

operating without a Christian commitment, Schaeffer issues a summons characteristic of Christian evangelicals: if you want to lick pollution, repent and be saved.

The author has one foot in the exclusivist camp which radically separates man from nature, and the other foot in the inclusivist camp which sees man as simply a part of nature. Although he insists on the value of nature in itself and the value of nature for man's use, he fails to indicate how conflicts between these values ought to be resolved. Since Schaeffer's book leaves no room for Christians and humanists to tackle the environmental crisis with mutual respect for one another's mobilizing myths, to Christian naturalists the book will be embarrassing, to naturalists of other persuasions, amusing.

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To the Arctic! The Story of Northern Explorers from Earliest Times to the Present

By Jeannette Mirsky. 3rd edition. The University of Chicago Press, Chicago. 1970. xxv + 334 + xvii pp. \$10.00 (cloth), \$3.45 (paper).

No one book could possibly tell all there is to know about the history of exploration of the northern polar regions. *To the Arctic!* which was first published in 1934 under the title of *To the North!* does however serve as an excellent introduction to northern history. The author puts in perspective the men who made that history, the men who described in sometimes the finest detail the country through which they travelled, and in some instances brought back to the civilized regions the specimens of plants, animals and rocks which form the basis of our knowledge of the natural history of the north, and for many of these explorers describes the trials and tribulations which faced them in their efforts to make new discoveries in an almost unknown land. The second edition, published in 1948, embodied some corrections and brought the northern story up to date. This third edition which differs from the second only in the inclusion of a new Preface by Vilhjalmur Stefansson, has been brought out at a time when interest in the north is at a new peak.

This is a book which anyone interested in almost any facet of the north will find of value. It will serve as a starting point from which the reader can advance to the selected titles found in the bibliography. It will be a useful library reference if for no other reason than the Appendix II 'List of Franklin Search Parties' and Appendix III 'Chronology of Northern Exploration'.

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The Ecology of Running Waters

By H. B. N. Hynes. University of Toronto Press, Toronto. 1970. xxiv + 555 pp. \$25.00.

This book is written by an eminent limnologist, teacher, and gentleman (and, I might add, dedicated to a person of equally great stature, Dr. David G. Frey). Professor Noel Hynes has given biologists a book long needed. However, to recommend the book merely because it is the only modern comprehensive book in stream ecology would be to do it a great injustice, for it is an exceedingly outstanding book. In it, is a thorough, easily read, review of the field. A book of this high calibre, yet readable by the non-specialist, would be highly desirable on lakes.

The book is a masterful synthesis of material. Professor Hynes has shown much adeptness in writing with such authority on the many specialized fields that pertain to running waters. The strength of the book lies partly in the ability of Professor Hynes to synthesize vast amounts of information (perhaps shown best in sections on adaptations and trophic relations). Reinterpretations and critical analyses of the literature are part of this work. The book includes virtually all major taxonomic groups of freshwater aquatic life. It is well illustrated. Most figures are original. Many organisms mentioned in the text and found in various parts of the world are figured, with special emphasis on showing adaptations to stream life.

The book consists of 23 chapters (one more than the 22 chapters indicated on the overleaf of my copy). The first three chapters deal with the physical-chemical characteristics of running

waters. Three chapters are concerned with plants and plankton. This is followed by eight chapters which discuss the benthic invertebrates. A review of the membership shows several families to be confined to stream life while even some species normally found only in the ocean (e.g., crabs) may occur in rivers. Fish are discussed in four chapters. The chapter on amphibians, reptiles, birds, and mammals is short because, like bacteria, we know relatively little of their place in the aquatic community. It is a weakness in the field and Professor Hynes points out areas where further research would be profitable. There is a chapter each on longitudinal zonation, special habitats (springs, etc.), and the ecosystem (including a short but excellent section on fish production). The book concludes with a chapter on the effects of man on watercourses. This chapter is short, I suspect, not because Professor Hynes felt our effects were few but because they are so poorly documented. May our effects decrease but our knowledge increase!

The bibliography is an excellent comprehensive review of the literature up to and including 1966. In all, there are over 1,500 listings, many from foreign journals. For each reference the location of the citation in the text is given and most text statements have the source given. A highly desirable feature is found in the index. After each genus a common name (if present) is given and after each listed taxonomic name the next higher taxon is given. This has the advantage of informing the non-specialist of just what a certain taxon is.

A few typographical errors exist but this is inevitable in such an extensive work. Of particular note, the taxonomic names *Catostomus* and Catostomidae are consistently misspelled in the text and index as *Catastomus* and Catastomidae (even in the bibliographic reference to the paper by Raney and Webster).

The Ecology of Running Waters is a must for the student of aquatic biology and highly desirable for every ecologist and naturalist. Unfortunately, the book sells in Canada for \$25.00 while in Britain I understand it is almost half this price. Small wonder we read so little. Nevertheless, the book, like the author, can only be held in the highest esteem by those who know either.

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Pictorial Guide to the Birds of North America

Leonard Lee Rue III. Drawings by Juan C. Barberis, maps by Donald Pitcher, 140 photos by the author. Thomas Y. Crowell Company, New York; and Fitzhenry and Whiteside Limited, Toronto. 1970. xvi + 368 p. \$15.75.

This is another in the long parade of bird books. As an illustrated guide to the field identification of North American birds, this one has serious limitations in that it deals with only 80-odd species. The author tells us that the species selected are either so common that everyone knows something about them or so rare that most people know nothing about them. Thus there are several hundred North American species that the book does not include. An extreme example of how this works out is found in the case of the wood warbler family Parulidae which contains some 57 species and is represented in this book by one species, the American Redstart.

The main contribution of the book seems to this reviewer to lie in the information and photographs contained in the species accounts. Each of these begins with a range map, a black and white sketch of the subject, and capsule accounts of field marks, size, habits, habitat, nest, eggs, food, and voice (all on one page) and this is followed by one to four pages of general information on the species concerned. These accounts are pleasingly written and interestingly illustrated by 140 photographs taken by the author.

Unfortunately the text is marred by errors and half-truths which could easily have been eliminated had the manuscript been properly checked by a competent ornithologist prior to publication. Following are some (not all) examples: Birds have only three toes (p. XIII); only two species of loons occur as far south as the United States (p. 1); the cormorant's *orange* (!) bill (p. 16); a bird in a photograph identified in the caption as an Evening Grosbeak is a Pine Grosbeak (p. 324); and the map of the range of the Eastern Bluebird extends the breeding range northward erroneously to northern Newfoundland and even southern Labrador!

A surprising statement is made that the eggs of the Robin are incubated by both parents. The author affirms that he has often watched as one bird relieves the other at the nest "with almost clockwork regularity". This is contrary to the experience of the many others, including ornithologists who have made extensive studies of the



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