

Current Topics and Events.

No British statesman of our times is more closely associated with scientific activities, or has done more to promote scientific interests, than Sir Arthur Balfour, upon whom the King conferred the honour of knighthood a few weeks ago and invested him with the insignia of the Order of the Garter. We notice, therefore, with much satisfaction the announcement that the King has been pleased to approve that the dignity of an Earldom of the United Kingdom be conferred upon him. Sir Arthur Balfour was elected a fellow of the Royal Society in 1888 and was president of the British Association at the Cambridge meeting in 1904. He has been Lord Rector of St. Andrews University and of Glasgow University, is Chancellor of Edinburgh University, and in 1919 he succeeded his brother-in-law, the late Lord Rayleigh, as Chancellor of Cambridge University. He is president of the British Academy, and Lord President of the Council, and by the latter office is concerned with the Department of Scientific and Industrial Research, in the work of which he takes active interest. Sir Arthur Balfour possesses a sure faith that no attempt to acquire and improve knowledge is vain, and a reasoned belief in the power of science to help and elevate mankind. He is a peer among philosophers and a trusted leader among statesmen, and the honour which has now been conferred upon him has given particular pleasure to all who work for social, intellectual, and scientific progress.

THE retirement is announced of Sir I. Bayley Balfour, Regius Keeper of the Botanic Garden at Edinburgh, Regius Professor of Botany in the University there, and King's Botanist for Scotland. Sir Bayley Balfour succeeded Dickson as Regius Keeper in 1888 and soon initiated that enlightened policy of friendly co-operation between the Commissioners of Works and the Regius Keeper which prevailed throughout his tenure of office. He placed the garden in the unique position it occupies to-day, and made it fruitful of result to botany and horticulture. His strength as Regius Keeper lay in more than one direction, and we may safely place his lovable human qualities and his knowledge of men in the centre of the arch, with his broad-minded, scientific outlook on one side and practical knowledge of horticulture on the other. As an administrator, his knowledge of men and affairs was never exhibited to better purpose than in the happy relations he established with one after the other of a succession of official chiefs who rightly trusted him implicitly. It is scarcely necessary in these columns to refer to Sir Bayley Balfour's position as a scientific botanist, but there is still much for him to do along lines of research he has made peculiarly his own, such, for example, as the differentiation of the great *Rhododendron* genus, by the characters of the leaf indumentum. As a practical horticulturist, he stands alone in the profundity of his knowledge of plants and their ways. Of late years, taking up the work where Franchet left it in 1900, he has taken the leading part in this country in the enumeration of

the discoveries which have been going on for 40 years in the flora of the Western Chinese Alps, and which, in *Rhododendron* alone, far transcend the epoch-making results of Hooker's exploration of the Eastern Himalaya in the 'fifties. The consideration of the material already to hand, in the discovery of which George Forrest, an old member of the Edinburgh garden staff, has latterly played a major part, has resulted in the publication of a series of invaluable monographic "Notes" on *Rhododendron*, as well as *Nomocharis*, *Chinese Gentian* and *Primula*, all couched in the lucid style with which many previous publications of Sir Bayley Balfour's have made us familiar.

THE KING, on the recommendation of the Secretary for Scotland, has approved the appointment of Mr. W. W. Smith to succeed Sir I. Bayley Balfour as Regius professor of botany in the University of Edinburgh, Regius Keeper of the Royal Botanic Garden, Edinburgh, and King's Botanist in Scotland. Mr. Smith has been assistant to the Regius Keeper for several years.

SIR HUMPHRY ROLLESTON has been elected president of the Royal College of Physicians of London.

SIR F. W. DUKE, Under-Secretary of State for India; Sir Berkeley G. A. Moynihan, professor of clinical surgery, University of Leeds; and Sir Ronald Ross, have been elected members of the Athenæum Club under the provisions of the rule which empowers the annual election by the committee of a certain number of persons "of distinguished eminence in science, literature, the arts, or for public services."

THE latest news from the Mount Everest expedition reports an uneventful march from Darjeeling through Sikkim and over the Jelepala pass into Tibet. The road then lay along the Chumbi valley to Phari Dzong, to which place stores and grain had been despatched in advance. Gen. Bruce reports that on April 8 the expedition left Phari Dzong for Khimbajong. A message from the Pope wishing the expedition success was received before leaving Darjeeling.

ON Tuesday next, April 25, Sir Arthur Keith will begin a course of three lectures at the Royal Institution on "Anthropological Problems of the British Empire." Series II. "Racial Problems of Africa"; on Thursday, April 27, Prof. E. H. Barton will deliver the first of two lectures on (I.) "The Resonance Theory of Audition," (II.) "A Syntonic Hypothesis of Colour Vision"; and on Wednesday, April 26, and Saturday, May 6, Prof. D. H. MacGregor will deliver two lectures on "Industrial Relationships"—(I.) "The Historical Interpretation," (II.) "The Problem of Structure." The Friday evening discourse on April 28 will be delivered by Dr. Arthur Harden on "Vitamin Problems," and on May 5 by Dr. M. Grabham on "Biological Studies in Madeira."

THE special arrangements for Easter made by the French Physical Society include an address by Prof.

P. Weiss on the Strasbourg Physics Institute on Wednesday, April 19, and one by Sir E. Rutherford on the artificial disintegration of the elements on the following day, both delivered in the physics theatre of the science faculty of the University of Paris. On Friday a visit is to be paid to the new wireless station at Sainte Assise where the 2-kilowatt Paris-London station will be seen in operation; the continental 100-kilowatt station is just about to begin work, and a transcontinental station of 1500 kilowatts is being constructed. On the Thursday and Friday there will be an exhibition of apparatus at the rooms of the Society. At this exhibition British scientific apparatus makers have a joint exhibit. A number of French instruments not well known in this country will be displayed, as for example the Yvon spectrophotometer, a direct-reading micro-balance, and several wireless telegraphic appliances.

THE second triennial meeting of the Astronomical Union will be held at Rome on May 2-10. The opening address by the president, M. Baillaud, will be delivered at 3 P.M. on May 2, at the Reale Accademia dei Lincei. The following are some of the proposals on the agenda paper: to make simultaneous observations of the variation of solar radiation, including the ultra-violet rays; to endeavour to expedite the completion of the astrographic catalogue; to organise observations of stellar parallax; to open a variable-star bureau at Lyons in collaboration with that at Harvard; to use plates sensitised for the infra-red in order to extend the spectral range and possibly to discover stars hitherto invisible; to organise the re-reduction of older star-catalogues, with a view to proper-motion determinations; to make arrangements for observing the near approach of Eros in 1931; and calendar reform. The Municipality of Rome will receive the delegates on May 4 and they are invited to Florence at the close of the meeting. Visits to Messina, Stromboli, and Etna have also been arranged. Prof. A. Fowler, Royal College of Science, South Kensington, is the General Secretary, and it may be mentioned that Messrs. Cook have arranged on favourable terms for a party leaving London on April 29, and returning on May 13.

THE council of the Institution of Civil Engineers has made the following awards for papers read and discussed during the session 1921-22: Telford Medals to Sir Henry Fowler (Derby), Mr. H. N. Gresley (Doncaster), and Dr. H. F. Parshall (London); a Watt Medal to Mr. W. Willox (London); an Indian Premium to Mr. F. G. Royal-Dawson (London); Telford Premiums to Mr. A. W. Rendell (Bournemouth), Mr. W. F. Stanton (Chile), and Mr. A. C. Walsh (Chile). The council has also made the following awards for papers printed without discussion in the Proceedings for the session 1920-21: A George Stephenson Medal to Mr. J. H. Taylor (Buenos Aires); Telford Premiums to Mr. F. H. Hummel (Belfast), Mr. E. J. Finnan (Belfast), and Dr. Herbert Chatley (China); and a Trevithick Premium to Mr. G. E. Lillie (Reigate).

A PAPER by Sir Robert Hadfield, communicated to the Institution of Civil Engineers on April 4,

represents the beginning of a very extensive and important research on the corrosion of ferrous metals which forms part of an inquiry, undertaken by the Institution in 1916, into the deterioration of structures exposed to sea action. It is proposed to place a large number of specimens of iron and steel, 1330 in all, in positions in which they will be exposed to the action of sea water under certain definite conditions. The present paper describes the metals selected for these tests, and gives full particulars of their mechanical properties, chemical analysis, and micro-structure. In such an elaborate investigation it is obvious that every care should be taken to determine the exact conditions under which a test is made, and with this object in view special efforts have been made to define the properties of the test-pieces as accurately as possible. The materials selected include pure varieties of iron (wrought and Armco irons), mild and medium carbon steels of several kinds, steels containing copper, nickel, or chromium as a means of lessening corrosion, and cast irons. An ingenious system of numbering has been adopted, so that specimens can be identified even in the case of considerable corrosion taking place. The actual tests will necessarily occupy a long time, and will be supplemented by laboratory investigations. The paper concludes with a review of some of the problems and theories of corrosion, and with an estimate of the annual wastage of iron-steel through corrosion. For the whole world this loss is estimated to be 29 million tons, and the cost, after making allowance for protection, to be in the neighbourhood of 700 millions sterling.

IN the March issue of *British Birds* the editor, Mr. H. F. Witherby, gives an account of the progress of the bird-marking scheme during the year 1921. The number of birds "ringed" during the period was 8997, the greatest total for any year since 1914, and the grand total for the thirteen years of the inquiry has reached the remarkable figure of 105,435. The best figures for individual species are those for the black-headed gull and the song-thrush, of each of which more than 11,000 have been marked since the inquiry began. The whole represents a noteworthy achievement, on which Mr. Witherby and his co-operators are greatly to be congratulated, and further important contributions to our knowledge of bird-migration are certain to result from the continuance of the work on this scale. Reference is made by Mr. Witherby to a useful discussion which has recently been going on in the pages of the magazine as to the future development of the inquiry. On the one hand, there are arguments in favour of concentration of effort: larger numbers of certain of the more interesting and "remunerative" species might be marked, and the results would be augmented in value if there were large series of recovery records relating to homogeneous or comparable marking groups. On the other, the opportunities presenting themselves to the majority of co-operators in the inquiry are for promiscuous marking, and these markers might merely be hampered by any attempt at restriction. An account of

some of the results of this inquiry was included in the article on "The Migration of British Swallows" in *NATURE* of March 16.

THE Ministry of Agriculture announces that bees can now be examined for the presence of the Acarine Disease on payment of a fee of 2s. for each sample submitted. Live bees only must be sent, and about 30 specimens should be taken from off the combs and packed in a small cage or box provided with ventilation-holes. A piece of muslin should be fastened across the inside for the bees to cling to during transit. A supply of candy sufficient to last for a few days, or a lump of sugar moistened with water, should be wrapped in muslin and fastened firmly to the inside of the box. The latter should be addressed to the Ministry of Agriculture, 4 Whitehall Place, London, S.W.1, and the name of the sender should be written on the reverse side of the label, but crossed through to prevent an error in transit. The remittance should be sent under a separate covering letter with as much information as possible concerning the bees. Payment must be made by postal order or cheque.

ON March 22 at a meeting of the Institution of Aeronautical Engineers a paper was read by Mr. Manning on "Seaplane Design," and on March 31 Mr. H. P. Folland dealt with the subject of aircraft design generally. The programme of future fixtures

includes papers by Captain Sayers on "Some Unsettled Problems of Aeroplane Design" and by Major Hume on "The Seaplane's Place in Aviation." Visits have been arranged to the works of the De Haviland Aircraft Company, Simms Motor Units Ltd., the National Physical Laboratory, the South Kensington Museum, and the Croydon Aerodrome. The secretary is Mr. L. Howard Flanders, 60 Chancery Lane, and the president, Col. J. T. C. Moore-Brabazon, M.P.

WE have received from Messrs. Baird and Tatlock, of Cross Street, Hatton Garden, a copy of their new (1922) catalogue of apparatus for use in physiological and other laboratories where similar apparatus is required. The worker will find it a very valuable and an almost complete list of the instruments at present available for teaching and research purposes. In the latter case, it frequently happens that new apparatus has to be designed and fitted up to solve new problems; but the list sent to us will be of much assistance in giving information of what is actually to be obtained for the purpose in view. We note that the collaboration of physiologists has been obtained in the selection of the material to be included and the presence of apparatus for physico-chemical measurements is to be welcomed. The instruments for convenient measurement of electrical conductivity and potential have been somewhat difficult to obtain in recent years in England. The prices on the whole appear to be reasonable.

Our Astronomical Column.

THE SHOWER OF LYRIDS.—These meteors may be expected to return on the night of April 21, and as the moon will be absent this year at the time of the maximum display, they should be well observed. The best hour at which to witness the event will probably be near midnight, for in the morning hours on April 22 the earth is likely to have passed through the denser part of the stream. The shower certainly lasts ten days, but it appears in its most active stage for a short period only. Of late years the meteors of this system have not been visible in striking abundance, and it is an unfortunate circumstance that its period of revolution is unknown. A brilliant exhibition of the meteors may occur in any year, and quite unexpectedly as in 1803 and 1851.

THE POSITION OF NEPTUNE'S EQUATOR.—It has long been known that the plane of the orbit of Neptune's satellite Triton is changing its position. The only probable cause is the oblateness of Neptune, and it follows that the orbit plane makes a considerable angle with the planet's equator. By plotting out the poles of the satellite's orbit at different epochs we get an arc of a small circle, the centre of which is the pole of Neptune's equator. The latest determination of the position of the latter pole is that made by Mr. Arthur Newton (*Pop. Ast.*, March 1922). Making use of 1500 observations of the satellite, made from 1864 to 1908, he gives R.A. 19 h. 17 m., N. Decl. $38^{\circ}.3$ as the northern end of Neptune's axis. The pole of the satellite's orbit describes a circle round this, of radius $14^{\circ}.7$, in 425 years. There is little doubt that Neptune's rotation is retrograde; this has been verified for Uranus by the spectroscope, the period of $10\frac{1}{2}$ h. being found at the same time. In the case of Uranus the equator evidently coincides with the orbit

planes, since these are all practically coincident and no change in them has been detected.

DETERMINATION OF STAR MAGNITUDES BY A THERMOPILE.—J. Schilt has devised a new method of determining photographic star-magnitudes, which he describes in Bull. No. 10 of the *Astr. Inst. of the Netherlands*. The light and heat from a lamp are focussed by a lens on a small circle of the plate, which is somewhat larger than any of the star-images; these images are then moved in succession into the circle of light, and the amount of heat absorbed by the image is measured by the galvanometer of the thermopile. The process is rapid, the equilibrium temperature being attained in three seconds. The probable error, deduced by comparing the measures of two exposures on the same plate, is found to be 0.02 mag., whereas that from the method of diameter of image is 0.11 mag.

The most striking advantage of the new method is that it gets rid of practically all error due to variation in the shape of the image with varying distance from the centre of the plate. It also gets rid of the error that arises in the star diameters in plates taken with a refractor, due to the chromatic aberration which depends on the star's colour. In fact the method appears to give the integrated amount of darkening of the film independently of the size or shape of the image. This is verified by the application of the method to some of the polar plates taken with the 60-inch reflector at Mt. Wilson. The tables show that it gives good results up to a distance of 44 mm. from the centre of the plate, whereas Seares had found that the diameter method needed corrections of about half a magnitude at a distance of only 20 mm. The method would seem to have a large field of usefulness in the photometry of faint stars on reflector plates.