

to a uniform cause, such, for example, as a dissociation of the iodides into ions. A research, published jointly with Prof. E. C. C. Baly and Miss Effie G. Marsden (Journ. Chem. Soc., 1909, 1096), on the absorption spectra of the aqueous alcoholic solutions of nitric acid and lithium, ammonium, and silver nitrates in relation to the ionic theory, afforded strong support for the theory of hydrated ions. It was found that the limiting conductivity and the persistence of the absorption band of these solutions showed a minimum at three per cent. of water. During the War, in addition to her work in connexion with the Voluntary Aid Detachment, Miss Burke found time to assist in the

preparation of synthetic drugs, which were so badly needed at that time.

Towards the end of her life, Miss Burke's activities were absorbed in the social and athletic life of the college, particularly in connexion with the acquisition and organisation of the sports ground for women students at Perivale.

WE regret to announce the death of Mr. Charles Leudesdorf, fellow and vice-regent of Pembroke College, Oxford, registrar of the University of Oxford, and author of a number of papers on mathematical subjects, on August 10, at seventy-one years of age.

Current Topics and Events.

THERE has been brought before the Council of the British Association at the Toronto meeting a special report by the Committee on Zoological Bibliography and Publication, dealing with the question of undue restriction in the distribution of H.M. Government publications. The results of the inquiries of this Committee are of general interest to scientific workers, and may be briefly stated. On applying to the heads of certain Government Institutions, the Committee was informed that no restriction had recently been placed on the distribution of publications of the Royal Botanic Gardens, Kew, the British Museum (Natural History), or H.M. Geological Survey. On the other hand, it found that public libraries had suffered from a considerable cutting down of free or reasonably priced Parliamentary and Stationery Office publications (in respect of which some concession has since been made); that certain British scientific societies of standing are no longer able to obtain Government scientific publications in exchange for their own publications (though foreign scientific societies are not similarly handicapped); that free reprints to authors of papers published by the Government have almost disappeared; that there has been a cessation of the routine free distribution of agricultural leaflets; and that review copies of Government publications have been curtailed. These findings are in general agreement with the statements made in a leading article in NATURE, December 29, 1923 (vol. cxii. p. 925). The Committee considers that no loss would ensue were review copies to be furnished gratis to editors on application, and suggests that the Council of the British Association "might well represent to the Government that the publication of the results of research among people likely to appreciate them is no less important than the making of the researches themselves, and that to refuse the relatively small additional expenditure is materially to reduce the benefit of the original much greater expenditure." Bearing in mind the effective methods employed by other governments in the spread of their scientific achievements, no one is likely to quarrel with this exceedingly modest recommendation.

SCIENTIFIC men are indebted to Major A. G. Church for raising an important question in Parliament, namely, the assessment for income tax of professional men, more especially men of science, who are

remunerated by a fixed salary and are therefore assessed under Schedule E. Professional men whose income is made up of fees, and who are, therefore, assessed under Schedule D, are allowed in the assessment of their incomes to deduct from their earnings expenses ordinarily incurred in the course of their work, including the cost of the renewal of technical works of reference, subscriptions to professional societies, the preparation and publication of memoirs—in fact, all expenditure required to maintain their technical efficiency. Such expenses are not as a rule allowed to those assessed under Schedule E. The Financial Secretary to the Treasury denied, however, the existence of such a distinction and offered to have any particular case investigated, in which further relief was believed to be due, provided the necessary particulars were furnished. The question was, as a matter of fact, brought before the Treasury two or three years ago, when it was intimated that such expenses might, for the purpose of assessment, be deducted from the salary received, when they were incurred in consequence of an express requirement of the employer. If, for example, on the appointment of a science lecturer it was stipulated he should carry out research, or that he should join the technical societies relevant to the subject he taught, or take other steps calculated to maintain his scientific position, the necessary expenses might be deducted in ascertaining his assessable income. It is for the colleges concerned to see that this requirement is satisfied.

THE Admiralty has announced the appointment of Capt. H. P. Douglas to the post of Hydrographer of the Navy in succession to Vice-Admiral F. C. Learmonth, as from October 1 next. Capt. Douglas has been employed in the surveying branch of the Navy since 1897, and held the appointment of superintendent of charts in the hydrographic department from 1910 to 1914. During the War, he was employed on special surveying staff duties at the Dardanelles and with the Dover Patrol, in addition to acting as the first director of the Navy Meteorological Service (1917). For his preparatory work in connexion with the raid on Zeebrugge he was awarded the C.M.G. He was assistant hydrographer of the Navy from 1919 to 1921, and has since been in command of H.M. Surveying Ship *Mutine*, and her successor,

H.M.S. *Ormonde*, on the Bermuda and West Atlantic Survey. He is the inventor of several instruments and diagrams for use in surveying and navigation. The post of Hydrographer of the Navy (instituted in 1795) was originally tenable at their lordships' pleasure, and for an unspecified term. Admiral Beaufort, still remembered in connexion with the "Beaufort scale" of wind velocities, occupied the position for twenty-six years (1829-1855), and the late Rear-Admiral Sir William Wharton for twenty (1884-1904). Since the latter's time, however, the tenure of the post has been limited to five years, its successive occupants having been Admiral Sir A. Mostyn Field (1904-1909), Admiral Sir H. E. Purey-Cust (1909-1914), Vice-Admiral Sir J. F. Parry (1914-1919), whose grandfather, Sir W. E. Parry, the celebrated Arctic explorer, was Hydrographer in 1823-1829 and the present Hydrographer, Vice-Admiral F. C. Learmonth, who, before taking up his appointment as Hydrographer, was Director of Fixed Defences from 1914 to 1919, and in that capacity won unstinted praise from Lord Jellicoe for his work in the production of net defences, both for the British fleet and for those of the allies.

THE Council of the National Institute of Agricultural Botany announces that it proposes to place upon the market this autumn about 2500 quarters of a new seed wheat, Yeoman II., bred by Prof. R. H. Biffen; and tenders as to quantity are invited from established dealers in seed corn. The seed wheat will be sent out in sacks closed with the Institute's seal, none other being genuine, at the rate of 6*l.* 6*s.* per 4½ cwt. Yeoman II. is intended to take the place of the older Yeoman wheat, partly because pure seed of the latter is now difficult to obtain owing to admixture with other wheat, partly because Yeoman II. is a better wheat in several respects. Both wheats are products of the same cross, Browick × Red Fife, and are similar in type. The yielding capacity of Yeoman II. has been tested out at ten different centres on varying soils throughout the country, with thoroughly satisfactory results. Comprehensive milling and baking trials made by impartial judges of the National Association of British and Irish Millers indicate that the bread made from the flour of Yeoman II. is of exceptionally good quality and is "incomparably superior to anything obtainable from average ordinary English wheat." In favourable seasons the loaves approximate closely to those from "No. 1 Manitoba" wheat. It is strongly advocated that from the different points of view of growers, millers, and consumers, Yeoman II. should take the place of the older form. It is particularly suitable for growing on medium and heavy soils which are in good heart, and is specially recommended for the eastern, midland, and southern counties of England, the best results being obtained with early sowing.

A TALK on "Life of the Sea-shore," by Mr. T. Howard Rogers, broadcast from the Birmingham Station of the British Broadcasting Co. on July 29, was the first of a series which will be continued until the end of the year by members of the Birmingham

Natural History and Philosophical Society. On August 9, Mr. O. T. Elliott dealt with "Germs—Beneficial and Otherwise," and the second and concluding part of his lecture will be given on August 16. Other talks which have been arranged are: "Butterflies," by Mr. J. H. Grant (Sept. 9); "The Earliest Known Life of the Earth," by Mr. Frank Raw (Sept. 17); "Flies," by Mr. Colbran J. Wainwright (Sept. 23); "Fossils," by Dr. L. J. Wills (Oct. 7); "How we get our Time," and "The Moon," by the Rev. E. S. Phillips (Oct. 14); "Plant-animals," by Dr. W. T. Elliott (Oct. 21); "Fairy Rings," by Dr. Jessie S. Bayliss Elliott (Oct. 28); "Algeria," by Capt. C. K. Shepherd (Nov. 4); "Shells," by Mr. H. Overton (Nov. 11); "Life of the Ocean," by Mr. T. Howard Rogers (Nov. 18); "Saturn," by Mr. S. C. Parish (Nov. 25); "Aquaria," by Mr. G. T. Calvert (Dec. 2); "The Modern School-boy," by Mr. F. W. Pilditch (Dec. 9); and "The Life-story of the Eel," by Dr. A. J. Grove (Dec. 30). The subjects are being dealt with in an interesting and non-technical manner; and it is hoped that these instructive talks, which are addressed primarily to young people, will arouse interest in, and foster a taste for, natural history and kindred scientific subjects, and prove a helpful contribution to the valuable educational side of the programmes broadcast by the B.B.C.

IN connexion with the Exhibit in Gallery II. of the Government Pavilion at Wembley, by the Cambridge School of Agriculture, illustrating fertility and sterility in domestic animals, an excellent explanatory memorandum by Mr. J. Hammond has been issued by the Ministry of Agriculture and Fisheries. Sterility in the male is illustrated by microscopic preparations showing the semen of a sterile bull devoid of spermatozoa owing to the atrophy of the seminiferous cells—a condition which may follow inbreeding and other types of mismanagement. The reproductive process in the female is illustrated by a preparation of the reproductive organs of the cow, and the memorandum gives a short but clear summary of what is known of the physiology of these organs. Incidentally, mention is made of the striking demonstration of the control exercised by the corpus luteum over the ripening of the next Graafian follicle, that is obtained by expelling the corpus luteum from the ovary by simple pressure through the rectal wall, the result of this operative procedure being to bring on the next heat period before the time at which it would normally occur. Various causes of sterility in the cow are dealt with in the memorandum. The exhibit dealing with the sow illustrates the curious secondary limitation of fertility which occurs in this animal through degeneration and elimination of some of the embryos during the period of pregnancy, the potential brood of about 20 being reduced in this way to an average of about 8 or 9. In the rabbit such absorption of foetuses is produced experimentally by removal of corpora lutea during early pregnancy, but in this case all the foetuses disappear instead of only some of them as is the case in the sow. A similar result is seen in a rabbit which mates while still suckling a large litter, very active lactation having itself an

atrophic influence on the corpora lutea: in this case the effect may be prevented either by reducing the number in the litter to one or two, or by special feeding. The exhibit is one of much interest, and it will serve a good purpose by directing attention to the enlightened policy adopted by the Government of recent years, of encouraging research in external institutions such as Universities and independent laboratories.

Mitteilungen, No. 6, for June 1924, of the Society of German Men of Science and Physicians, are largely occupied by a discussion of the participation of Germany in international congresses. Léon Bourgeois is quoted as having said in 1913: "Coordonnons nos recherches, unissons et centralisons nos efforts, ne nous laissons distraire ni diviser par rien . . ." That was in the earlier days of tuberculosis inquiry, to which Koch, Ehrlich, and Behring have since contributed. Fritz Haber has spoken explicitly as president of the German Chemical Society meeting on May 12. He notes a mellowing of relations and a wish for closer scientific intercourse, expressed in particular by the United States, England, Russia, and Japan, as, for example, the invitations of the British Chemical Manufacturers and of the World Power Conference. The facts are given in greater detail in a paper on "International Scientific and Technical Congresses," pp. 53 to 67 of *Mitteilungen des Verbandes der Deutschen Hochschulen*, May 1924. The editor invites further reports directed to Johannisstr. 7, Münster in Westphalia. A list of 84 congresses is reviewed. Germans have joined in discussing physiology at Edinburgh, psychology at Oxford, orthopedics at Amsterdam, plant diseases at Wageningen, serum at Copenhagen, pedagogy at Montreux, international law at Brussels, psychic sciences at Warsaw, dentistry in Paris, meteorology at Utrecht, gardening at Amsterdam, sociology in Rome, milk at Washington, philosophy in Naples, applied mechanics in Delft. Co-operation is absolutely necessary for the future of science, but much patience is required, for pressure in any direction might hinder more than help. The fullest list of international societies of all sorts is the "Répertoire des Organisations Internationales," published in Geneva for the Société des Nations. The director, Section of International Bureaux, League of Nations Secretariat, asks for information as to new societies or changes in older ones.

PROF. DR. RICHARD ZSIGMONDY, of Göttingen, has been elected a corresponding member of the Vienna Academy of Sciences.

A PROFESSOR of science is required at the Royal Military Academy, Woolwich, particulars of which can be obtained by written application from the Under Secretary of State, War Office (S.D.3), Whitehall, S.W.1. The completed form must be returned by August 21.

THE Department of Scientific and Industrial Research invites applications for the post of super-

intendent of its Chemical Research Laboratory. Candidates should have had experience of, and be distinguished in, some branch of pure or applied chemistry. Particulars of the duties of the post and a form of application are obtainable from the secretary of the department, 16 Old Queen Street, S.W.1. The latest date for the receipt of applications is September 30.

A SHORT time ago the question was raised in NATURE as to the possibility of registering priority in scientific discovery, on the analogy of a patent registering priority in invention. The device of sending in contributions under seal need not be forgotten. Even if afterwards published in some more finished form, the sealed documents should afford proof of the stage already reached at the date when they were handed in. The Academy of Sciences in Vienna reports the receipt of papers on the reproduction of lantern slides by an electrical method, on the action of Röntgen rays on organism, and a new treatment of carcinoma, a proof that the equation $x^n + y^n = z^n$ has no solution in rational numbers when n is greater than 2, and several other matters.

WE have received from the Russian Academy of Science of Leningrad the June issue of *Electritchestvo*. In honour of the centenary of Lord Kelvin it is called the "Lord Kelvin Number," and is devoted to articles in appreciation of his various activities by eminent men of science and engineers. The address presented at the Commemoration Celebration in London is quoted. "All Russian scientific men and engineers send their greetings to the Mother Country" of Lord Kelvin. "May the same spirit of sincere fellowship, which unites to-day the scientific workers of the whole world, form closer bonds between them for the benefit of humanity." Prof. Steklov, the vice-president of the Russian Academy of Science, writes an appreciation of the wonderful creative genius of Kelvin and his constant searchings after new physical laws. He, more than any one, tightened the bonds between pure science and engineering. Prof. Ossadchy, vice-president of the Gosplan, gives a résumé of Kelvin's work on telecommunication, and points out how its development was strongly influenced by his ideas. Prof. Châtelain, the president of the Russian Section of the International Electro-technical Commission, discusses Lord Kelvin's work in the domain of electrical engineering. Its exceptional value lies in the fact that Kelvin laid sure foundations on which later workers have built a noble superstructure.

MESSRS. W. HEFFER AND SONS, LTD., Cambridge, announce for publication in the autumn a translation, by T. R. Parsons, of "Practical Physical and Colloid Chemistry for Students of Biology and Medicine," by Prof. L. Michaelis, of Berlin, which work was written to meet the needs of biologists and physicians desirous of becoming acquainted with the more important applications of physical and colloid chemistry to the problems of life and disease.

IN order to show French textile manufacturers that it is no longer necessary to purchase their machinery outside France, M. A. Renouard has an article of 69 pages in the May Bulletin of the Société d'Encouragement. It is well illustrated and shows that, since the War, French textile machinists have introduced improvements into spinning frames, looms, and other machines which place them in the front rank.

THE Department of Mines of the Queensland Geological Survey is issuing a series of reprints dealing with Industrial Minerals, giving a brief summary of the occurrences, treatment, uses, values, and production of these minerals, with special reference to Queensland resources. Nine of these pamphlets have been issued dealing respectively with salt, asbestos, mica, molybdenite, platinum, nickel, graphite, manganese, and arsenic.

IN the Annual Report of the Raffles Museum and Library, Singapore, for the year 1922, Major J. C. Moulton gives a list of 44 specialists whom he has induced to assist in naming the collections of the museum. Progress has been chiefly marked in the insect collections, and many papers describing new

species contained in them have been published. "As a result the museum is becoming more widely known as a *live* institution, and an increasing number of inquiries have been received from many distant parts of the world concerning the fauna of Malaya." It is to be hoped that this good work will continue in spite of Major Moulton's transference to a higher post.

REPORT No. 27 of the Industrial Fatigue Research Board records the results of investigations into the following industries: the textile, metal, boot and shoe, pottery, glass, and laundry, and into some repetition processes. It is thus a compilation by means of which the findings of different investigators in different industries can be conveniently compared. The various recommendations have been grouped under the following headings: (a) working conditions, (b) working methods, (c) administrative. It is only by the slow accumulation of data from many fields that generalisation of scientific value can be made. We are yet far from generalisation, but these studies show the direction in which available evidence points and suggest further developments.

Our Astronomical Column.

THE OPPOSITION OF MARS.—At midnight on August 22-23, Mars will be nearer the earth than it has been for more than a century. The conditions are, in fact, the best possible for a close approach. These conditions are attained when opposition occurs a week before Mars passes perihelion, from the fact that the earth is then nearer to its aphelion.

At these close oppositions, Mars considerably outshines Jupiter, and its ruddy light renders it a very striking object. It is 10° further north than in June 1922, so that the conditions for observation in England are not quite so hopeless as they were then.

Unfortunately, these very near oppositions have seldom been so fruitful in telescopic discoveries as those occurring somewhat later in the year. Thus Schiaparelli's work on the canals was mainly done in 1879 and 1881, though he was observing in 1877.

The late Prof. Lowell, whose long-continued scrutiny of the planet under all possible conditions adds weight to his opinion, explained this by August oppositions occurring at the dead season of canal development, when the supply of moisture from one polar region had exhausted itself, and that from the other had not commenced. It is interesting to learn that his widow is visiting Flagstaff; her presence will doubtless encourage the observatory staff to make the most of their splendid equipment. The 24-inch Alvan Clark refractor, and the seeing conditions at a height of 7000 feet in the Arizona desert, are universally admitted to be unrivalled. Prof. W. H. Pickering is remaining at Mandeville, Jamaica, until after the opposition.

SUN-SPOT ACTIVITY.—A noticeable feature on the sun's surface since August 1 has been a well-defined circular spot, in latitude 6° north, which passed through the centre of the disc between August 6 and 7. The history of this spot has been followed on the Greenwich photographs since July 9, when a large bi-polar group commenced to develop in a small area of faculæ seen at the east limb of the sun on July 6. The total area of the group reached $1/2000$ of the sun's visible hemisphere about July 13, after which the rear components disappeared, leaving the leader to continue uninterruptedly in the following rotation. No pronounced magnetic disturbance occurred at

Greenwich when the spot was near the sun's central meridian.

The period embracing a solar minimum is well known as one of transition; the passing cycle is represented by sporadic spots near the equator, whilst the spots of the coming cycle are appearing in higher latitudes (20° - 35°). The last solar minimum is now definitely concluded, and although small equatorial spots might have been expected, a spot group of this extent and length of life is remarkable. It will afford additional data for determinations of magnetic polarities at Mt. Wilson, which are of added interest at this phase of the solar cycle in view of the observed reversal of polarities.

TWO NOTABLE VARIABLE STARS.—The June Monthly Notices of the Royal Astronomical Society contain papers on the well-known variables Mira Ceti and β Lyræ.

The former is discussed by Dr. W. J. S. Lockyer, the star having been observed both for magnitude and spectrum at the Norman Lockyer Observatory, Sidmouth, last winter. The maximum was attained on January 29, in accord with Leon Campbell's prediction; the star was unusually faint, only rising to 4.9 mag., whereas it attained 2.2 mag. in 1906; it seems to have been the faintest maximum since 1886. The bright hydrogen lines were also feebler than usual; a discussion is given of their relative brightness. The more prominent dark lines were also studied, and indicated the presence of calcium, manganese, iron, aluminium, strontium, chromium, titanium. It was noted that there were several instances of the intervals between absorption lines having previously been mistaken for bright lines, and that apparently the only bright lines present are those of hydrogen.

Miss M. A. Blagg contributes a long paper on Baxendell's observations of β Lyræ, which ranged from 1840 to 1877. She concludes that the period is increasing, and gives the following formula for principal minimum: Julian Day $2398590.57 + 12.908 E + .0000037 E^2$. She also finds a subsidiary variation with a period of 6.576 days; the fact of its being so nearly half the principal period increased the difficulty of analysis.