

be pursued in Oxford in consonance with the design of the founder of the trust. To this Prof. Turner replies that the scientific activities of Oxford are not, and should not be, confined to the actual precincts of the city; that additional observatories in the southern hemisphere are really needed; and that there may be a danger of undervaluing 'positional' astronomy, which has conspicuously proved its importance, in comparison with the more recent development of astrophysics.

THE Rockefeller Medical Fellowships for the academic year 1930-31 will shortly be awarded by the Medical Research Council, and applications should be lodged with the Council not later than June 1. These Fellowships are provided from a fund with which the Medical Research Council has been entrusted by the Rockefeller Foundation and are awarded to graduates who have had some training in research work in the primary sciences of medicine or in clinical medicine or surgery and are likely to profit by a period of work at a university or other chosen centre in the United States before taking up positions for higher teaching or research in the British Isles. In special circumstances the fellowships may be tenable at centres of research not in America. A fellowship held in America will have the value of not less than £350 a year for a single fellow, with extra allowance for a married fellow. Particulars are obtainable from the Secretary, Medical Research Council, 38 Old Queen Street, Westminster, S.W.1.

THE Salters' Institute of Industrial Chemistry is offering a limited number of fellowships for chemists of post-graduate standing, the object being to afford additional and special training at home and abroad preparatory to a career in industrial chemistry. The normal value of each fellowship is from £250 to £300. Applications must reach the Director of the Institute, Salters' Hall, St. Swithin's Lane, E.C.4, by June 2. The Institute will also, in July, allocate a limited number of grants-in-aid to young men and women employed in chemical works in or near London who are desirous of fitting themselves for a career in chemical industry. The latest date for the receipt of applications by the Director is June 7.

THE Ministry of Agriculture and Fisheries is offering until June 15 a number of agricultural scholarships for students who propose to take up posts as agricultural organisers, teachers, or lecturers in agriculture; also research scholarships in agricultural and veterinary science. In addition, it is prepared to receive up to May 15 applications for grants in aid of scientific investigations bearing on agriculture to be carried on in connexion with a university, university college, or other approved institution or society in England and Wales. Applications for all of the foregoing should be sent (upon forms A. 472/T.G., 900/T.G., and A. 53/T.G. respectively) to the Secretary, Ministry of Agriculture and Fisheries, 10 Whitehall Place, S.W.1.

DANIEL C. JACKLING, of San Francisco, president of the Utah Copper Company, has made provision for the establishment at the Missouri School of Mines and Metallurgy at Rolla, of which he is a graduate of the class of 1892, of the Jackling Foundation for education in the sciences and arts pertaining to the mineral industry, the purpose of the Foundation being to offer loan funds and provide scholarships and special educational features not ordinarily provided for at State schools. The Foundation may eventually total £120,000. Of this amount £20,000 is to be used as loan funds and the income from the remainder for scholarships and special educational purposes.

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Historic Natural Events.

May 6, 1915. Thunderstorm.—During the evening a thunderstorm of unusual violence broke over the centre of London. Between 8.30 p.m. and 10 p.m. more than two inches of rain fell over an area bounded by Piccadilly Circus, Euston Road, Shoreditch, and the Strand, the amount reaching 3.00 in. at Holborn and 3.12 in. at New River Head. Practically no rain fell south of the Thames.

May 8, 1663. Thunderstorm and Flood.—Concerning this Pepys wrote (May 15): "Strange were the effects of the late thunder and lightning about a week since at Northampton, coming with great rain, which caused extraordinary floods in a few hours, bearing away bridges, drowning horses, men, and cattle. Two men passing over a bridge on horseback, the arches before and behind them were borne away, and that left which they were upon: but however one of the horses fell over and was drowned. Stacks of faggots carried as high as a steeple, and other dreadful things; which Sir Thomas Crew showed me letters to him about from Mr. Freemantle and others, that it is very true."

May 8, 1902. Great Eruption of Mont Pelée (Martinique).—For two weeks beginning on April 25, the volcano had been active, throwing out columns of ash and steam. About 8 a.m. on May 8, a dark cloud was seen to issue from the volcano. Sweeping down the slope with great velocity, in two minutes it reached Saint Pierre, the chief city in the island. The blast was tornadic in its violence, its heat was withering, and it seems to have been charged with incandescent particles. The whole city was wrecked and, with two exceptions, all its inhabitants were killed, as a rule instantaneously, the number of dead in Sainte Pierre and its suburbs being reckoned at not less than 30,000. The area of complete destruction was a sector about 8 sq. miles in area, and as a rule its boundaries were sharply defined. There was no flow of lava and no large portion of the crater was blown away, though it is estimated that the discharge of solid matter per day was greater than that of the sediment carried down by all the rivers in the world combined. The sound of the explosion was heard at St. Kitts and St. Thomas (210 miles and 350 miles). Brilliant after-glow were observed at Honolulu, Madeira, Slough, Berlin, Bombay, and elsewhere.

May 9, 1818. Drought.—At Treverex, near Limpsfield, Surrey, it is recorded that after a deluge of rain on May 8, no further rain fell until Sept. 5, being 17 weeks and 1 day, during which all vegetation was completely burnt up.

May 9, 1867. Shower of Hazel Nuts.—On the night of May 9, during a violent rainstorm, a remarkable shower of 'berries' fell in Dublin, on both sides of the river. They were described as having the form of a very small orange, about half an inch in diameter, black in colour, and when cut across seeming as if made of some hard dark brown wood. They fell with such force that even the police were forced to seek shelter. The 'berries' were afterwards identified as hazel nuts which had been partly fossilised in a peat bog. How they came into the air is not known.

May 9, 1877. Chilean Earthquake Sea-waves.—The epicentre of the earthquake lay about 90 miles southwest of Iquique. The sea-waves were observed at different places along 2200 miles of the South American Coast. They swept across the Pacific and were recorded in New Zealand (5600 miles), New South Wales (6800 miles), and so far as Japan (8900 miles).

May 9, 1893. Early Season.—The spring and early summer of 1893 were among the earliest on record in

the British Isles. "Stimulated by continued heat, vegetation of all kinds was forced on rapidly, and without any check worth mentioning, into leaf and flower, and in some cases into fruit, long in advance of its usual time. Even in parts of Scotland strawberries were gathered in May and new potatoes and peas ready for use." (Report on the Phenological Observations, p. 127.) In south-west England the greater bindweed was in flower on May 9, five weeks in advance of its usual date, and even in western Scotland it was only two days later. The foliage of trees was abundant and well developed, flowering trees and shrubs bloomed with extraordinary freedom. In the fields and hedgerows flowers were abundant and followed each other in rapid succession, but the dry and forcing weather weakened the plants themselves and they soon faded. Insects were very numerous, and the swarms of wasps amounted to a plague. The earliness of the seasons was maintained into the autumn, and the harvests began everywhere at almost unprecedented dates, but were very poor over most of England.

May 9, 1919. Cloud formed by Aeroplane.—During a high flight over Germany, the aviator observed that at a height of 26,000 feet a streak of cloud formed behind him. This cloud attained a length of about 40 miles, then gradually spread and developed into a typical cirro-cumulus cloud, about 3000 feet broad. Similar phenomena were repeated on May 11. On both days the weather conditions were inclined to thunder, and it seems probable that the exhaust gases supplied condensation nuclei to the air, thus giving the necessary stimulus to cloud formation.

May 10, 1879. Meteorite.—During the afternoon a great meteorite fell and burst near Estherville in Iowa. The largest fragment recovered weighed more than 400 pounds. This is the largest meteorite in America which has been actually observed to fall.

Societies and Academies.

LONDON.

Geological Society, Mar. 26.—W. Campbell Smith: A classification of some rhyolites, trachytes, and phonolites from part of Kenya Colony, with a note on some associated basaltic rocks. Comparison of specimens collected on two expeditions by Prof. J. W. Gregory in 1893 and 1919, previously described by Dr. G. T. Prior (1903) and Miss A. T. Neilson (1921), supported by some new analyses, has led to a revision of the nomenclature.—T. N. George: *Ambocælia* Hall and certain similar British Spiriferidæ. The British forms do not exhibit the features emphasised by Hall in his description of *Ambocælia*; in particular, they differ in the surface-ornament, in the cardinal process, and in the musculature of the dorsal valve. Two new genera, distinguished one from the other by details of ornament and cardinal area, are therefore established for their reception, and it is proposed to create a new subfamily for the reception of *Ambocælia* and the new genera. The later portion of the paper consists of a detailed description of the British species from the Devonian, Carboniferous, and Permian systems. Some of these are new.

Linnean Society, April 3.—H. Lister: Observations on the comparative morphology of the protozoan fauna found in the paunch and reticulum of ruminants. The actual species vary with the geographical environment of the host. By using suitable culture media and a specially designed microculture incubator, they have, during the present investigation, been kept alive for longer periods than hitherto. The cultures have shown that the bacteria inevitably introduced

with the protozoa render the medium acid, and that this proves fatal to them.—H. S. Holden: Some wound reactions in *Ankyropteris corrugata*. The tissues of the fossil fern *Ankyropteris corrugata* show well-defined wound reactions. In the root these consist of irregularly disposed wedges of meristem and are confined to the cortex. In the stem, wounds usually take the form of irregular cortical fissures bordered on either side by a strip of meristem. In the petiole, where the wound is superficial, a pad of healing meristem is developed, but, where it is deep-seated, the vascular tissues may be involved.—J. M. Cowan: Botanical exploration through North-West Persia. A brief survey of the vegetation of Iraq and North-West Persia observed on a tour made on behalf of the John Innes Horticultural Institution and Kew Gardens.

Optical Society, April 10.—T. Smith: Charts for simple two and three thin lens problems. A variety of charts can be drawn, each of which furnishes complete first-order information on systems constructed from two or three thin lenses.—M. O. Pelton: The lustre of textile fibres is due to a geometrical property of transparent cylindrical filaments with polished surfaces. Some of the factors, notably double refraction and diffraction, which might affect lustre, are discussed, and a method is suggested for measuring lustre based on the high lights visible on a curved lustrous surface.—W. D. Wright: A re-determination of the mixture curves of the spectrum. The paper describes a method that has been developed for calculating the sensation curves and mixture curves from an average set of trichromatic coefficients and the standard luminosity curve, without recourse to any further experimental data. A complete table of colour mixture data is given. The practical value of different methods of colorimetry and the most desirable primaries for use as reference standards are briefly discussed.

DUBLIN.

Royal Society, April 2.—J. Joly: The application of gamma radiation to deep-seated tumours. The applicator operates on the principle of a pseudo focus, formed by the convergence of two inclined gamma ray beams intersecting at the tumour. The beams are kept in continual rotation round a vertical axis, while at the same time they are carried along a path determined by a template which has been derived from X-ray exploration of the tumour. The movements are controlled by clockwork, and the whole applicator, in certain cases, may be worn by the patient without serious inconvenience. The γ -radiation may be derived from radon tubes or radium tubes such as are used in needle radio-therapy; some twenty-five or thirty such tubes being packed into each radiator.—J. Reilly and D. T. McSweeney: A study of the polysaccharides (Pt. 2).

GENEVA.

Society of Physics and Natural History, Feb. 6.—J. Briquet: The number of carpels in the flowers of *Campanula*. The character of the trimery and pentamery of the gynæcium plays an important part in the systematics of this genus. Now the author has observed that both these arrangements occur in the flowers of *Campanula Medium*. It is therefore necessary to review carefully the behaviour of various species and to modify the diagnoses and analytical tests.—J. Briquet: The carpology of the genus *Mantisalca* Cass. The author's studies have proved that the genus *Mantisalca* has been erroneously joined to the genus *Centauraea*.—E. Briner, J. P. Lugin, and R. Monnier: The action of nitrogen peroxide and of