

Fundamentals of Palaeontology

Reference work for Palaeontologists and Geologists of the U.S.S.R. Principal editor, Y. A. Orlov. Vol. 15: Algae, Bryophytes, Pteridophytes. Edited by V. A. Vachrameev *et al.* Pp. 698+plates. (U.S.S.R. Academy of Sciences, Moscow, 1963.) n.p.

THIS remarkable volume is evidently the first in the series of *Fundamentals of Palaeontology* to deal with fossil plants. It is divided into two parts: the first on algae is edited by Maslov and about half is written by him; the second deals with Bryophytes and the various classes of Pteridophytes. A large number of authors contribute.

The main divisions are normal, but the balance is unusual. The section on Bryophytes, for example, is as long as that on the Articulatae (Equisetales, Sphenophylls and minor families); the section on Diatoms (100 pages) is slightly longer than on the ferns and their allies. The various sections are produced in much the same style as one another.

Each section has a general part, amounting to perhaps half, which may deal as much with living genera as with the fossils, followed by a special part dealing with fossil genera. I imagine this is just what a Russian geologist would want if he were to tackle, say, a fossil red-alga, for botanical texts would give him much that is wholly irrelevant to his needs and rather little on what he wants.

What may be even more valuable, each section is followed by a bibliography. I imagine the Russian bibliography is complete; the non-Russian is not, but the writers have included all the relevant and worth-while work they know and the lists are very long. Certainly nothing is excluded for political reasons.

The authors figure specimens from their own country when they are suitable, but they describe great numbers only known from other lands. It is the references to Russian specimens and Russian literature which will be most useful to users here, and I dare say the converse will be true for Russian users, for it is often very hard for them even to know about Western literature, and then often difficult for them to see it.

Nearly all the specimens illustrated in the half-tone plates are Russian and almost all are sufficiently clear to show most of their features, though they may have lost somewhat in reproduction. The very numerous line drawings show their features plainly; they have been redrawn where reduction was necessary. I wish I could criticize the text, but I can only read Russian with such extreme difficulty that I have not attempted it. This is probably my great loss, for I can tell that the work is not all compilation, but the authors have included their own critical thoughts.

T. M. HARRIS

Weak Interactions and Topics in Dispersion Physics

Lecture Notes from the Second Bergen International School of Physics, 1962. Edited by Christian Fronsdal. Pp. xi+332. (New York: W. A. Benjamin, Inc., 1963.) Clothbound 8.80 dollars; paperbound 5.45 dollars.

THESE summer school lectures are aimed at research workers in nuclear and elementary particle physics; others can stop reading now. Various topics in weak interaction theory are treated side by side with dispersion theory. Hitherto, dispersion relations have been applied mainly in strong-coupling physics, where they have proved to be powerful tools; presumably the intention here is to encourage their use in weak interaction problems.

The lectures are printed as nineteen separate articles by sixteen different authors. Most of them are rather short and deal with particular questions; perhaps inevitably, there is not much cohesion here. But there are two longer articles which form the backbone of the book, and these are excellent. One, by Treiman, is a lucid summary of what is known or surmised about the structure of weak

interactions. It is a pity that the first high-energy neutrino experiment was completed one month too late to be included in these lectures. The other main article, by Mandelstam, describes the application of dispersion relations in strong interaction theory; since his lectures closely followed his masterly review in *Reports on Progress in Physics* (25, 1962), the latter has simply been reprinted in full.

Finally, it must be said that the shorter contributions, though disconnected, are none the less authoritative; the lecturers include Bernardini, Fubini, Primakoff, Telegdi and other well-known names. Although this book is not comprehensive enough to rank as a work of reference, it contains a lot of useful information. R. J. N. PHILLIPS

Concepts of Forest Entomology

By Prof. Kenneth Graham. (Reinhold Books in the Biological Sciences.) Pp. xii+388. (New York: Reinhold Publishing Corporation; London: Chapman and Hall, Ltd., 1963.) 76s. net.

IN 1939, Prof. S. A. Graham, of the University of Michigan, published an excellent book on *Principles of Forest Entomology*. Now Prof. K. Graham, of the University of British Columbia, has produced its successor, rather similarly entitled *Concepts of Forest Entomology*. Although there is necessarily some overlap, however, the two works are essentially complementary, the second being as a whole more generalized but at the same time more advanced and more detailed in its discussion of some aspects of the science.

In his preface the author makes it clear that he has intended to write not only for the specialist in forest entomology, but also for the general forester. In this he has set himself a very difficult task, but he has succeeded in at least his first chapter, which is easily readable and discusses the role of entomological research within the framework of forest policy, economics, and the practices of silviculture and forest management and utilization. The latter chapters, which are largely devoted to forest insect surveys, population studies and the causes and forecasting of epidemics, leading up to the theories of control, are for the most part probably too detailed to interest any but the professional entomologist.

The author primarily refers, of course, to conditions in the United States and Canada, and the methods that he advocates may not always be immediately applicable to other territories, such, for example, as the less-developed, tropical, timber-producing countries of the Commonwealth. Nevertheless, it is in North America that the science of forest entomology has reached its highest development, both in theory and in practice, and the contents of the book provide both a model for future attainment and methods for present adaptation. F. G. BROWNE

The Essentials of German Grammar

By Prof. Alan S. C. Ross. (The Essential Series.) Pp. 28. (London: Kenneth Mason Publications, Ltd., 1963.) 5s.

IN this remarkably condensed version of German grammar, the author emphasizes that these essentials must be ruthlessly committed to memory. This approach has been facilitated by greatly reducing the number of forms to be learnt; as an example, in the verb, since the first person singular present indicative and the singular present subjunctive are of identical form, they are here presented together so that only one learning operation is necessary. Although the booklet is intended primarily for the reader who wishes to learn to speak German quickly, it should also be very useful as a rapid survey of German grammar for those scientists who, without having had any previous formal instruction in German, find it necessary or desirable to read German scientific literature. Another welcome feature is that the emphasis on condensation has enabled the booklet to be published at the relatively low price of only 5s.

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