

to various systems and events. Thus the first half of the book is devoted to the Precambrian, while the following chapter on the Palaeozoic occupies only eighteen pages. These features, in a well-balanced book, reflect the contrast between the tectonic behaviour of Africa and Europe in post-Cambrian times. The work is essentially a compilation of facts and in each of the sections the lithologies, thicknesses and distribution of the appropriate rocks are considered region by region. Where an understanding of the distribution and stratigraphy of the rocks is dependent on knowledge of the structure this is briefly outlined. In spite of the emphasis on the summarizing of factual information rather than on synthesis, the book, through its clear presentation and careful arrangement, is very readable and is not likely to be treated solely as a convenient work of reference.

The illustrations are good and on the whole well selected, though the general reader will probably find the locality maps, which show place names rather than geological information, of doubtful value. Perhaps the space could better have been utilized to display some geological maps of wider areas—there is no map covering the whole of the region embraced by the title. Maps showing, for example, the distribution of the Karroo System, or the marine facies of the Jurassic and Cretaceous Systems would be most instructive.

The book is balanced, up to date, clearly written and well produced; it fills a real need at the present time.

R. L. JOHNSON

MOSQUITOES OF THE SOUTH PACIFIC

The Mosquitoes of the South Pacific (Diptera, Culicidae). By John N. Belkin. Vol. 1: Pp. xii+608. Vol. 2: Pp. ii+412. (Berkeley and Los Angeles: University of California Press; London: Cambridge University Press, 1962.) 160s. net the set of two volumes.

THE first of these two very handsome volumes contains the text. The second is devoted to distribution maps and tables and taxonomic figures, mainly of male terminalia, pupæ and larvae. The descriptive work has been undertaken with great thoroughness and in this respect the book can be taken as fully authoritative. No serious student of Pacific mosquitoes will be able to dispense with it. In recommending it to students of Pacific science in general, however, it must be said that the author's views on a number of subjects are highly personal and would not always command the assent of the majority of mosquito workers.

Taxonomically, Dr. Belkin is a 'splitter'. He distinguishes 12 tribes of true mosquitoes as opposed to the 3 recognized at present by most workers, including Stone, Knight and Starcko, whose world catalogue will probably continue to be followed by the majority. The advantages of consistency are such that the prudent will, probably, also await a decision by these authors regarding the various monotypic and oligotypic subgenera introduced by Dr. Belkin. In brief, it is likely that the system used in this book will be generally accepted as an expression of Dr. Belkin's personal opinion regarding the probable phylogeny of the Culicidae rather than as a universal recipe.

The general sections are too discursive for easy reading. Good points are made here and there but there is much that is uncritical, in particular a disproportionate amount of highly speculative phylogeny, surely unsuited to an authoritative monograph. Too little space is devoted to bionomics. It is true that relatively little work has been done on the biology of Pacific mosquitoes but this is all the more reason for directing the reader to sources of information on the biology of Pacific groups as studied in other

areas. The distribution maps seem for the most part to be comprehensive and reliable, but it is noted that the very important *Aedes scutellaris* group is not shown as occurring farther west than the Andamans and Nicobars whereas, in fact, it has certainly been found in the Maldives and it has been recorded, apparently on good authority, from Ceylon. The treatment of disease relationships is cursory to a point at which it could sometimes be misleading. Thus no mention is made of the considerable body of evidence incriminating *Culex annulirostris* as a major vector of Murray Valley Encephalitis.

Nevertheless, whatever its other shortcomings, this book is an outstanding contribution to the descriptive taxonomy of the mosquitoes and the author deserves the gratitude of all of us for the untiring exertions which have made it possible.

P. F. MATTINGLY

AGRICULTURAL ENTOMOLOGY

Entomologie Appliquée à l'Agriculture

Traité publié sous la direction de Prof. A. S. Balachowsky. Tome 1, Vol. 1: Coléoptères. Pp. xxvii+564. 1962. 132F.; Vol. 2: Coléoptères. Pp. 565-1391. 1963. 162F. (Paris: Masson et Cie.)

PROF. A. S. Balachowsky has planned a monumental treatise on agricultural entomology, dealing with insects and other pests of Europe (excluding Russia), the Middle East, and Africa north of the Sahara. The first 'tome', divided into two volumes, includes 1,392 pages and describes the beetles. The remaining seven parts of the treatise will deal with the other orders of insects, with mites, myriapods, molluscs and (in the final part) with nematodes. Some sixty French-speaking scientists are collaborating in this work. They include not only well-known entomologists, but also many younger workers actively engaged in research.

The beetles of agricultural importance are described family by family. First there is a general description, then an account of the anatomy of all stages from egg to adult. Up-to-date accounts of the results of biological and physiological research are included, with some notes on control. The space given to a family usually reflects its economic importance in Europe; thus about 20 pages are devoted to wireworms and 100 to the Colorado potato beetle. The accounts of stored product pests are rather brief. Descriptions are clearly expressed and well illustrated. These two volumes contain 784 figures, many originals, others copies of well-known, but nevertheless useful, drawings or photographs.

Each volume contains an extensive bibliography, again divided into families. This contains most if not all important references to papers published up to 1961; there are, for example, nearly 200 papers on the Colorado potato beetle quoted. Non-French sources are included equally with those in the French language, and there is no suggestion that many trivial French papers have been included unnecessarily. The bibliography should be very useful to research workers unfamiliar with any family of beetles.

We are becoming used to expensive books, but few will be prepared to pay some £22 for this, the first part of an eight volume treatise. It is difficult to think for whom it is designed. Although each section contains more information than can be found in any existing text-book of agricultural entomology, yet research workers will have to supplement this with much further reading. For example, some of the results of sampling soils for pests are given, but there is no room for any description of the techniques used. The bibliography, as I have said, is excellent, but this will be out of date in a few years. Nevertheless, reference libraries should contain this treatise, if they can afford the outlay.

K. MELLANBY