

Current Topics and Events.

THE portrait medallion of Sir Norman Lockyer, by Sir Hamo Thornycroft, which is to be erected at the Norman Lockyer Observatory, Salcombe Hill, Sidmouth, will be unveiled by Sir Frank Dyson, Astronomer Royal, on Saturday, July 22. Lt.-Col. F. K. McClean, a generous benefactor to the observatory, will present the medallion on behalf of the subscribers, and it will be received by Sir Richard Gregory, chairman of the council. The observatory was erected in 1912 upon a plateau 550 feet above sea level, and is unique of its kind in Great Britain, being vested in a registered corporation which possesses the whole of the property and controls the operations. It was founded by Sir Norman Lockyer, and was formerly called the Hill Observatory, but since that distinguished astronomer's death the name has been changed to the Norman Lockyer Observatory in honour to his memory. The director is Major W. J. S. Lockyer, and there is a research committee consisting of Sir Frank Dyson, Prof. A. S. Eddington, Prof. A. Fowler and Prof. H. H. Turner. The observatory possesses an equipment of the first rank for spectroscopic work, and photographs of stellar spectra taken in it are being used for the determination of the parallaxes of stars. The method used was first worked out at the Mount Wilson Observatory and it represents one of the most remarkable developments of astrophysics ever achieved. The gifts of Sir Norman and Lady Lockyer, Lt.-Col. McClean, Mr. Robert Mond, Capt. W. N. McClean and others, together with subscriptions of members, have been sufficient to establish and maintain the observatory hitherto, but additional funds will be required if the work is to be carried on efficiently. In the United States, generous donors to astronomy seem to be forthcoming whenever they are needed, with the result that the chief advances of astronomical science are being made there. The Norman Lockyer Observatory, on account of the elasticity of its constitution, offers similar benefactors in this country an excellent opportunity for emulating the example afforded by America, and we trust that one or more of them will provide the means to continue and extend the work to which a few devoted people have already contributed their full share.

UNUSUALLY heavy gales for the season of the year have occurred over England during the early part of July, especially during the night of July 5-6, and the tempestuous winds were accompanied by torrential rains. On the south-east coast of England the wind attained the velocity of about 60 miles an hour, and at Kew Observatory the velocity registered 53 miles an hour. London experienced considerable interruption to telephone communication, and in the open country much damage was done to the fruit crops. A renewal of the stormy conditions occurred on July 8-9.

OWING to the early breaking of the monsoon the attempt on Mount Everest planned for June 3 had to be abandoned. The *Times* announces that the

members of the expedition are now returning to India. Col. Strutt, Dr. Longstaff, and Mr. Finch have already sailed for England. Mount Everest thus remains unconquered, at any rate for the present, the greatest altitude that was reached being 27,300 feet, or about 1700 feet below the summit. Col. Strutt believes that given favourable weather a future expedition should be able to reach the summit.

THE *Quest* with the Shackleton-Rowett expedition has left Cape Town and arrived at Simonstown on July 7. After a few days there, according to the *Times*, she sails for home via South Trinidad and Rio de Janeiro. It is proposed to spend two days at South Trinidad, the uninhabited volcanic island in the South Atlantic. The island has been frequently visited, notably by the *Discovery* in 1901 and the *Valhalla* in 1905. At an earlier date it obtained fame by reason of several searches for buried treasure. The *Quest* may be expected at Plymouth about September 21.

ACCORDING to the *Meteorological Magazine* of June, a new record height of 10,518 metres (34,500 feet) was attained by J. A. McCready in an aeroplane flight at Dayton on a Lepère machine, with a 400-h.p. Liberty engine, during September 1921. The previous record, by Major Schroeder, has been reduced by the authorities responsible for the official figures from 36,000 feet to 33,114 feet.

It is reported in the *Times* that Captain Amundsen, aboard the *Maud*, left Nome, Alaska, for Cape Barrow, on June 30. Early in August he proposes to make his flight across the Pole, either to Greenland or, more likely, to Spitsbergen. The route to Spitsbergen is the longer of the two, but Capt. Amundsen believes he can make the journey in eighteen hours. His aeroplane has been tested in a thirty-two hours flight. The Norwegian Government is taking steps to afford all possible assistance to Capt Amundsen in the event of his reaching Spitsbergen or Bear Island.

INVITATIONS to serve on the Committee on Intellectual Co-operation of the League of Nations have been accepted by Mr. D. N. Banerji, Prof. Henri Bergson, Mlle. Bonnevie, Prof. A. de Castro, Mme. Curie, M. J. Destrée, Prof. A. Einstein, Prof. G. Gilbert Murray, M. G. de Reynold, Prof. F. Ruffini, M. L. de Torres Quevedo, and Dr. G. E. Hale. The committee, which will be entrusted with the examination of international questions regarding intellectual co-operation, will hold its first meeting in Geneva on August 1.

SINCE the eruption of 1906, Vesuvius has remained inactive on the whole until the early part of the present year. On February 26 the main cone, which had grown since 1906 to a height of about 230 feet, collapsed during an eruption, and shortly afterwards lava issued from several fissures; it has flowed ever since in amounts that are considerable, though not sufficient for it to escape from the crater. Since February, a new crater has been formed and has grown with great rapidity. Towards the end of June,

a large fissure appeared in its western side, and from it there came a stream of lava about thirty feet wide. Owing to these recent flows and to the presence of sulphur fumes, it is difficult to reach the floor of the crater. In the *Times* for July 3 are reproduced, however, two photographs taken from within the crater, one of the new cone, and the other of the lava-stream issuing from it and showing very clearly the fluxion-structure of the lava.

MAY and June were both comparatively dry months this year at Greenwich Observatory, the rainfall in May being only 57 per cent. of the 100 year average, while June was 70 per cent. of the 100 year average for the corresponding month. In January, February, and April the rainfall was in excess of the average. In 1921, each of the first six months had a rainfall less than the normal. The total for the first half of the present year is 10.73 in., while in 1921 the total for the same period was only 5.97 in. The 100 year average for the six months is 10.47 in., and for the 35 year average, used by the Meteorological Office, 10.21 in., so that the period from January to June shows an excess on the normal. There was an absolute drought this year from May 26 to June 12, a period of 18 days, the only drought as yet registered in 1922. July bids fair to be a wet month; practically the average rainfall for the month in London fell in the first week.

THE Natural History Museum Staff Association held their summer scientific reunion in the board room of the Museum on July 5. There was a large attendance. Among other interesting exhibits were the following: specimen of the supposed gigantic Gastropod (*Dinocochlea ingens*) from the freshwater sandstones in the Wadhurst Clay, Hastings; the natural cast of a footprint of an Iguanodon from the Wealden Beds, between Bexhill and St. Leonards; opalised Mollusca of Cretaceous age from New South Wales and South Australia; skin with scutes of a stegosaurian dinosaur from the Upper Cretaceous, Alberta, Canada; specimens from the collection of Swiss minerals bequeathed to the Museum by the late Rev. J. M. Gordon; one of the four meteoric stones which fell in the Strathmore district of Perthshire and Forfarshire on December 3, 1917; living specimens of a branchiopod crustacean (*Leptesheria dahalacensis*) hatched from eggs contained in dried mud from Bagdad; ammonites with the operculum preserved and associated fossils from the same bed in the Lias at Charmouth, Dorset; Horse Chestnut seedlings, illustrating three different methods of replacing the bud of the primary shoot; a very rare British orchid (*Orchis hircina*) recently found near Lewes; examples of the remarkably different, smooth and partly rough, skinned fruits borne on the same tree of the Khatta orange, North India; model of Commerson's dolphin (*Cephalorhynchus Commersoni*) from Port Stanley, Falkland Islands; and the model, enlarged 740 diameters, of the itch mite (*Sarcoptes Scabiei*) recently made for the Museum by Miss Grace Edwards. Messrs. R. and J. Beck exhibited their most recent forms of microscope, and Duroglass Ltd. showed

examples of their glass-ware for preserving specimens in spirit and for use in chemical analysis.

At a meeting of the Royal Society of Edinburgh on June 5, Dr. C. G. Knott, general secretary, gave an account of a correspondence between the Academy of Sciences of Paris and the Royal Society of Edinburgh, in which the Council of the latter Society directed attention to the fact that the "Cable Guide" system which was being accepted as the invention of M. Loth during the late war, was invented by Mr. C. A. Stevenson thirty years ago, and described in the Proceedings of the Royal Society of Edinburgh in 1893. In 1921 M. Loth was awarded an important prize for his valuable work in connexion with naval problems, and the report of Vice-Admiral Fournier, in recommending the award, referred pointedly to the method of the pilot cable for guiding ships by electrical signals into harbours during night or at times of fog. A comparison of this report with Mr. C. A. Stevenson's patent of 1893 showed that the two systems were fundamentally identical. Compared with M. Loth's beautiful devices, made possible in these days by the remarkable developments in methods for detecting electric and magnetic charges, Mr. Stevenson's early methods may appear crude, but that does not invalidate his claim as the originator and the first experimenter along these lines. Not only did he invent the pilot cable, but he was the first to demonstrate practically how it could be used in guiding vessels up estuaries and into harbours by means of electric signals from a sunken cable. It was a simple act of justice that these historical facts should be recognised and due credit given to Mr. Stevenson for his valuable pioneer work. A French translation of the statement prepared by the Council has been sent to the Academy of Sciences with the request that it be published in the *Comptes rendus*.

THE Paris correspondent of the *Times* states that the late Prince of Monaco has bequeathed sums of one million francs each to the Académie des Sciences, the Académie de Médecine, the Institut Océanographique, the Institut de Paléontologie Humaine de Paris, and the Musée Océanographique de Monaco.

THE Council of the Marine Biological Association of the United Kingdom has passed a resolution expressing "their respectful homage to the memory of His Highness the late Albert I., Sovereign Prince of Monaco, and their deep appreciation of the great services rendered by him to the advancement of the Science of the Ocean."

THE undermentioned Fellows of the Geological Society have been nominated as Delegates of the Society to the Brussels Geological Congress, 1922: Dr. J. W. Evans, Prof. E. J. Garwood, and Prof. W. W. Watts.

ACCORDING to the *Electrician* the posts of electrical adviser to the Government of India and chief engineer of the Hydro-Electric Survey of India, at present held by Mr. J. W. Meares, are shortly to be abolished.

LORD COLWYN will open the research laboratories of the Research Association of British Rubber and Tyre Manufacturers at 105-7 Lansdowne Road, Croydon, Surrey, on Wednesday, July 26, at 3 P.M.

THE third report of the departmental Committee on Lighting in Factories and Workshops, just issued, deals mainly with the definition of "adequacy" of lighting, which it has already been recommended should be required by Statute and defined by Order of the Secretary of State for different industrial processes. The Committee considers that much work still remains to be done before the regulation of factory lighting can be established on a basis of definite legal minima for illumination. Ample proof is forthcoming of the relation between lighting and production and safety. It is therefore suggested that the chief industries should be invited to assume partial responsibility by sharing in further investigations into the lighting requirements of work in these industries. Meanwhile, as an indication of what is desirable, the Committee furnishes an appendix in which processes in the chief industries are classified as "fine work," requiring 3 foot-candles, and "very fine work," requiring 5 foot-candles. In other appendices values demanded in American codes on industrial lighting are given. It is gratifying to observe that there has already been a substantial improvement in industrial lighting since the Com-

mittee commenced its labours, and there is no doubt that the moderate course they recommend in regard to legal minima will meet with general approval.

MESSRS. GALLENKAMP AND CO., referring to the paragraph in NATURE, July 1, p. 19, on the efforts made by the Museums Association to get rectangular glass jars manufactured in this country, remind us that they are prepared to supply such jars. They have been exhibiting samples at the Museums Association Conference at Leicester this week; we understand that they were unable to make these jars when approached by the Association.

THE attention of archæologists may be directed to a lecture delivered by Mr. G. B. Gordon at the University Museum, Philadelphia, and published in the *Museum Journal* (vol. xii. No. 4), issued by that institution, in which he describes the walls and other antiquities of Constantinople. Mr. Gordon gives a graphic sketch of the history of the city in relation to the existing remains, and his lecture is illustrated by an admirable series of photographs.

A USEFUL list (No. 432) of publications on agriculture and gardening, including some rare herbals, has just been circulated by Mr. F. Edwards, 83 High Street, Marylebone, W.1. It is obtainable free, upon request, of the publisher.

Our Astronomical Column.

SKJELLERUP'S COMET.—This comet was photographed by Mr. Davidson at Greenwich on June 21 and July 3. The results show that a slight lengthening of the period (previously given as 4.72 years) is needed, and 5.1 years is probably near the truth. This is not unfavourable to the suggested identity with Grigg's Comet 1902 II. Dividing the interval by 4, 4.96 years is obtained as the mean period since 1902, and 5.1 years is quite within the limit of change that might have been produced by Jupiter-perturbations. These would have been considerable early in 1905, and sensible in 1915. The new period is much the same as that of Tempel's Comet, for which the value 5.16 years was found in 1920. This has hitherto been reckoned the second shortest cometary period.

Profs. Crawford and Meyer of Berkeley Observatory, California, find the period 5.53 years for Skjellerup's Comet, but this appears to be somewhat too great, judging by recent observations.

PERIODICAL COMETS.—An investigation has recently been completed by Miss J. M. Young, instructor of mathematics at the University of California, "on the causes which have prevented certain periodical comets being redetected on their predicted returns."

She has brought a number of interesting facts together, with regard to Barnard's Comet of 1884 and Denning's Comet of 1881, and concludes that the most probable period for the former is 5.39 years, and for the latter 8.84 years. Neither of the comets alluded to have been redetected since the years of their discovery, but at certain returns the conditions have been very unfavourable. Miss Young concludes that periodic comets often escape observation owing to the fact that they have not been searched for over a sufficiently large extent of the heavens.

It is to be hoped that greater efforts will be made to rediscover some of the numerous comets of short period which have only been observed at one return. Denning's Comet of 1881 is due in 1925, when the conditions may be favourable; but there is considerable uncertainty as to the date of perihelion.

ROCHE'S LIMIT FOR SATELLITES.—It is not always remembered that the limit assigned by Roche as the minimum distance of a satellite from its primary (depending on the density of the latter, but of the order of $2\frac{1}{2}$ times its radius) takes no account of the force of cohesion in keeping the satellite particles together. In the case of bodies of the size of the earth or moon, the disruptive forces would be so large that the force of cohesion might be neglected compared with them; but the case is different when we consider little bodies like Phobos, the inner satellite of Mars. Prof. George Darwin, in his well-known work on the tides, etc., suggested that Phobos was so near Roche's limit that future astronomers might witness its disintegration. Dr. E. O. Fountain gives some useful calculations on the subject in the *Journal of the British Astronomical Association* for May. He assumes as the tenacity of the material forming Phobos about 300 lbs. per square inch, the figure for brick and cement. On this basis he finds that Phobos would still hold together even close to the surface of Mars, while in its present situation a satellite of 200 miles diameter could exist without destruction. He also finds that bodies some 200 miles in diameter could exist without destruction at the inner edge of Saturn's ring, so that the doctrine of Roche's limit can scarcely be invoked to explain the disintegration of the matter of the ring into such tiny fragments as those which appear to constitute the ring particles.