The cost of helicopter operation is high, about $100 per flying hour or about $400 a day per helicopter. However, where detailed areal geologic mapping is necessary, in an area such as northwestern Greenland, the over-all cost of using helicopters, considering the saving in time and effort, is about 80 percent of the cost of the same work accomplished by ordinary ground traverses.

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Received April 20, 1954.

Book Reviews

Traité de Paléontologie. Vol. 3, ***Les Formes Ultimes d'Invertébrés; Morphologie et Evolution—Onychophores, Arthropodes, Echinodermes, Stomocordés.*** Jean Piveteau, Ed. Masson, Paris, 1953. 1064 pp. Illus. 9600 fr.; clothbound, 10,320 fr.

Volume 3 of this stately treatise completes coverage of the invertebrates. The remaining four volumes are to deal with the vertebrates. Twelve collaborators (11 French and one Belgian) contributed to this volume, which covers the arthropods, echinoderms, graptolites, and some minor groups. The arthropods take up half the book and the echinoderms a third.

The onychopora, merostomoids, pseudocrustacea, and marrellomorphs are dealt with by Colette Dechaseaux. These minor, but phylogentically important, groups are represented for the most part by Walcott's genera from his fabulous Middle Cambrian locality in British Columbia. The Scandinavian *Xenusion,* reported to be of pre-Cambrian age, is doubtfully referred to the onychopora (*Peripatus* and allies). If it is as old as it is alleged to be, it is perhaps the oldest recognizable form of multicellular animal life.

A chapter of 203 pages on trilobites is the work of Pierre Hupé. Somewhat more than half of it consists of a full and well-illustrated account of morphology, anatomy, development, habits, distribution, and evolution. The treatment of evolution is comprehensive, well-balanced, and restrained. The systematic part, however, gives the impression of having been hastily put together. It includes new superfamilies, many new families, and a great many new subfamilies. Supergeneric categories are diagnosed; genera are listed, with their age and general distribution. Genera are diagnosed in a publication by Hupé issued in 1953, and that publication contains a much more complete bibliography than this treatise.

The arthropleurids (protoarthropods of uncertain affinities), branchiopods, copepods, and crustacea of uncertain affinities are described by Dechaseaux; the ostracodes by Nicolas Grekoff; and the cirripeds by Henri and Geneviève Termier.

Daniel Laurentiaux contributed the chapters on myriapods and insects. The systematic part of his chapter on insects is a comprehensive survey of fossil insects. The chapters on merostomes, including the gigantostracea (a later name for eurypterids), and arachnids—a complete survey—are the work of Gérard Waterlot.

The echinoderms are very unevenly handled; the heterosteles and cystids are discussed by Lucien Cuénot, who died before the book was published. His treatment of the cystids stands out as the best for any of the major echinoderm classes. The blastoids are described by F. M. Bergounioux; edrioasteroids by Jean Piveteau; crinoids, stelleroids, and ophiocistioids by Georges Ubaghs; and echinoids by the Termiers. The systematic part of the chapter on crinoids is disappointingly and inadequately illustrated. It includes a new order, new suborders, and many new superfamilies.

Gérard Waterlot wrote the chapters on pterobranchs and graptolites, which are given class rank under Dawydoff's recently proposed phylum stomocords. The book closes with the Termiers' discussion of groups of uncertain affinities: machaeridians, conularids, hyoliths, and tentaculites.

The omission of any indication of the number of pages in publications cited in bibliographies appears to be a fixed policy of this treatise. The price is even higher than for Volume 1 or Volume 2.

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[1] I am indebted for advice to P. E. Cloud, Jr., and A. R. Palmer.

Chemie Lexikon, Vols. I and II. 3rd ed. Hermann Römpp. Franckh'sche Verlag, Stuttgart, 1952–53. 2108 pp. Illus. Clothbound, DM84—a vol.

To be successful, an encyclopedia must provide adequately detailed information on every topic coming within its survey, and yet remain both manageable in size and reasonable in cost. In a broad field such as chemistry, these aims are usually achieved by limiting the scope of the book to a particular section, and a number of excellent dictionaries and handbooks dealing with such limited areas of information have been produced. However, there is a need for an all-encompassing chemical encyclopedia to which the specialist may turn for information on other branches of his subject, and where the nonchemist may expect to find answers to any questions of a chemical nature. This need is adequately fulfilled by Dr. Römpp's *Chemie Lexikon.*

Special attention has been paid to the requirements of the businessman engaged in the chemical trade and to workers in industry. The scope of the book is so broad, however, that it will prove invaluable to all whose work brings them into contact with any branch