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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 PETRUNKEVITCH, 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

dummy from another. Willow-warblers will attack a stuffed cuckoo but will not go near a stuffed sparrowhawk. Nightingales will attack both hawk and cuckoo, but fear a stuffed stoat. Blackbirds disregard a cuckoo but attack a jay. Tree-pipits attack a cuckoo violently, but will not approach a jay; whin-chats attack both cuckoo and sparrowhawk. The article contains a detailed account of these reactions as well as many excellent close-up photographs which were taken during the experiments.

Mushroom Diseases

A SMALL booklet has recently been compiled by Mr. Fred C. Atkins, entitled "Major Diseases of the Cultivated White Mushroom" (Yaxley, Peterborough: Midlands Group Publications, 1948; 2s. 6d.). It deals with bacterial pit, caused by *Pseudomonas* (?) *flavescens*, bacterial blotch (*Phytophthora Tolaasi*), cobweb or mildew due to *Dactylium dendroides*, bubble (*Mycogone perniciosus*) and brown spot (*Verticillium* spp.). Most of the descriptions have appeared in the *Bulletin of the Mushroom Growers' Association*; but practical growers and others will welcome their collection into a booklet with photographs, drawings and succinct accounts of control. It is planned to issue further booklets on major competitors, and on minor diseases and competitors of the cultivated mushroom.

Unstability in the Rust Fungi

THE life-history of a rust fungus is usually regarded as sufficiently stable to have some diagnostic value. Recent knowledge shows, however, that there are exceptions. Malcolm Wilson (*Proc. Roy. Soc. Edin.*, B, 63, Part 2, No. 11, 177; 1948) reviews the literature dealing with instability, and describes four British cases where uredosori contained a proportion of teleutospores. All the unstable species now known belong to the Pucciniaceae, a relatively advanced family of the rust fungi. The taxonomic position of their host species also agrees with their relatively advanced condition. The interesting theory that unstable species lead to the production of micro-Puccinia forms is now formulated, and seems to provide a useful insight into the phylogeny of these organisms. Special environmental conditions appear to induce instability of life-history, and this itself is another interesting feature.

Strains of Host and Virus

STRAINS of various virus diseases are now well recognized by research workers. B. Kassanis and Ireson W. Selman (*J. Pomol. Hort. Sci.*, 23, Nos. 3, 4; Dec. 1947) now demonstrate two strains in a host plant (White Burley tobacco), which are barely distinguishable morphologically, but react differently to virus infection. Tomato aucuba mosaic produces necrotic local lesions or systemic necrosis in one host strain, and a yellow mottle in the other. Some strains of tobacco mosaic also react necrotically in the first-mentioned host strain. This unsuspected selective action of the host may possibly explain discrepancies in etiology reported by various workers. The behaviour of various strains of potato virus Y has also been studied by F. C. Bawden and B. Kassanis (*Ann. Appl. Biol.*, 34, No. 4, 503-516; Dec. 1947). These various strains cause diseases in the variety Majestic, ranging in severity from mild mosaic to leaf-drop streak. Symptoms of the strains are also compared with the serologically related potato virus

C, and possible mechanisms for the evolution of viruses C and Y are discussed.

Science and Society

THE Educational Centres Association is arranging a non-technical course for laymen and men of science who want an opportunity of studying the relations between science and society; it is to be held at West-hart House, Barford, near Leamington, Warwickshire, during August 20-27. Inquiry will be made into the application of science to the raising of the standard of living and of bodily health; and in considering the reciprocal issues between science and society particular attention will be paid to recent developments in industrial and agricultural practice and to such topical questions as the atomic bomb and the Lysenko controversy. The course will be conducted by lectures and by seminar discussions, and during the latter students will concentrate either on chemical and physical considerations or on biology as applied to nutrition and disease. Further particulars can be obtained from the Education Secretary, Educational Centres Association, 8 Endsleigh Gardens, London, W.C.1.

Announcements

A CONFERENCE on "The Place of Agriculture in Education" will be held at Lord Wandsworth College, Long Sutton, near Basingstoke, Hants, on July 20. The conference will be opened by the Minister of Agriculture. Further information may be obtained from the bursar of the College, Mr. L. G. Troup.

THE fourteenth Cold Spring Harbor Symposium on Quantitative Biology will be held during June 8-16. The topic is "Amino Acids and Proteins", with emphasis on biological aspects of the problem. The meeting will be international in scope, those taking part coming from Denmark (K. Linderström-Lang), France (C. Fromageot), Great Britain (D. Crowfoot, J. F. Danielli, F. Sanger and R. L. M. Synge), and Sweden (K. O. Pedersen). Attendance is restricted, on account of limitations of space, to about a hundred. The programme and other information can be obtained from the Biological Laboratory, Cold Spring Harbor, New York.

THE Chemical Research Laboratory (Department of Scientific and Industrial Research), at Teddington, Middlesex, is again holding a series of 'open days' this year. There will be three sessions, on June 30 (afternoon), and on July 1 (morning and afternoon). Applications from industrial firms wishing to send representatives should be sent to the Director before June 20; those already on the invitation list need not apply again.

PROF. C. K. INGOLD points out that extended series of Fermi doublets of the kind that Prof. R. K. Asundi and M. E. Padhye report (*Nature*, April 23, p. 638) in the near ultra-violet emission spectrum of benzene, as well as analogous series in the absorption spectrum, have been fully described and discussed by Dr. F. M. Garforth and himself (*J. Chem. Soc.*, 417, 427; 1948).

REFERENCE was made in the leading article of *Nature* of May 7 to a recently published book "The Unity of European History" (London: Jonathan Cape, Ltd., 18s. net), by Mr. John Bowle. We regret that, throughout the article, the author's name was spelled incorrectly.