

chemistry in the George Washington University at Washington, of which University he was made a doctor of science in 1899. It was during his service with the Geological Survey that Clarke produced the bulk of his work. In the Royal Society's catalogue for 1884-1900 there appear 39 titles under his own name alone and 17 with other authors. His work in this period included important papers on the constitution of silicates, and especially on the micas and chlorites, and in 1889 a paper, destined to be of great interest in later years, on a platiniferous nickel ore from Sudbury, Ontario. The "Data of Geochemistry" did not appear until 1908: it is now in its fifth edition.

The War period seems to have diverted Clarke's attention from minerals, and he produced a series of papers on the inorganic constituents of marine invertebrates, mostly written in collaboration with G. Steiger or W. C. Wheeler, and now summarised in one volume, of which a second edition was re-

quired in 1922. In this year he published a paper on the average composition of igneous rocks in conjunction with H. S. Washington, and this was followed by one on the composition of the earth's crust in 1924. This and the fifth edition of the "Data of Geochemistry" were his last publications. He was then seventy-seven, but still enjoying excellent health, when he paid a visit to England, renewing his acquaintance with many friends.

WE regret to announce the following deaths:

Prof. Arthur Starr Eakle, professor of mineralogy at the University of California, aged sixty-seven years.

Prof. A. Forel, formerly professor of psychiatry in the University of Zurich, pioneer of neurology and brain anatomy, and author of the "Social World of Ants", aged eighty-three years.

News and Views.

No one will deny that Great Britain, and indeed the whole world, is passing through a phase of acute economic and industrial depression. We have referred to this repeatedly in our columns and urged the importance of research in providing new outlets for trade, new methods and new materials. Research in all departments of life must at all costs go on, and we had hoped that the days were gone when the so-called unproductive research department was the first to go when economy was called for. Yet 'research' and 'education' are prominent among the recommendations submitted by the Committee on National Expenditure (Cmd. 3920. London: H.M. Stationery Office. 4s. net). Apparently research is still regarded as an expensive luxury. The report emphasises the point raised in our leading article that public opinion is not yet educated to the value of the scientific worker and of scientific method to the community. The Committee on National Expenditure consisted of Sir George Ernest May (chairman), Mr. P. Ashley Cooper, Sir Mark Webster Jenkinson, Mr. Charles Latham, Lord Plender, Mr. Arthur Pugh, and Sir Thomas Royden—the omission of any person of scientific eminence will be noted—and in its terms of reference it was charged to make recommendations for "effecting forthwith all possible reductions in the national expenditure on Supply Services". Among the recommendations are the abolition of the Empire Marketing Board, abandonment of the new programme of research in civil aircraft, reduction by 12½ per cent of expenditure on research and technical development for defence, wholesale reduction at the Ministry of Agriculture and Fisheries, including 50 per cent reduction of grants for agricultural education and limitation of grants for research, and a quarter of a million reduction in the grant to universities. We would urge the Cabinet committee which is to examine these proposals to consider very gravely the proposed restriction of research which, in the long view, can only impede the return of prosperity.

JOHN DRYDEN, the poet, was born three hundred years ago, and in the month of August, though chroniclers do not record anything more exact than that it was on or about Aug. 9, 1631. Dryden was interested enough (as were other literary men of his time, for example, Edmund Waller and William Hammond) to subscribe the foolscap obligation or resolution, dated Dec. 5, 1660, approving the formation of an organised society for the purpose of prosecuting 'Experimental Philosophy'. This was the germ of the Royal Society of London, incorporated a little later, and of which Dryden became an original fellow. He had signed the resolution, it may be mentioned, as "Driden". Born at Aldwinkle, Northamptonshire, Dryden was the eldest of fourteen children. He entered Westminster School as a King's scholar, proceeding afterwards to Trinity College, Cambridge. In Dryden's poem "Annus Mirabilis", written before his return to London at the close of the year 1666, he apostrophised the newly founded Royal Society. Clearly he regarded it as embodying an intellectual awakening of high intent. Dryden lived in Gerrard Street, Soho, and he died there on May 1, 1700, and was buried in Westminster Abbey.

ON July 28 a memorial tablet to Thomas Earnshaw, the horologist, was unveiled outside the Church of St. Giles-in-the-Fields, Bloomsbury, by the Astronomer Royal, Sir Frank Dyson. The tablet has been erected by the Clockmakers' Company and the British Horological Institute. Like his predecessors, Graham and Harrison, and his contemporaries, Mudge and Arnold, Earnshaw came from the country, having been born at Ashton-under-Lyne, Lancashire, on Feb. 4, 1749, but for many years he had a business at 119 High Holborn. To him is ascribed the merit of devising the chronometer escapement and compensation balance precisely as they are now used, while it was he and Arnold who first produced chronometers in large numbers and at moderate cost, thus render-

ing service of the utmost value to navigation and commerce. His improvements were recognised by the Commissioners of Longitude, and he was awarded £3000 by the Government. His death took place in Chenies Street, Bedford Square, on Mar. 1, 1829, and he was buried in St. Giles-in-the-Fields, where it was his custom to worship. He had published a pamphlet in 1806 entitled "Explanation of Timekeepers constructed by the Author and the late Mr. John Arnold", and another in 1808 stating his own claims to the invention of improvements in timekeepers.

IMPORTANT changes in the archaeological service in India are foreshadowed in a dispatch from the *Times* correspondent at Simla, which appears in the issue of July 31. He states that the Government of India proposes to submit to the autumn session of the legislature a bill which will place all archaeological investigation under the Government of India instead of under the provincial governments as heretofore. It will empower the Government of India to make rules governing work by private investigators and regulating the disposal of the finds. Further, provision will be made to facilitate the co-operation of non-official scientific organisations, Indian and overseas, in archaeological exploration. The need for such co-operation has been felt in India for some time. This may have been accentuated by the discovery near Ambala, some two years ago, of remains of the Indus Valley civilisation. An appeal for such co-operation, made not long after the discoveries at Mohenjodaro and Harappa, produced offers of expert assistance; but the obstacle to extended investigation has been a lack of funds. In view of these later finds, it is expected with confidence that further exploration will produce evidence to show an eastward extension of this early civilisation, possibly into the Ganges basin; but systematic investigation with this objective is precluded unless assistance, financial and other, is attracted by the possibility from sources other than official.

THE Indian Research Council of the Royal Anthropological Institute is already in touch with archaeological, as well as other branches of anthropological, research in India; but unfortunately it has, at the moment, no funds to enable it to carry on active research in India on the lines on which the Institute is already conducting investigations in another archaeological field. It may not be out of place, however, in this connexion to mention another activity of the Royal Anthropological Institute with reference to India which should be of considerable utility at the present juncture in making the public more intimately aware of conditions in that country—conditions which, as has been pointed out time and again, have a vital bearing upon problems now under discussion, but upon which the general public is but ill-informed. The Institute's Indian Research Committee, acting under the direction of the Council, has arranged for a series of public lectures to be delivered in the coming autumn which will deal with the races and cultures of India. The session will be opened by the Marquess of Zetland on Oct. 12 with a lecture on "India, Past

and Present". The lectures to follow will be: Oct. 19, Prof. F. W. Thomas—"Kings and Emperors of Ancient India"; Oct. 26, K. de B. Codrington—"Indian Sculpture"; Nov. 2, Col. T. C. Hodson—"Hillmen and Headhunters of Northern India"; Nov. 9, F. J. Richards—"Caste and Creed in Southern India"; Nov. 16, J. V. S. Wilkinson—"Mughal Court Painting". The lectures will be delivered at University College, London.

THOUGH many obituary notices have been written of the late Sir Charles Parsons, it is probable that some time will elapse before a biography worthy of him is available. In the meantime, however, it is to be hoped that some of those who knew him best will not fail to place on record their recollections, for the value of such records will increase with the passing of time. Among the fullest obituary notices we have seen is that by Sir Alfred Ewing contributed to the *Proceedings of the Royal Society*. All too brief as this is, it yet contains much of interest not to be found elsewhere. Born a year after Parsons, Sir Alfred was the first to make an independent trial of a condensing steam turbine; it was on his advice that the radial flow turbine now preserved in the Science Museum was installed at Cambridge, and later on he conducted the trials of the historic *Turbinia*. For forty years Sir Alfred Ewing enjoyed the friendship of Parsons, a friendship which "continued without a break or cloud". Another friend of Parsons was Mr. J. Golder, who from March to June contributed a series of articles on the great engineer to the *New Age*. Towards the end of his life Parsons appeared to Mr. Golder as a 'retired admiral': "Blue reefer suit. Fresh ruddy complexion. Dreamy blue eyes. He was quite unconscious of what he had done. His service, like the navies he transformed, was the service of the silent."

THE habit from which they take their name makes flying-fish so conspicuous and invites observation so much that it is curious to find there is still difference of opinion as to whether they really fly or only use their pectorals as parachutes. In the July-August number of the *Scottish Naturalist* (p. 121), Mr. W. L. Calderwood gives some notes on these fish, as observed in calm weather in the Arabian Sea. His observations were made carefully with prism glasses, and led him to the conclusion that the pace, which was very uniform, was maintained by the use of the pectorals at short intervals. Although it could not be seen, at a long distance from the ship, whether these fins were vibrating or not, it seemed to him that a flight extending sometimes even to 150 yards, and performed at only about a foot above the surface, could not have been kept up except by renewed impulses from the fins. This was exactly the impression formed by the writer of this note after repeated naked-eye study of these fish on a first voyage into the same part of the world. They were seen at times to vibrate their fins when clear of the water, as well as when touching it with the tail, as is generally admitted and very carefully described by Mr. Calderwood in the paper alluded to. The impression their

flights left was that of the starting flutter and patter of the moorhen, continuing as the glide and whirr of the partridge, with the difference that in the fish the end of the first glide was generally also that of the flight.

THE Medical Research Council announces that it has appointed a Therapeutic Trials Committee, as follows, to advise and assist in arranging for properly controlled clinical tests of new products that seem likely, on experimental grounds, to have value in the treatment of disease: Prof. T. R. Elliott, physician to University College Hospital, London (*chairman*); Sir E. Farquhar Buzzard, regius professor of physic, University of Oxford; Dr. H. H. Dale, director, National Institute for Medical Research; the Right Hon. Lord Dawson of Penn, president, Royal College of Physicians, London; Prof. A. W. M. Ellis, physician to the London Hospital; Prof. F. R. Fraser, physician to St. Bartholomew's Hospital, London; Sir John Parsons, ophthalmic surgeon to University College Hospital, London; Dr. J. A. Ryle, physician to Guy's Hospital, London; Sir John W. Thomson-Walker, consultant urologist to King's College Hospital, London; Mr. Wilfred Trotter, surgeon to University College Hospital, London; Prof. D. P. D. Wilkie, surgeon to the Royal Infirmary, Edinburgh; and Dr. F. H. K. Green (*secretary*). Conditions have been the subject of discussion and agreement between the Medical Research Council and the Association of British Chemical Manufacturers, under which the Therapeutic Trials Committee will be prepared to consider applications by commercial firms for the examination of new products, submitted with the available experimental evidence of their value, and will arrange appropriate clinical trials in suitable cases. The Committee will work in close touch also with the existing Chemotherapy Committee, which is engaged for the Medical Research Council in promoting researches aimed at the discovery and production of new remedies.

THE first regular world-wide broadcasting service from the southern hemisphere has now been inaugurated by Amalgamated Wireless (Australasia), Ltd. The programmes are transmitted daily from Sydney, 2ME, and from Melbourne, 3ME, on the wave-length of 31.28 metres. Those who possess short-wave sets should listen in and help the undertaking by sending reports to Amalgamated Wireless at Australia House, Strand, London, W.C.2. The time-table (G.M.T.) of the transmissions from Sydney is as follows: 05.00 to 07.00 for American countries bordering the Pacific; 09.30 to 11.30 for islands of the Pacific and eastern Australia; 11.30 to 12.30 for Japan, China, and India; 19.00 to 21.00 for Great Britain, western Europe, and South Africa. All programmes will have included in them the laugh of the Kookaburra. The transmissions take place on Sundays at the same times. Melbourne, 3ME, transmits on the same wave-length from 10.00 to 11.30 every Wednesday and Saturday.

THE International Union of Geodesy and Geophysicists, at its meeting at Prague in 1927, invited the

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Argentine Republic to co-operate in the International Time Service. In a recent circular letter (in English) the General Director of the Military Geographic Institute announces that the Provisional Government of the Argentine, by a decree dated Feb. 3, 1931, charged the Institute with the transmission of rhythmic time signals, by short wave, twice daily. The service commenced on June 1, 1931, transmission taking place from the powerful station of the International Transradio Company at Monte Grande. The signals are transmitted (a) from 11^h 45^m to 11^h 50^m G.M.T. through the transmitter *L.S.F.* in 19,600 kc./s. (15.30 m.), using 14 kilowatts, directed by a reflector towards Europe; and (b) from 23^h 45^m to 23^h 50^m G.M.T. through the transmitter *L.S.D.* in 8830 kc./s. (33.97 m.), using 16 kilowatts, directed towards Europe and North America by the aid of a bi-directional antenna without reflector. The time-station is at the Institute at Belgrano, 3^h 53^m 44.964^s west of Greenwich, according to the Potsdam-Buenos Aires longitude determination made by the Institute in 1927-28. The Institute offers to send monthly, to anyone interested, a list in Greenwich sidereal time of the times of reception of the signals in Belgrano itself; and the co-operation of other institutions and observers is invited in the reception of these signals, of which details are given in the circular.

THE recent broadcasts of the song of the nightingale made by the B.B.C. this year, which have been such a popular item, especially abroad, have led to various rumours in the press. We have been told that many of the listeners have distinctly heard the scratch of the needle which accompanies gramophone records, and have suggested that records have been made of the singing so that listeners need never be disappointed. Another and more serious accusation is that birds have been caught, put into cages, and forced to sing into the microphone by gentle persuasion or otherwise. The extraneous noises heard, such as the striking of village clocks, distant motor horns, etc., could easily have been added to mislead the listeners. In the *Wireless World* for July 29 there is a letter from the owner of the house at which the broadcasts were made, and at which he was present, saying that they were genuine transmissions of the bird's singing, and that there was no necessity to have resort to other methods.

THE Convention of the International Commission on Illumination, of which Mr. C. C. Paterson is president, will be held in London in September next. The meeting will be made notable by the flood-lighting of several historical buildings in London in the evenings. Recently Londoners had an opportunity of witnessing experimental flood-lighting of Westminster Abbey and other notable buildings. One of the most successful examples of flood-lighting is Dover Castle, a description of which appears in the Osram G.E.C. *Bulletin* for July. The flood-lighting has proved so successful that it has been decided to make it permanent. Twelve powerful projector lamps are used, each taking a thousand watts. Situated as it is on the top of a hill, it is visible for miles around

and everyone is pleased with the effect produced. Ships passing many miles out in the English Channel can see it plainly, and in clear weather it is a picturesque sight from the French coast. It is one of the best examples of flood-lighting yet carried out in Great Britain.

THREE new automatic wireless beacon stations are to be erected on the Uruguayan coast by the Marconi Company on behalf of the Hydrographic Department of the Government of Uruguay. The stations, which are expected to be placed in commission in the summer of 1932, are to be of the fixed omnidirectional type. Two of the transmitters will be installed in lighthouses—at Lobos Island and Cape Polonio; and the third in the English Bank Light Vessel. The transmitters are designed to operate on two definite wave-lengths, one of 600 metres and one between 950 and 1050 metres. In addition, the Marconi beacon in the English Bank Light Vessel will operate in conjunction with a submarine sound signalling device, so that navigators can estimate their distance as well as their direction from the light vessel. It is understood that the beacon station at Lobos Island will transmit on a wave-length of 1000 metres. The beacon station at Cape Polonio will transmit on the wave-length of 1050 metres. The allotment of a distinctive signal for the English Bank lightship has not yet been finally decided, in view of the special arrangements for the transmission of a series of dots in conjunction with the submarine signal device.

AN excellent example of the importance of research in industry is the invention of 'paragutta', a material with which the new telephone cable, provided to supplement the growing traffic between the United States and Cuba, is insulated. For the past seventy-five years, the standard materials for insulating deep-sea cables have been gutta-percha and balata. Paragutta is a mixture of about fifty per cent gutta-percha, forty per cent rubber, and ten per cent hydrocarbon wax. Its mechanical qualities are fully equal to those of gutta-percha, its electrical stability in water is the same, but it has much better specific electrical properties. In the *Bell Laboratories Record* for May, a full description of the new material is given by A. R. Kemp. It is pointed out how the mixture can be extruded on to the conductor in a continuous sheath of multiple layers free from mechanical defects. The insulated conductor has then only to be drawn through cold water, when it quickly sets into a firm covering sufficiently tough and flexible to resist rough handling in factory or cable ship. The specific conductance of paragutta is only one-thirtieth of that of ordinary cable gutta-percha and its dielectric constant is twenty per cent smaller. It follows that if paragutta had been available to insulate the permalloy-loaded telegraph cable laid five years ago its speed would have been thirty per cent greater. Its revenue-earning capacity would thus have been increased thirty per cent. This is of great importance from the commercial point of view. The expense of failure in a submarine cable is unusually great. Minute defects in its insulation can

do far-reaching damage. Very prolonged and elaborate tests were therefore necessary before the cable users and manufacturers were convinced that it was suitable for practical use.

MR. HUTCHINSON'S visit to Africa in 1930, in the company of General Smuts and with the generous assistance of the botanists and forest officers of the districts visited, must have been one of great interest, and especially as Mr. Hutchinson had previously visited some of the same parts in 1928, at a rather different season. The account given in the *Kew Bulletin*, No. 5, 1931, makes good reading from the botanical point of view, and also has the human touches bringing out the joy of seeing new plants and new country, and such difficulties as the drying of paper to keep pace with the press when collecting in an area so little known and with so rich a flora, the problems of motoring on African roads, and camping in lion-inhabited areas. Mr. Hutchinson's two visits should do much to make the flora of South Africa, and especially Rhodesia, better known; certainly the number of new species (five in the genus *Monotes* alone) and the new data bearing on phyto-geographical distribution, which have been collected on this comparatively short trip, point to the scope for such work. Although of very general interest, Mr. Hutchinson's account should be of especial interest to those who have been to any of the parts visited, and from this point of view, members of the British Association who toured through Matopos, Victoria Falls, Zimbabwe, etc., in 1929, will find mentioned many of the plants with which they became acquainted. The publication of further notes on the species collected and of the further volumes of the "Flora of West Tropical Africa" will be anticipated with added interest.

WE have received from the British Drug Houses, Ltd., London, N.1, leaflets describing the preparation, biological standardisation, and uses of certain of their products. Pituitary (posterior lobe) extract is tested, in accordance with the regulations made under the Therapeutic Substances Act, for its oxytocic activity, the strength being expressed in terms of the international unit. In addition, the pressor activity of each batch is determined. The extract finds its chief uses in obstetrics and in the treatment of diabetes insipidus. Radiostol is prepared by irradiation of ergosterol under controlled conditions. Its potency is expressed in terms of the Coward antirachitic unit; as soon as the tests are completed, its activity will be expressed in terms of the unit recently described by the Medical Research Council. Radiostol is a specific in the prevention and treatment of rickets and allied diseases and dental caries. Radio-Malt is a preparation containing Radiostol in combination with a highly active concentrate of vitamin A together with malt extract. It provides vitamins A, B, and D in a palatable form. The tests for vitamin potency are all carried out on rats, the growth response being the criterion for vitamins A and B, and the deposition of calcium at the ends of the long bones of rachitic animals that for vitamin D. The leaflets are illustrated

with reproductions of actual tests, and with diagrams of the growth of rats on vitamin-free diets supplemented with Radio-Malt.

THE Ministry of Agriculture and Fisheries has published a new *Bulletin*, entitled "Some Diseases of Rabbits". In short clear paragraphs accounts are given of the symptoms of twenty-two diseases to which domestic rabbits are liable, and suggestions are made for treatment. Published by H.M. Stationery Office at the price of 3d., this pamphlet should be a useful guide to the many breeders of rabbits for commercial purposes. It should be noted that the Ministry itself carries out at its veterinary laboratory post-mortem examinations and bacteriological work in connexion with rabbits. For a fee of 3s. a carcass, it is open to rabbit-keepers whose rabbits are dying, or who have other evidence of disease in their stock, to avail themselves of this opportunity for reliable diagnoses. The make-up of the pamphlet is so far in advance of the older publications of H.M. Stationery Office that we dislike pointing to its unbusinesslike publication, but the inefficiency is glaring. In the first place, a note in italics prominently printed upon the 'contents' page states that "The Ministry does not accept responsibility for statements made in the advertisement pages of this publication"—and the only advertisement in the whole pamphlet is one of the Ministry's own publications. In the second place, the most valuable advertising spaces in the pamphlet, the back cover and the inside front cover, are vacant, while there is no indication of the subjects of the thirteen *Bulletins* which have preceded this one. Surely a list of the series cries for one of the vacant pages.

THE Report of the National Research Council of the United States for the year ending June 30, 1930, which appeared in the Report of the National Academy of Sciences for the same period, has now been published as a separate pamphlet of 120 pages by the Government Printing Office, Washington. The expenditure of the Council for the year was about £190,000, which was provided mainly by the Rockefeller Foundation, the Carnegie Corporation and Fund, and the Education Board. The issue of comprehensive reports on current knowledge in particular fields has been continued, and several have had to be reprinted—and in general where this has been necessary the opportunity has been taken to revise them, so that they are thoroughly up to date. The research fellowships maintained during the year numbered: in mathematics, physics, and chemistry 63, in biological sciences 41, and in medical sciences 20. The research work of these fellows is supervised by boards which consist of some of the most renowned workers in each particular field. From the total sum expended on fellowships during the year, the average value of a fellowship appears to be £450 per annum, and they are only awarded to candidates of Ph.D standing who have shown marked ability in research.

THE Report of the Librarian of Congress, Washington, D.C., for the year ending June 30, 1930, is a volume of more than 400 pages, dealing with the general

administration of the Library and with the numerous additions made during the preceding twelve months. The total number of printed books and pamphlets up to June 30 was 4,103,936, of maps and views 1,161,478, and of music (volumes and pieces) 1,062,194. "The most substantial addition to our resources by donation effective during the year", says the report, "was the grant from the Guggenheim fund for the promotion of aeronautics." A part of the fund, 75,000 dollars, was for the endowment of a chair of aeronautics, to which Prof. A. F. Zahm was appointed, while another part was available for the purchase of aeronautical literature. By April 1930 the aeronautical collections comprised no fewer than 9327 volumes and pamphlets, and included the Gaston Tissandier collection, the Samuel Pierpont Langley collection, and other notable collections. "There are, of course," says Prof. Zahm, "many American institutions equipped to furnish ready information in practically the whole range of aeronautics. . . . But for comprehensive, thoroughgoing, systematic research, requiring the greatest range of reference literature, the national Library is, and naturally should be, pre-eminent." Moreover, "Any person, from any place, may examine, within its walls, any book in its possession, and may do this without introduction or credentials".

IN vol. 25, part 3, of the *Transactions of the Mining and Geological Institute of India*, December 1930, there is a paper by Mr. C. H. McCale, headed "Suggestions Concerning the Utilisation and Conservation of Indian Coal". The two points especially stressed are the use of coal dust firing and low temperature carbonisation. It was, however, pointed out in the discussion that experience in other countries does not necessarily apply to India, where the conditions are very different from what they are in Europe. In the first place, the demand for power is limited, and therefore the amount of coal dust that can be consumed for the firing of boilers is also relatively small. Furthermore, distances in India are very great, and the transportation of powdered fuel over many thousands of miles is a doubtful proposition unless the fuel is of the highest possible grade, and this is scarcely likely to be the case in India. As regards low temperature carbonisation, although there is a number of companies working processes for this purpose in England, they are not yet commercial propositions, and in India there is the serious additional difficulty of the inability to dispose of the by-products, which are expected to contribute very largely to the commercial success of the undertaking in other countries.

A NEW aspect of Russian interest in her considerable Arctic territories is expressed in the publication of the periodical entitled *Bulletin of the Arctic Institute of the U.S.S.R.*, of which No. 5 has just appeared. The scope of this bulletin covers all polar regions, north and south, besides giving a more particular account of Russian activities. It also gives a useful bibliography from time to time. The greater part of the *Bulletin* is printed in Russian, but some of the matter is in English. During the present summer, various projects are on foot in Russian Arctic regions,

including visits to the meteorological stations in Franz Josef Land and the Kamenev Islands, oceanographical work in the Barents and Kara seas, and geological work in the Chukchee peninsula of north-eastern Siberia.

DR. A. F. JOSEPH has resigned from the deputy directorship of the Imperial Bureau of Soil Science, a post which he has held since the inception of the Bureau in May 1929. He brought to his task a full knowledge of soil problems in different parts of the Empire and a ripe experience in dealing with them; further, his personality helped greatly in smoothing over many of the difficulties of establishment and organisation. The purpose of the Bureau is to supply information to agricultural departments and soil investigators in different parts of the Empire, and the work is complicated by the widely varying problems which have to be attacked. Dr. Joseph has been eminently successful not only in sending out information of the kind that was wanted, but also in putting different workers in touch with one another and so economising time and effort.

THE Proceedings of the first Imperial Horticultural Conference have already been referred in *NATURE* (Sept. 6, 1930, p. 384). In a foreword to the published account of these proceedings now being issued by the Imperial Bureau of Fruit Production, East Malling, Kent, Sir Robert Greig, chairman of the Executive Council of the Imperial Agricultural Bureaux, remarks that many of the papers presented at this conference proved to be of exceptional technical interest. For this reason it has been decided to print the papers fully; they are being issued in three sections: (1) (issued December 1930) papers on the economic and administrative side of horticulture; (2) (issued February 1931) papers on the application of science to horticulture; (3) papers on the storage of fruit. Part 1 is issued at 1s., Part 2 at 2s. In Part 2 the papers are grouped under three headings: (1) field experiments, (2) the application of pure science to horticulture, (3) soil and climate as affecting horticulture.

THE Report of the Haffkine Institute for the year 1929 has recently been issued by the acting director, Major L. A. P. Anderson. Plague work necessarily occupies a considerable part of the Institute's activities and of the Report. The demand for Haffkine's plague prophylactic vaccine has been well up to the average, some million and a half doses having been dispatched, and several problems relating to this vaccine have been investigated. A study of the immunising and curative power of various anti-plague serums suggests that a serum prepared in the sheep or ox has greater potency than one prepared in the horse. Inquiries have been made on maternal morbidity and mortality and on stillbirths in Bombay, and on tuberculosis by Dr. Soparkar in this Presidency. In this part of India it would seem that the bovine type of tubercle bacillus plays a negligible part in the causation of this form of tuberculosis. In the Anti-Rabic Department, 685 cases were treated with only 5 deaths, a mortality of 0.73 per cent.

THE Medical Research Council announces that it has awarded Dorothy Temple Cross Fellowships for

1931-32, under the terms of the benefaction in that name for research fellowships in tuberculosis, to Dr. C. A. Birch, senior medical registrar and tutor in the Royal Infirmary, Liverpool, and to Dr. R. L. Vollum, demonstrator in pathology in the University of Oxford. Dr. Birch will study problems of tuberculosis at industrial centres in the United States; and Dr. Vollum will investigate recent developments in methods for the investigation of tuberculosis, in Germany and Austria. The fellowship awarded last year to Lieut. S. M. Burrows, formerly clinical assistant in the Tuberculosis Department, St. Thomas's Hospital, has been renewed for a further year.

THE Ministry of Agriculture and Fisheries announces that the fee charged for the blood test of bacillary white diarrhoea in poultry has been reduced from 3*d.* to 2*d.* This disease is of considerable importance to poultry keepers, and the blood agglutination test is the most practicable means of identifying the carrier hens which transmit the disease through their eggs to the chicks.

MESSRS. Wheldon and Wesley, Ltd., 2 Arthur Street, W.C.2, have just circulated a 'clearance list' of about a thousand second-hand books dealing with zoology, mathematics, chemistry, geology, etc. Most of the prices asked are very low.

IN view of the approaching centenary celebration of Clerk Maxwell, the Cambridge University Press announces a book of essays written to commemorate the event by Sir J. J. Thomson, Dr. A. Einstein, Dr. Max Planck, Sir Joseph Larmor, Sir James Jeans, Sir Ambrose Fleming, Dr. W. Garnett, Sir Richard Glazebrook, and Sir Oliver Lodge. The same publishers will also issue shortly a new work by Mr. T. Whittaker entitled "Prolegomena to a New Metaphysic".

APPLICATIONS are invited for the following appointments, on or before the dates mentioned:—An assistant pathologist at Ancoats Hospital, Manchester—The Gen. Supt. and Secretary, Ancoats Hospital, Manchester (Aug. 12). A graduate assistant in electrical engineering at the Dartford Technical College—The Principal, Technical College, Dartford (Aug. 14). A "Wander" scholar for diseases of children at Westminster Hospital—The Secretary, Westminster Hospital, S.W.1 (Aug. 14). An assistant resident medical officer and resident clinical pathologist at the Manchester Royal Infirmary—The Chairman of the Medical Board, Royal Infirmary, Manchester (Aug. 19). A full-time teacher for mining courses under the Education Department of the County Council of the West Riding of Yorkshire—The Education Officer, County Hall, Wakefield (Sept. 1). A demonstrator in agricultural botany and a demonstrator in agricultural bacteriology in the University of Leeds—The Registrar, University, Leeds (Sept. 1). A full-time assistant master to teach practical metal and woodwork, and engineering subjects at the Victoria Institute Science and Technical School, Worcester—The Secretary for Education, Tudor House, Worcester. A civil engineering assistant for general drawing office and field work at H.M. Dockyard, Portsmouth—The Civil Engineer-in-Chief, Admiralty, S.W.1.