

a bid for the 'closed shop'—in fact, behaving in a manner quite familiar to us in 1946.

The next section of the book is devoted to a brief account of different classes of leather produced by modern factory methods, and to an enumeration of the many uses of leather in modern life. This will astonish most readers, for besides the obvious uses that are encountered in every individual's daily life there are also the many uses that leather finds in this mechanical age, namely, as essential parts in machines for spinning and weaving and as washers and cups in hydraulic machinery—for example, all the oil that is pumped up to the earth's surface passes over leather washers.

Finally, the book summarizes the facilities in Great Britain for education in modern methods and for the research which is so vitally needed to keep the age-old industry abreast of modern life.

The volume is beautifully produced and lavishly illustrated, and reflects great credit on both author and publishers. It is a pity that the general impoverishment of post-war England has necessitated a cloth binding—it is certainly worth one of those beautiful tooled leather bindings shown among the illustrations.

D. JORDAN LLOYD

PLANTS OF THE PACIFIC

Plant Life of the Pacific World

By Prof. Elmer D. Merrill (Pacific World Series.) Pp. xv+295. (New York: The Macmillan Company; London: Macmillan and Co., Ltd., 1946.) 16s. net.

THE vast area covered by the Pacific Ocean, combined with the range of climatic and physiographic conditions of the lands surrounding it and the lands it surrounds, inevitably results in a rich and varied plant life. The interesting and practical guide prepared by Prof. Merrill, however, covers only that portion of the Pacific, mainly the north-western tropical island groups, brought into prominence through the war against Japan. Even within this portion there are certainly in excess of 50,000 different species and 2,500 different genera of higher plants. From the Philippines alone some 9,500 species of vascular plants have been recorded. Wisely, in a work intended for the lay reader, it is the ecological and economic aspects of the plant life that are emphasized. The major physiognomic groupings are covered by chapters with headings such as plants of the seashore, the mangrove forest, the secondary forests and open grasslands, and the primary forest. Attention is also given to plants of special interest, to weeds, and to cultivated plants. A chapter of practical value deals with 'jungle foods'. The professional botanist will find much that is new to him in all these chapters, mainly because Prof. Merrill so often draws upon his own wide experience.

In two chapters, problems of plant distribution are especially considered for Malaysia and Polynesia respectively. Such disputed questions as the Wallace and Weber lines, the relationship and historic connexions between Malayan and Australian plants, and hypotheses concerning changes in physiography are considered very judiciously. The author is obviously opposed to accepting the Wegener hypothesis of continental drift in order to explain problems of distribution, and sums up his position in the words "Like some other theories, its acceptance would explain certain observed phenomena, but at the same

time would leave unexplained another great mass of data that does not conform".

The Micronesian-Polynesian floras largely consist of the same general types as are characteristic of the Malaysian region, and this is true even of Hawaii. The floras of low islands are markedly different from those of high islands. The full explanation of when and how natural floras reached remote Pacific islands remains unknown. As the author says, "hypothetical land bridges have been scattered right and left all over the Pacific basin to explain the present-day distribution of this or that group of plants".

Particular attention should be directed to the well-selected bibliography, which will serve as a very adequate guide to the student seeking further information concerning the plant life of the far-flung lands of the Pacific Ocean. W. B. TURBILL

STELLAR SPECTROPHOTOMETRY

Photometric Atlas of Stellar Spectra

By W. A. Hiltner and Robley C. Williams. Pp. iii+24+246 plates. Ann Arbor, Mich.: University of Michigan Press; London: Oxford University Press, 1946.) 42s. net.

A WARM welcome must be given to this first photometric atlas of stellar spectra, a useful reminder of the increased importance attached to the quantitative study of stellar radiation. Eight bright stars ranging from *B8* to *M2* have been photographed with the Coudé spectrograph of the 82-inch reflector of the McDonald Observatory, Texas University. The dispersion varies from 2.1 Å. per mm. at 4000 Å. to 14.2 Å. per mm. at λ 6500 Å. The spectra have been analysed at the University of Michigan with a null-type direct-intensity microphotometer. The resultant tracings with the intensity scale are reproduced for each star in a set of some sixty sections ranging from 20 Å. at λ 4000 Å. to 100 Å. at 6600 Å.; the magnification from spectrogram to published tracing is 21.6.

The stars selected are β Orionis, α Lyrae, α Canis Majoris, α Cygni, α Persei, α Canis Minoris, α Bootes and α Orionis. It is instructive to watch the changes in the tracings through the sequence for selected stretches of the spectra and to compare them with what one notices by examining the spectra directly with the eye. Such an exercise shows at once what seems the chief defect in the atlas, the failure to put a wave-length scale along the tracings, or alternatively to mask sufficient lines to make easier the identification of the weaker lines. Admittedly this would have been a heavy additional labour to the authors of the atlas, but it would have been a great help to those making use of it. A comparison made between the atlas for α Cygni and the table of wave-lengths given by Struve for spectrograms of the star secured with the same instrument (*Astrophys. J.*, **94**, 344; 1941) shows that the effect of the grain on the microphotometer has been somewhat disappointingly large, and that the weakest lines, of intensity 0, and many lines of intensity 1 are lost. Messrs. Hiltner and Robley Williams cannot be blamed for this, the trouble being inherent in the material available, and they are to be congratulated on having led the way in a new field and having produced a work of considerable usefulness to their fellow-workers.

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