NEWS and VIEWS

Sir Francis Darwin (1848-1925)

THE third son of Charles Darwin gave early evidence of a scientific bent. Born at Down a century ago, on August 16, 1848, he took his degree at Cambridge in 1870 with a first class in the Natural Sciences Tripos. After studying medicine at St. George's Hospital, London, and obtaining the Cambridge M.B. in 1875, he acted as his father's secretary for eight years. In 1884 he was appointed lecturer, and four years later reader, in botany at Cambridge. At that time plant physiology was beginning to supersede the study of systematic botanical description. Francis Darwin's class-book "The Practical Physiology of Plants" (1894) went into several editions, for it was the first book of its kind in Britain. His researches on growth curvatures in plants and on the control of water-loss by plants attracted considerable attention. He was a popular lecturer, being engagingly simple and direct. Though possessed of strong prejudices and inclined to be intolerant, his was a lovable personality, charming, kindly and humorous. He was an accomplished musician and devoted to dogs, which, unlike human beings, never bored him. Many honours came his way. Elected a fellow of the Royal Society in 1882, he was foreign secretary during 1903–9 and vice-president in 1907. In the following year he became president of the British Association, and he was knighted in 1913. He died at Cambridge on September 19, 1925. It is appropriate that his best and best-known book should be the "Life and Letters of Charles Darwin" (1887).

Statistics of the Ministry of Labour and National Service

THE standing Interdepartmental Committee on Social and Economic Research was appointed in January 1947 to survey and advise upon research work in Government departments and in particular to bring to the notice of departments the potential value for research purposes of the material which they collect, and to suggest new methods and areas of collection. It has also to advise on how there could be made available to research workers information gathered for their own purposes by the departments which has potential value as material for research. The Committee has selected as the first major department for survey (London: H.M. Stationery Office. 9*d*. net) the Ministry of Labour and National Service, which has a tradition of co-operation with research workers. The first results of this survey have been published as a booklet which describes the development of the Ministry of Labour's Statistical Service and the information at present collected by the Ministry on employment and unemployment, wages, earnings, hours and industrial relations, retail prices and family budgets, the changes which have occurred in the form of collection and the effect upon the comparability of successive statistics. In addition to a list of published sources of information, there is included a subject index to published sources of Ministry of Labour statistics. The booklet is experimental in form; but it is hoped that it will prove of value to teachers and students in the universities as well as to other research workers, and criticism and suggestions for improvement will be welcomed by the Committee.

Marconi Transmitters for East Africa

A NEW system of short-wave radio communication is planned in East Africa, where a total of forty-eight Marconi short-wave transmitters are to be installed to provide a comprehensive communications network for ground-to-air and point-to-point communications for the rapidly expanding civil aviation services—both local and trunk routes—and for administrative, public and meteorological traffic. The new services, which will operate throughout the three territories of Kenya, Uganda and Tanganyika, are required to meet the needs of post-war expansion and re-organisation of the East Africa Posts and Telegraphs Department's Services. Two of the latest types of Marconi transmitters have been chosen for this new service. They are Type *TGS*. 541—a 200-watt transmitter with a frequency range of 1·5–23 Mc./s., and Type *TGS*. 501—a 100-watt set covering a frequency range of 1·5–13 Mc./s. Both types of transmitter are compact, easily operated equipments designed for operation on radiotelephony or telegraphy. Special features include crystal-control with provision for the rapid selection of any one of six working frequencies—a particularly useful asset where a large volume of traffic is handled. Frequency tolerances are well within the very fine limits laid down by international regulations. Work has already begun at the Marconi Company's Chelmsford Works on the construction of the first of these transmitters which are to be installed at Mbeya Airfield, Tanganyika.

Quarterly Journal of Mechanics and Applied Mathematics

THIS new journal is intended to provide a medium for the publication of papers on classical mechanics and mathematical techniques. The first number, dated March 1948, which has recently been issued, contains papers by D. C. Pack, R. Hill, D. R. Hartree and S. Johnston, W. G. Bickley, S. Goldstein, A. D. Young, M. J. Lighthill, and Sir Geoffrey Taylor. Rather more than half of these papers deal with hydrodynamics and its applications to aerodynamics or internal ballistics; the others deal with elasticity or methods and results useful in computation. The editors are Prof. G. C. McVittie and Prof. V. C. A. Ferraro, assisted by an editorial board which includes most of the leading British applied mathematicians. The publishers are the Oxford University Press, and the subscription is £2 a year for the four numbers.

Earthquakes during June

DURING June there occurred at least nine world-shaking earthquakes and a great number of smaller ones. The greatest two of the month were that on June 28, which caused heavy casualties and severe property damage in and around Fukui, West Honshu, Japan (*Nature*, July 10, p. 57) and which gave ground amplitudes at Durham of 115μ, and that on June 30, which caused casualties and property damage on the island of Levkas and the nearby mainland of Greece, and gave ground amplitudes of 220μ at Kew. The other great shocks were on June 15 near the southern coast of Honshu, Japan; on June 18 in the Solomon Islands region; on June 21 in the Celebes Sea; on June 27 (2) off the northern coast of Honduras and south of the Alaska Peninsula; and on June 29 (2) in the Samoan Islands region and in Transcaucasia. An earthquake only slightly less intense occurred on June 13 from a focus the epicentre of which was near lat. 43° 31′ N., long. 12° 8′ E. This caused some property damage and at least one death at San

Sepolcro in the Italian Province of Arezzo. Also during the month there was a swarm of earthquakes in the Karlsruhe, Rasstat, Lauterbourg area. The swarm began on June 1 and lasted practically the whole month, the greatest shock of the series being felt on June 7 with scale VI to VII (some chimneys down) at Karlsruhe. The epicentre of this shock was near lat. 49° 04′ N., long. 8° 19′ E. some 9 km. north-west of Karlsruhe, and the depth of focus has been estimated at 20–30 km. The energy of the shocks of this swarm did not travel far, but was recorded by the seismographs at Strasbourg, Stuttgart and the Swiss observatories. Apart from the observatories mentioned above, reports for the month have also been received from the U.S. Coast and Geodetic Survey, Aberdeen, Beograd, Cleveland (Ohio), De Bilt, Toledo and Uccle.

Galactic Noise

R. V. D. R. WOOLLEY has discussed in a recent paper (*Mon. Not. Roy. Astro. Soc.*, **107**, 3; 1948) the theory of the origin of the galactic radiation. Since radio workers consider it short-wave radiation and spectroscopists regard it as very long-wave radiation, it is undesirable to refer to it by a name embodying any idea of wave-length, and the appropriate term 'noise' has been adopted since it can be heard on the earphones. Eddington discussed the temperature of interstellar space in "The Internal Constitution of the Stars", and estimated it at about 10,000°; but later he suggested that the absorption in space of ultra-violet quanta would reduce the temperature. (By temperature he meant the parameter appearing in the Maxwellian velocity distribution of the free electrons.) Woolley investigates the problems of temperature and the degree of ionization in interstellar space, and concludes that if the noise is due to free-free transitions, it must certainly come from hot regions in interstellar space and almost certainly from regions where the density is above the average. In these circumstances, if 'cold' regions, that is, regions of low hydrogen ionization, do not contribute appreciably to the noise, then an observed amount of galactic noise from a particular part of the sky implies a minimum bright hydrogen emission from that part. If observation fails to reveal this bright hydrogen emission, the only conclusion is that galactic noise is not due to free-free transitions. If the noise is due to free-free transitions, it is shown that the minimum number of Hα quanta received per sq. cm. per second per unit solid angle of the sky is within reach of observation with modern equipment.

Cinematograph Films of Living Cells

C. C. SPEIDEL (*Amer. Scientist*, **36**, 237; 1948) describes with some very fine illustrations the results he has obtained by fast cinematography of cells inside the living animal. He used regenerating tail tissue of the tadpole for his observations, and shows that cellular organisation may be studied here with results which tissue cultures cannot provide. Regeneration of nerve fibres, showing the manner in which their direction and anastomosing take place, mitosis in a nerve cell and the relative movements of the two daughter nuclei, the movement of lymphocytes and diapedesis of leucocytes are among the many beautiful results of this method of observation. The salvaging of extravasated blood cell by cell by the sprouting of a lymph vessel is startling, while the movement of muscle fibres in contraction and relaxation may be followed step by step. It would seem that this method of analysis would be of great value in further studies of development, especially in the little-known differentiation of plant tissues.

Tests of Mosquito Repellents

WHEN Australian forces began campaigning during the Second World War in the highly malarious islands of the south-west Pacific area, a very urgent need was an effective mosquito repellent. Bulletin No. 213 (1947) of the Commonwealth of Australia Council for Scientific and Industrial Research describes laboratory and field tests conducted by Major R. N. McCullough and Capt. D. F. Waterhouse with this object in view. More than 125 substances were tested for use as repellents against both anopheline and culicine mosquitoes. The chief species used in these experiments were *Anopheles punctulatus farauti*, the yellow-fever mosquito *Aedes ægypti*, and the common pest mosquito *Aedes vigilax*. The work involved was a co-operative investigation between the Council for Scientific and Industrial Research and the Army. Taking all factors into account, dimethyl phthalate was by far the most satisfactory repellent tested. Also, it is almost completely odourless and has very little or no irritant effect on the skin of the hands and face, to which it is applied. A number of other synthetic and naturally occurring substances were tested with indifferent results. Many essential oils were quite ineffective, while the two most promising were too irritant to use. Pyrethrum preparations gave consistently poor results. The treatment of clothing with dimethyl phthalate prevented mosquitoes from attacking through the material, except to a very limited degree, up to 72 hours after application. As a result of these investigations of repellents, and of those on a larger scale in the United States, the manufacture of adequate quantities of dimethyl phthalate was organised and the substance made available to the Australian fighting forces in 1943, some special forces being supplied with it as early as March 1943.

Control of Weeds

PROF. G. E. BLACKMAN, in a short paper on "Recent Developments in the Control of Weeds" (*J. Roy. Hort. Soc.*, **73**, 5; May, 1948), summarizes some useful results on the effectiveness of various selective weed-killers. Sulphuric acid gave the best control of goosegrass, *Galium aparine*; methyl-chloro-phenoxy-acetic acid gave the best kill of shepherd's needle, *Scandix pecten-veneris*, and common red poppy, *Papaver rhœas*; and dinitro-*ortho*-cresol was most toxic to scentless mayweed, *Matricaria inodora*, but also gave control equal to the acetic acid compound of *P. rhœas*. The use of sulphuric acid is still most effective, particularly against weeds of the onion crop. Spraying with this acid gives about 90 per cent of the yield obtained by hand weeding and hoeing, but at very much less expense in labour. Charlock is susceptible to control by growth-substance sprays at all stages from seedling to flowering, though poppies are susceptible only as seedlings.

Tomato Spotted Wilt Virus

THE disease of tomatoes caused by spotted wilt virus often shows considerable variation in severity. D. O. Norris has now shown (Bull. 202, Coun. Sci. and Ind. Res., Australia; Melbourne, 1946) that this is due to varying combinations of at least five strains of the virus. The paper describes and figures the