with the epicentre of the strong earthquake of June 29, 1873. This earthquake was studied by Prof. H. Höfer (Wein, *Ak. Sber.*, vol. 76, pt. 1, 1877, pp. 819-856) and is probably the first attributed to an origin in two distinct foci. Höfer suggested that two faults were then in action simultaneously, one running south-east, the other east, from a point near Belluno. The latter, as traced by him, passes close to Udine and Tolmezzo, places at which much of the damage caused by the recent earthquakes occurred. A further earthquake, described as violent, was recorded at Kew Observatory on Mar. 31 at 0 hr. 35 min. 2 sec. G.M.T. The epicentre is estimated to have been 1620 miles away, probably between Greece and Crete. The disturbance recorded at Kew was considerably more violent than that produced by the recent earthquake in the Italian Alps.

By the provisions of an enactment about to be introduced in the Federal Council of the Federated Malay States, it will be made an offence to take fire-arms or other apparatus for killing animals or birds into a game sanctuary or reserve. Game rangers will be given power to seize animals, birds, trophies, or fire-arms, etc., which have been used in the commission of an offence. A notification in the *Federated Malay States Government Gazette* announces that rewards for the destruction of 'noxious animals' will be paid on the following scale: Tigers, full grown, 25 dollars each, cubs, 10 dollars each; leopards, full grown, 15 dollars each, cubs, 5 dollars each; crocodiles, up to 2 feet in length, 25 cents each, more than 2 feet long, 3 cents an inch; crocodiles' eggs, 25 cents each; hamadryads and conras, 5 cents per foot. Claimants for rewards are required to produce the carcase or fresh skin in the case of tigers or leopards; in the case of a crocodile, the unbroken vertebral column will suffice.

THE Perkin Medal was instituted by the Society of Dyers and Colourists in commemoration of Sir William Perkin, who died in 1907 during his presidency of the Society. It is awarded at intervals of two or three years for discoveries of outstanding importance in connexion with the tinctorial arts. Previous recipients of the medal have been Profs. Graebe and Liebermann, for their synthesis of alizarin (1908); Prof. Adolf von Baeyer, for his synthesis of indigo (1911); Comte Hilaire de Chardonnet, for his pioneer work on artificial silk (1914); Prof. A. G. Green, for

his discovery of primuline (1917); M. R. Vidal, for his work on sulphur black (1919); Mr. H. Lowe, for his work on the production of permanent lustre on cotton (1921); Mr. C. F. Cross, for his discovery of viscose (1923); and M. M. Prud'homme, for his work on aniline black and alizarin blue (1925). At the annual dinner of the Society, held in Manchester on Mar. 23, the Perkin Medal was presented to Dr. R. E. Schmidt, of Elberfeld, for his remarkable work on anthraquinone and allied bodies, which has led to the discovery and commercial production of a whole series of fast dyestuffs. The medal, which was struck in gold, was modelled by the late F. W. Pomeroy, R.A., and is an excellent presentation of Perkin's head in profile.

THE protection from lightning flashes of petroleum tanks, which are often assembled over a large area, is a problem of considerable importance. The flames arising from burning oil often reach great heights, and in some cases the burning oil can only be prevented from spreading over the adjoining land by digging up trenches round the blazing area. In the *Electrical Review* for Mar. 9, a method is described which has been installed in America for protecting such areas. Colonel Wilcox claims that it secures absolute immunity. Steel towers are connected round the area and are connected at the top by a ring of wires in a horizontal plane. When the atmosphere is electrified, brush discharges take place from points on this ring. This undoubtedly minimises the danger. We agree with Sir Oliver Lodge, however, in thinking that it fails to give absolute protection. There is no reason why a flash of the 'impulsive rush' or *B* type should not strike an object inside the ring. The experiments carried out in America on a small model of this protective device produced only *A* flashes, and in this case almost absolute protection would be secured. St. Paul's Cathedral in London is protected by a horizontal loop encircling the dome and by other conductors. Six-point aigrettes are jointed at intervals to the loop and similar aigrettes are used at Westminster Abbey. K. Hedges, who designed both systems, recognises the powerful effects of points in levelling down excessive stresses, but he does not claim that they give absolute protection. The accident at Tunbridge Explosive Works in 1918, when hermetically sealed drums of nitro-glycerine were detonated, although the lightning conductors were of the most modern type and in excellent condition, proves how difficult it is to guard against a *B* flash.

THE decision of the eastern associated submarine cable companies to co-operate with Marconi's Wireless Telegraph Co., Ltd., in developing 'world-radio' is a wise one. They have successfully overcome many difficulties during the last eighty years, but the rapid development of the beam system of radio and possible competition in world-radio by foreign companies at last induced them to see that co-operation was the wisest policy. The recent Imperial conference of representatives of the Dominions discussed the question of cable-radio, and both the cable companies and Marconi's gave evidence, but so far the discussions at the conference have been kept secret. Until the

Imperial government has notified its decisions, the Marconi-eastern combination is handicapped by not knowing what powerful interests will have to be considered and consulted. In the *Electrician* for Mar. 23, R. Belfort lays stress on this aspect of the problem. He points out that the virtual arbitrators of the situation may themselves be formidable competitors, as they can own and exploit both cable and radio enterprises. The Americans also have a vast organisation of radio, telephone, and cable companies which are continually developing their methods and extending their operations. It seems probable that the Commercial Cable Co. of America will soon possess a complete round-the-world cable-radio service. A similar girdling of the earth will probably also soon be accomplished by the Western Union Telegraph Co. Those and other competitive developments make it difficult to prophecy how profitable the new enterprise will be. America occupies a fortunate position, as its communication companies are all under private control. Mr. Belfort thinks that just as the Eastern company was unable to resist Marconi competition, so it is possible that a Marconi-Eastern combination may not be strong enough to confront American and other foreign competition. In our opinion, however, the improved service will increase the revenues, and this increase should be sufficient to satisfy the legitimate claims of all the competitors.

By the Protection of Lapwings Act, 1928, which received the Royal Assent on Mar. 28, and is now in force, the sale, or possession for sale, for human consumption of lapwings' eggs and also of the bird itself between Mar. 1 and Aug. 31 in each year, is absolutely prohibited. The Act applies equally to native and to imported eggs and birds.

THE Gold Medal of the Institution of Mining and Metallurgy has been awarded to the Right Hon. Sir Alfred Mond, "in recognition of his scientific and industrial services in the development of the mineral resources and metallurgical industries of the British Empire." The Medal will be presented to Sir Alfred Mond at the annual general meeting of the Institution to be held at Burlington House on Thursday, May 17.

THE Council of the Royal Anthropological Institute has awarded the Huxley Memorial Medal for 1929 to Baron Erland Nordenskiöld of Göteborg. He has also been invited to deliver the Huxley Memorial Lecture in November of that year. Baron Nordenskiöld's researches in the archæology and ethnology of South America hold a deservedly high place in the estimation of anthropologists, and the award will be welcomed as a merited recognition of many years' valuable work.

It was announced in the House of Lords on Mar. 29 that a committee of inquiry had been set up to inquire into the possible danger arising from the use of lead tetra-ethyl in motor spirit, composed as follows: Sir Frederick Willis (chairman), Sir George Buchanan, Dr. Bridge, Mr. Pye, Sir Charles Martin, Sir Robert Robertson, Major Galwey, Dr. C. H. Lander, Prof.

A. C. Chapman, Sir William Willcox, and Prof. Dixon. The secretary to the committee is Mr. S. F. S. Hearder, Ministry of Health, Whitehall, S.W.1, to whom all communications should be addressed.

FRIDAY evening discourses after Easter at the Royal Institution include: "Heirlooms of Industry in the Science Museum," by Sir Henry Lyons; "Carriers of Electricity in the Atmosphere," by Prof. A. M. Tyndall; "Life's Unsuspected Partnerships," by Prof. Doris L. Mackinnon; "Engine Knock and Related Problems," by Mr. A. C. Egerton; "The Results of the further Excavations at Ur," by Mr. C. Leonard Woolley; and "The Waves of an Electron," by Prof. George P. Thomson.

APPLICATIONS are invited for the following appointments, on or before the dates mentioned:—Temporary assistant quantity surveyors and temporary architectural draughtsmen under the Mines Department—The Under-Secretary for Mines, Establishment Branch, Mines Department, Dean Stanley Street,

S.W.1 (April 14). An assistant pathologist in the Laboratories of Pathology and Public Health, 6 Harley Street, W.1—The Secretary (April 20). A teacher of engineering subjects at the Cheltenham Technical School—The Secretary, County Education Office, Shire Hall, Gloucester (April 20). A lecturer in electrical and mechanical engineering at the Forest of Dean Mining School, Cinderford—The Secretary, County Education Office, Shire Hall, Gloucester (April 20). A secretary to the delegacy of the University of London for co-operation with Training Colleges in the London District in accordance with a Scheme approved by the Board of Education—The Principal Officer, University of London, South Kensington, S.W.7 (April 21). A test assistant in the Chemical Department of the Royal Aircraft Establishment—A.273, Chief Superintendent, R.A.E., South Farnborough, Hants. A head of the Mechanical and Structural Engineering Department of the Borough Polytechnic Institute—The Principal, Borough Polytechnic Institute, S.E.1.

Our Astronomical Column.

THE RECENT TRANSIT OF MERCURY.—*Circular No. 75* of the Union Observatory, Johannesburg, contains a discussion of the observations of this phenomenon made at several observatories. In the mean, the phases were 23 seconds earlier than the predicted times, as compared with 30 seconds in 1924. It will be remembered that the lunar errors are also slightly diminishing. The view is now largely held that these fluctuations indicate variability in the earth's rate of rotation, the periods of the oscillations being somewhat irregular, but considerable fractions of a century. Dr. Benjamin Boss (*Daily Science News Bulletin*, Science Service, Washington, Feb. 28) suggests that there are in addition fluctuations of much shorter period (days or hours) in the rate of rotation; he thus explains the puzzling anomalies found in the meridian determinations of time and Right Ascension at most observatories. He suggests as an explanation that the solid surface of the earth, when raised by lunar and solar tides, may not completely settle back, but remain raised for some time, and then at last reach a breaking point and return abruptly. Such settling back would sometimes reach the magnitude of an earthquake, and in fact Dr. Boss notes that his time variations show relationships with the frequency of earthquakes.

STELLAR PARALLAXES FROM ALLEGHENY OBSERVATORY.—The excellence of the numerous parallax determinations made at this observatory is well known, and regret will be felt that the latest instalment (*Yale University Transactions*, vol. 6, Pts. 1 and 2) is the last with which Prof. Schlesinger will be personally concerned. There are three stars of special interest in the list. The parallax found for Barnard's star of record proper motion is 0.550". It is noted that this is the best determined stellar parallax, the mean of seven good determinations being 0.538". For ϵ Hydræ the value found is 0.026", in good agreement with 0.025", found spectroscopically from the radial velocities of the close components. Betelgeuse is interesting from the large angular diameter given by the interferometer. The value found for its parallax is 0.013"; the trigonometrical determinations range from 0.011" (Mount Wilson) to 0.024" (Yale heliometer). The mean of seven spectroscopic determinations is 0.011"; but

the spectroscopic scale must be a little uncertain for such extreme giant stars, the means of graduation being restricted. The well-known binary 70 Ophiuchi has a parallax of 0.184". The probable errors of these parallaxes are about 0.01" or less.

THE SPECTRA OF COMETS.—Several important papers on this subject have appeared recently, including discussions by N. T. Bobrovnikoff, of various Yerkes photographs taken during the period 1908–1927 (*Astrophysical Journal*, vol. 66, pp. 145 and 479). The first of these treats of Halley's Comet in considerable detail. The spectra were studied photometrically with a self-registering microphotometer and compared with direct photographs. A variation in size and brightness of the principal monochromatic images of the head indicates the development of the CN and C+H, rather than the Swan, bands as the comet recedes. Two types of continuous spectrum were discovered—one due to reflected sunlight, and the other the comet's own spectrum with a maximum intensity at $\lambda 4000$. The existence of the latter depends on the comet's heliocentric distance, only appearing at distances greater than 1.2 astronomical units.

The second paper deals with the spectra of 22 comets, all of which resemble Halley's in the above respects and in the existence of sudden changes in their spectra. The change from solar to cometary type of continuous spectrum takes place usually at a distance of about 0.7 astronomical units from the sun. Bredichin's theory of cometary tails is not supported by these observations, and fluorescence is suggested as a probable origin of cometary spectra.

A third paper on comets comes from Meudon, by M. F. Baldet (*Annales de l'Obs. d'Astr. de Paris*, tome 7). In this paper a historical survey is given of our present knowledge of the subject, with various tables of wave-lengths which should be of considerable value in the identification of cometary lines. Detailed discussions follow of the spectra of eight comets, and of laboratory researches into the spectra of relevant sources. It is to be regretted that the author does not always follow the recommendations of the International Astronomical Union in the printing of his photographs.