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## Prof. Max von Laue

THE election of Max von Laue to foreign membership of the Royal Society will give the greatest pleasure to his many friends in Great Britain and abroad. It is a fitting recognition of his life-time of scientific work and in particular of his discovery of the diffraction of X-rays by a crystal lattice. In the year 1912 Laue made the suggestion that if X-rays were in reality electromagnetic waves like light, the regularly spaced arrangement of atoms in a crystal might be expected to provide a grating of suitable scale to yield diffraction effects. The crucial experiment was carried out by two young research workers in the Physics Laboratory at the University of Munich, and its result was the first 'Laue photograph'. Two new branches of science have been founded on this original experiment. X-ray spectroscopy has played an important part in all investigations into the structure of the atom. Crystal analysis has led to an immense advance in our knowledge of the structure of matter of all kinds, and has profoundly modified many of our views in physics, chemistry, metallurgy and mineralogy. It may soon be possible to add biochemistry to this list. This deserved recognition of Laue's great scientific work will be universally welcomed; but to his personal friends it will afford an even deeper pleasure because of their affection for a brave, courteous and kindly man. The reception accorded to Laue when he was a guest at the meeting of the X-ray Analysis Group of the Institute of Physics soon after the end of the War was an index of the regard in which he is held by all who know him. It is hard to think of an election which could give more general satisfaction.

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## Prof. E. Schrödinger

ERWIN SCHRÖDINGER, born at Vienna in 1887, comes from that distinguished Austrian school of physics of which Stefan, Loschmidt, Mach and Boltzmann were the most notable representatives. He began his academic career in 1914 as *Privat-Dozent* at the University of Vienna. Since 1920 he has occupied chairs of theoretical physics in Stuttgart, Basle, Zurich and Berlin, where he was the successor of Max Planck. After Hitler's access to power in 1933, he left Germany of his own free will and went to Oxford. After a short interlude in Graz, which ended with the "Anschluss", he went to Dublin to become a member, and for a time director, of the newly founded Institute for Advanced Studies. Schrödinger's first publications cover a wide field, for example, vibrations and specific heat of crystals, quantum mechanics of spectra, and so on. Most remarkable are his investigations in the mathematical structure of the physiological colour-space. His international fame, however, is based on his wave mechanics of 1926. The series of papers, in which he developed an ingenious idea of de Broglie's to a complete theory of atomic structures, and demonstrated, moreover, the relation of his wave equation to other forms of quantum mechanics (Heisenberg - Born - Jordan, Dirac), belong to the classics of theoretical physics by virtue of their depth, wealth, completeness and brilliant style. In recent years, Schrödinger has made great efforts to unify the different field theories of physics into a coherent system. He has further published several little books, one of which was a condensed presentation of statistical thermodynamics; another, with the daring title "What is Life?", being an expansion of the

modern theory of heredity from the point of view of the physicist. Although Schrödinger has never had a school of his own, he has influenced physics immensely. There is scarcely a paper on atomic theory which does not refer to his name in connexion with his wave equation.

## Memorials to Dr. T. N. Annandale

ON April 10 some past and present members of the Zoological Survey of India assembled at the Scottish Cemetery, Calcutta, to pay homage to the memory of Dr. Thomas Nelson Annandale, the founder-director of the Survey, who died on April 10, 1924, twenty-five years ago. The Royal Asiatic Society of Bengal, with which he was closely associated throughout his period of service in India as anthropological secretary, vice-president, and as its president in 1923, perpetuates his memory by a triennial award of the Annandale Memorial Medal to a person who has made the most important contribution, during the previous five years, to anthropology in Asia, and the first award was made to Dr. Fritz Sarasin in 1928. Thereafter the award has been made alternately for physical and cultural anthropology. The Society has a sepia portrait and an oil painting of Annandale. The Council of the Society is now appealing for funds to perpetuate the memory of Annandale. It is suggested that the balance of income of the Annandale Memorial Fund be suitably invested until the accumulated amount is sufficient, after paying for the triennial award, to provide Rs. 250 a year, to be utilized for a biennial anthropological lectureship. Annandale had been the last superintendent of the Indian Museum, and this office he held during 1907-16. He succeeded Colonel Alcock, and relinquished the office on becoming the first director of the Zoological Survey of India. The Trustees of the Indian Museum have also perpetuated his memory by putting up a brass tablet in the premises.

## Radioactive Substances Advisory Committee

THE Minister of Health, the Secretary of State for Scotland, the Minister of Supply, and the Minister of Health and Local Government for Northern Ireland, have appointed a Radioactive Substances Advisory Committee to advise on measures to safeguard work-people and the public generally against the danger of exposure to radiation from radioactive substances and certain irradiating apparatus. The Committee consists of Sir Henry Dale (chairman); Dr. J. P. Baxter, Imperial Chemical Industries, Ltd., Research Department, Widnes Laboratory, Lancs; Mr. W. Binks, National Physical Laboratory; Sir Ernest Rock Carling; Mr. D. G. Catcheside, Botany School, Cambridge; Lord Cherwell, Clarendon Laboratory, Oxford; Sir John Cockcroft, Atomic Energy Research Establishment, Harwell, Berks; Prof. N. Feather, Department of Natural Philosophy, University of Edinburgh; Dr. L. H. Gray, M.R.C. Radiotherapeutic Research Unit, Hammersmith Hospital, London, W.12; Capt. Mark Hewitson, M.P., National Union of General and Municipal Workers, 5 Endsleigh Gardens, London, W.C.1; Dr. J. F. Loutit, Radiobiological Research Unit, Atomic Energy Research Establishment, Harwell; Prof. W. V. Mayneord, Royal Cancer Hospital, London, S.W.3; Prof. R. McWhirter, Radiology Department, Royal Infirmary, Edinburgh 3; Dr. E. R. A. Mereweather, H.M. Senior Inspector of Factories, Ministry of Labour and National Service, London, S.W.1; Dr. Ralston

Paterson, Holt Radium Institute, Wilmslow Road, Withington, Manchester; Mr. H. S. Souttar; Sir George Thomson, Imperial College of Science and Technology, London, S.W.7; Prof. B. W. Winder, Meyerstein Institute of Radiotherapy, Middlesex Hospital, London, W.1.

### Research in Industry

UNDER the title "Research in Industry" the Department of Scientific and Industrial Research and the Board of Trade have issued a reprint of nineteen articles published in the *Board of Trade Journal* between May 1947 and March 1948. This pamphlet of 84 pages is published by H.M. Stationery Office and costs 1s. 6d. The articles are written to illustrate factually the contention that the use of science in industry is essential for the survival of Great Britain. There are contributions by the directors or other officers of the research associations, indicating the part those associations are taking in the progress of the cotton, wool, iron and steel, rayon, pottery, linen, boot and shoe, paint, furniture, electrical and consumer-goods industries; and these articles are supported by others on electronics as an aid to production, the glass industry, the lace industry, the plastics industry, machine tool and small tool research for the engineering industry, the light-engineering industry, and industrial design research, and by a contribution from Sir Robert Watson-Watt on the industrial application of radar in peace-time. Sir Edward Appleton has written a general introduction on how science can help industry, in which he once again emphasizes the importance of securing the widest possible dissemination of knowledge of the results of research and its utilization in Great Britain. While the articles are admirable as an introduction, they are no substitute for the individual reports of the research boards, stations or research associations, still less of the Department of Scientific and Industrial Research as a whole, the pre-war annual report of which was an important document for knowledge of scientific and technical progress.

### Fundamental Education

IN 1947 the United States National Commission for Unesco constituted a Panel on Fundamental Education to consider how the proposals set out in the Unesco Book, "Fundamental Education—Common Ground for all Peoples", could be applied in the United States. The panel meets under the chairmanship of Mr. John W. Studebaker, the Commissioner for Education, and is composed of specialists in many fields concerned with fundamental education who are broadly representative of various public and private agencies and associations throughout the country. Its first bulletin, called "Fundamental Education", has now been issued and provides important technical information both on the way in which the Unesco Secretariat may carry out the international project and also on the way the development of fundamental education in the United States may be encouraged. Copies of the bulletin may be obtained from the Superintendent of Documents, U.S. Government Printing Office, Washington.

### New Zealand Earthquakes during 1946

ACCORDING to the *Dominion Observatory Bulletin*, No. 8-51, there were recorded in New Zealand, during 1946, 273 locally felt earthquakes. One of these, on

June 26, was felt with Modified Mercalli scale 7-8, while five others, on February 12, February 26, June 7, June 28 and September 14, were felt with scale 6. The remainder had lesser intensities. The general distribution of earthquakes was such that most had epicentres north of the latitude of Christchurch with very few to the south of this line. There was a strong cluster of epicentres to the south-south-west of Arthur's Pass at the northern end of the Southern Alps, and the epicentre of the shock of June 26 was in this region. Another cluster lay in the Tasman Sea towards Cook Strait, while further epicentres tended to lie towards the median line of North Island between Wanganui and the Bay of Plenty, and others in the Pacific Ocean to the north-east of New Zealand. The second greatest shock, that on February 12 (scale 6+), had its epicentre at a point to the south-east of Wanganui at the southern end of North Island.

### Palaeozoic Arachnida

PROF. ALEXANDER P. JUNKEVITCH, a distinguished arachnologist, has furnished an account of the Palaeozoic Arachnida in the *Transactions of the Connecticut Academy of Arts and Sciences*, vol. 37, 1949 (New Haven, Conn., pp. 257, 7.70 dollars). This is particularly interesting in Great Britain, since it is very largely based on the rich collection of material in the British Museum (Natural History). It is not simply a description of species, although 169 species are dealt with, but rather a review of their structure, classification and relationships. In order to carry out this work adequately, full cognizance is taken of the considerable advances made in recent years in our knowledge of the comparative anatomy and development of living forms. The description of the structure of both fossil and living Arachnida in general, the adequate definitions of the orders and the keys for their separation are useful not only to the palaeontologist but also to the student of recent forms. The author concludes that at an early geological age the Arachnida split into a number of orders; but that all of them exhibit the same fundamental trends, including a shortening of the abdomen through a loss of posterior segments. There is also a tendency to simplification, exemplified, *inter alia*, by the loss of abdominal appendages save the combs in scorpions, and the spinnerets in spiders, and, further, in the former by a reduction of the number of teeth in the comb and in the latter by a reduction of the number of spinnerets from four pairs to one pair. The work concludes with an interesting and useful discussion of these and similar trends, not only in the class as a whole, but also in its various subdivisions, and consideration of the evolutionary and classification significance of such trends. The paper is provided with a full bibliography, well indexed, and illustrated by eighty-three plates, thirty of which are excellent photographic reproductions of the material.

### Reactions of some Passerine Birds to a Stuffed Cuckoo

DURING the spring of 1948 George Edwards, Eric Hosking and Stuart Smith carried out experiments to test the reactions of certain of the smaller birds to the presence of a stuffed cuckoo and other animals in their nesting territories (*British Birds*, 42, No. 1; January 1949). Experiments were of an exploratory nature, but enough evidence has been collected to show that certain birds appear able to determine one type of