and "The Country Month by Month," with J. Owen (Mrs. Owen Visger), brought him into touch with a wide public, and his edition of Johns' "Flowers of the Field" has proved invaluable to thousands of amateur botanists. Other works of his were "The Uses of Plants," "Elementary Geology," and "Plant Geography." He was for a long time the Kew Gardens correspondent of the *Times*. He always faced troubles cheerfully, and, constantly active, it is to be feared that overwork may have had much to do with his regretted death. His loss will be greatly felt by workers in many fields.

BY the death of Dr. C. W. Waidner on March 10, the Bureau of Standards lost the third member of its original staff within the last year. Dr. Waidner was born in Baltimore in 1873, graduated at the Johns Hopkins University in 1896 and remained there, engaged first in research and afterwards in teaching, till he was appointed to the staff of the Bureau on its foundation in 1901. In a short time he became head of the Heat and Thermometry department, and organised the testing of thermometers of all kinds from clinical instruments to optical pyrometers. In conjunction with various members of his staff—most often with Dr. G. K. Burgess—he published a number of papers which did much to increase the precision with which temperatures could be determined. Of these papers it is only necessary to mention those on a comparator for thermometers, on radiation pyrometry, on the high temperature scale, on standards of light, on the platinum thermometer and the melting-point of platinum, and on the possibility of detecting the presence of icebergs by the temperature of the ocean, to show the nature and extent of his work. In recent years his interests have centred mainly in the applications of physics to problems of refrigeration and to the production of fire-resisting structures. In these fields his loss will be severely felt.

IN the *Chemiker Zeitung* of April 15 the death is announced, at the age of sixty years, of Dr. F. Voigtländer, emeritus professor of chemistry at the University of Hamburg.

THE U.S. Public Health Service has lost, by his death at the age of forty-eight, the skilled assistance of its assistant epidemiologist, Dr. David G. Willets. He had spent several years at Manila, at first in the biological laboratory of the Bureau of Science and afterward on the staff of the University of the Philippines. He had written many bulletins and monographs on pellagra, intestinal parasites, and other tropical problems.

Current Topics and Events.

THE one hundred and fiftieth anniversary of the foundation of the Royal Academy of Belgium will be celebrated in Brussels on May 23-24. More than ninety delegates, representing forty-five academies in eighteen different countries, in addition to foreign associates of the Belgian Academy, are expected to attend the function. France is sending a number of representatives; the Institute of France alone will have thirty-six delegates. We learn from the Secretary of the Academy that the learned societies of Great Britain will be represented as follows: Royal Society, Sir William Leishman and Prof. H. Lamb (also representing the Cambridge Philosophical Society); Royal Society of Edinburgh, Sir George Berry; Royal Academy, Sir George Frampton, Sir Reginald Blomfield, and Mr. H. Hughes-Stanton; Royal Institute of British Architects, Sir John Burnet, Mr. J. Simpson, and Mr. P. Waterhouse; Royal Geographical Society, Sir Frederick Sykes; Royal Historical Society, Mr. G. M. T. Omond; British Academy, Sir Frederic Kenyon and Mr. H. Stuart-Jones; Chemical Society, Sir William Pope; Zoological Society, Dr. G. A. Boulenger and Dr. P. Chalmers Mitchell; Asiatic Society of Bengal, Sir Thomas H. Holland and Dr. Pascoe. The following British Associates of the Belgian Academy will be present: Sir Frank Dyson, Sir T. Erskine Holland, Sir Frederick Pollock, Sir Thomas Jackson, Sir John Lavery, and Mr. J. Pennell. The learned societies of Australia and New Zealand and the Royal Irish Academy have sent congratulatory addresses.

THE *Times* of May 9 records the striking of petroleum (on the previous day) in a well put down at Darcy, near Dalkeith, on the property of Lord Lothian. The well was originally one of the two selected sites in Scotland in accordance with the Government's drilling programme of 1918, the other, at West Calder, having since been abandoned after being drilled to a depth of 3923 feet. The Darcy well is producing from a sandstone at a depth of 1810 feet, and the oil, though inferior both in quality and quantity to that obtained at Hardstoft, is of paraffin base, somewhat viscous, and carries much gas. Previous to the flow, 8-inch casing had been set in the hole and the oil accumulated afterwards for several hundred feet within it. The bringing in of this well is an event of scientific rather than economic importance, as the initial yield is, commercially speaking, insignificant, while the prospects of the area as a whole are geologically unfavourable to the development of a large oilfield. Hardstoft, the only other producing well in this country, makes an average of 20 barrels per week; the Darcy well is said to yield considerably less *pro rata*. The same number of the *Times* contains the report of a serious announcement concerning the world's oil supplies, made by Prof. Arrhenius, at the close of a course of lectures given at the Sorbonne. Prof. Arrhenius stated that at the present rate of consumption the existing oilfields in the world would, in his opinion, be exhausted within 15 years, an opinion shared by many experts both in this country and in America.

The natural corollary to such a prediction is the recognition of the need for conservation of the world's petroleum resources, especially those of the United States. The development of other sources of fuel, more particularly oil shale, and the ultimate harnessing of forms of energy such as Prof. Arrhenius suggested (plants, watercourses, winds, and the heat of the sun), are matters demanding the assiduous attention of scientific investigators.

THE Governors of the Imperial College of Science and Technology have appointed Sir Thomas H. Holland to be Rector of the College in succession to Sir Alfred Keogh, who is retiring at the close of the Summer term. Sir Thomas Holland is best known by his work in India. Among the many important positions filled by him there were the directorship of the Geological Survey, the presidency of the Industrial Commission and of the Board of Munitions, and more recently membership of the Governor-General's Council. Apart from his important administrative experience his scientific interests centre round geology and oil. He has been a member of many commissions and committees concerned with oil, and for ten years was professor of geology and mineralogy at the University of Manchester. His appointment is also interesting in that he is an old student of the Royal College of Science, having been awarded his associateship in geology of that College, which is now an integral part of the Imperial College, in 1888; and also in that in 1910 he was president of the Old Students' Association of the College, and later a member of the governing body representing the Indian Empire.

THE annual visitation of the Royal Observatory, Greenwich, will be held on Saturday, June 3.

SIR RICHARD GREGORY has been elected president of the Decimal Association in succession to the late Lord Belhaven and Stenton.

AT the meeting of the Royal Society on June 1, the Croonian lecture will be delivered by Prof. T. H. Morgan on "The Mechanism of Heredity."

THE annual Conversazione of the Institution of Electrical Engineers will be held on Thursday, June 29, at 8.30 P.M. at the Natural History Museum, South Kensington, S.W.

THE annual general meeting of the People's League of Health will be held at the Mansion House on Thursday, May 25, at 3.30 P.M. The Lord Mayor will preside, and among the speakers will be Sir Bruce Bruce-Porter, Dr. Farquhar Buzzard, Sir Gilbert Garnsey, Miss Olga Nethersole, and Dr. Saleeby.

THE Linnean Society has recently elected the following as Foreign Members: Lucien Cuénot, professor of zootechnic, entomology, and parasitology in the University of Nancy; Gustave Gilson, director of the Royal Museum of Natural History, Brussels; Jakob Wilhelm Ebbe Gustaf Leche, professor of zoology in the High School, Stockholm; and Dr. Benjamin Lincoln Robinson, Asa Gray professor of systematic botany, and curator of the Gray Herbarium, Harvard University, Cambridge, Massachusetts.

DR. W. BATESON, director of the John Innes Horticultural Institution, Merton, Surrey, has been elected a trustee of the British Museum, to fill the vacancy caused by the death of Lord Harcourt. Other Fellows of the Royal Society who are among the elected trustees of the Museum are Lord Rothschild, Sir Henry Howorth, Sir Archibald Geikie, and Sir J. J. Thomson.

THE *Meteorological Magazine* for April has a note on wireless apparatus for Tristan da Cunha. The Rev. H. M. Rogers, who sailed from South Africa in March to take up the chaplaincy of Tristan da Cunha, has taken with him apparatus with a range of more than 1000 miles. The instruments were presented by the people of Cape Town, who have always shown a keen interest in the loneliness of the island. A meteorological equipment was also presented by the Government, so that Mr. Rogers may send reports of weather conditions in the islets by wireless telegraphy to South Africa and to passing ships; it is thought that the messages will greatly aid weather forecasting.

THE sixtieth birthday of Prof. David Hilbert of Göttingen has been celebrated by the publication of a special number of *Die Naturwissenschaften* (January 27). Opening with a portrait of Prof. Hilbert, it contains an admirable account of his life work by Herr O. Blumenthal, of Aachen. There follow five more specialised appreciations, by different writers, of his work as an algebraist, a geometer, an analyst, a physicist, and a philosopher. Finally, appears a list of Prof. Hilbert's memoirs, eighty-three in all, accompanied in many cases by short abstracts of the results contained in them. Among the ranks of living mathematicians no name is more honoured than Prof. Hilbert's, and this tribute to his fame is well worthy of the occasion it celebrates.

IN July this year, Mr. E. Grey, Field Superintendent of the Rothamsted Experimental Station, will complete fifty years of continuous work at Rothamsted. To mark the widespread appreciation of his valuable services during this long period, it has been decided to raise a fund for a testimonial which shall take the form most agreeable to Mr. Grey himself. There are probably many readers of NATURE who may wish to associate themselves with this testimonial. The director and staff of the station therefore invite subscriptions, which should be sent as soon as possible to the Secretary, Rothamsted Experimental Station, Harpenden, Herts. Mr. Grey's book, entitled "Reminiscences, Tales, and Anecdotes of the Rothamsted Experimental Station Laboratories, Staff, and Fields, 1872–1922," is now in the press and copies can be obtained from the Secretary, Rothamsted Experimental Station, Harpenden, or from Mr. E. Grey, Laboratory Cottages, Harpenden. Price 5*s*. 9*d*. post free. All profits will go to Mr. Grey.

FROM the Report of the Board of the Institute of Physics for the year 1921 we learn that the Institute

now has 400 members, 250 of whom are fellows. The income from subscriptions was a little over 500*l.* and the office salaries 500*l.* During the year the Board formulated a scheme for the publication of a *Journal of Scientific Instruments*, and the Institute has received a grant of 250*l.* from the Department of Scientific and Industrial Research to enable it to produce the first number. The Institute has provided 50*l.* for the expenses of distribution of the 10,000 copies which have been printed, and in a short time the number will be in the hands of those likely to be interested in such a Journal. The price will be 30*s.* per annum if sufficient support is provided by instrument makers, research associations, scientific societies, and the public to justify the regular issue of such a periodical.

THE Board of Education has issued a memorandum on the effect of the Summer Time Act on the health of school children. All Local Education Authorities in England and Wales were circularised in May 1921, and only 16 authorities, representing about 127,000 children, failed to reply. Of the 299 authorities from which replies were obtained, 183 authorities, representing 3,227,842 children, are definitely in favour of the Act; 89 authorities, representing 1,600,429 children, consider the Act detrimental, while 27 authorities, representing 232,402 children, have not formed a definite opinion. It should be added that nearly all authorities who hold that the Act is prejudicial to children, state that this is due, not to any defect inherent in the Act itself, but to the fact that parents do not use it rightly. If parental control were properly exercised nearly every authority in the country would approve the Act. The actual (though not the necessary) result of the Act appears to be that large numbers of children lose a valuable hour of sleep, because they go to bed at dusk as before, but have to get up an hour earlier, as the working part of the family rises by the clock. The Board is therefore issuing a circular to the parents of school children, pointing out how important adequate sleep is for the growing child, stating the amount of sleep necessary at the different ages, and supporting the arguments by some common-sense appeals to the parents.

IT is announced that the British Association for the Advancement of Science will publish, early next month, "The British Association: A Retrospect, 1831–1921," by the Secretary of the Association, Mr. O. J. R. Howarth, which will present a summary review of the activities of the association in every department of science since its foundation. The production of this volume has been rendered possible through the generosity of Sir Charles Parsons, ex-president, at whose suggestion it was undertaken.

Our Astronomical Column.

A NEW VARIABLE IN CYGNUS.—The star B.D. +34° 4217 (position for 1900: R.A. 20h. 54m. 12s. Decl. + 34° 47′·4) has been discovered by Mr. Stanley Williams to be a short-period variable (*Monthly Notices*, R.A.S., vol. 82, p. 300). He commenced visual observations on this star with a 6½-in. reflector in October last, and has deduced a light curve which at first appeared to be of an Algol type, but later was found closely to resemble that of β Lyrae. The period is about 15h. 9m. and the range of magnitude 10·42 to 9·93, the magnitude at secondary minimum being 10·15.

THE SPECTRUM OF THE CORONA IN 1918.—The expedition sent from the Lowell Observatory to observe the eclipse of June 8, 1918, was stationed near Syracuse, Kansas, and obtained some interesting results in spite of rather unfavourable weather. The equipment consisted of two single-prism and two three-prism spectrographs (one being a slitless instrument). The distribution of coronium was found to be very different from that of hydrogen and helium. The line at λ5303·0 showed that it extended to a distance of about one solar diameter above the sun's surface, and the condensations in the green coronium ring as shown by the objective-prism plates indicated a distribution which was not in any way related to individual prominences. There appeared to be a general correspondence in the distribution of coronium and the main features of the corona, since it was faint or absent in the regions occupied by the polar "streamers" and abundant beneath the main extensions of the corona. The arches over prominences were unusually well developed, but the presence or absence of coronium in them could not be verified. The principal results are described by Slipher in the *Astrophysical Journal*, 55, p. 73.

DETERMINATION OF LUMINOSITIES BY SPECTRO-PHOTOMETRY.—Two new methods for determining stellar absolute magnitudes are described by Lindblad in the *Astrophysical Journal*, 55, p. 85. The first of these is applicable to stars of higher spectral type than those for which Adams's spectroscopic method is available, and is based on the variations, with absolute magnitude, of the energy distribution of the spectrum between H_ϵ and H_ζ. The two regions λλ3889-3907 and λλ3907-3935 are compared, and faint stars found to show a considerable relative decrease in intensity of the former region when compared with bright stars. This is probably due to the widening of H_ζ and of some arc lines of iron and silicon. The actual measurements are made by taking a series of exposures of each star on the same plate with decreasing exposure-times. In the series of images thus obtained two are selected such that the intensity of λλ3889-3907 in one is equal to that of λλ3907-3935 in the other; and the ratio, E, of the two exposure-times is plotted against the absolute magnitude, M, of the star. Curves are given showing the relation between log E and M for different types, and it is claimed that for types B_8-A_3 absolute magnitudes may be found (with the dispersion used) with a probable error of only ±0·4 mag.

The second method is similar to the first, but is only applicable to stars (types G-M) in which there is appreciable cyanogen absorption. The relative density on either side of λ3889, and between the regions λλ4144-4184 and λλ4227-4272 are found and compared as above with the absolute magnitudes of the stars.