to all ecologists. The present volume is certainly no exception.

Moreover, the book centers around productivity, which is one of the basic concepts of limnology, as well as a practical measure of success in fisheries management. The quantity of fish produced per unit time can be influenced by almost every conceivable kind of ecological interaction, but only those shown to be of major importance or amenable to new methods of study are considered. Growth, fecundity, metabolism, predation by and on fish, fertilization of waters, and density-dependent regulating factors are some of the "traditional" parameters treated. Migration and lesser movements, rate of digestion, larval behavior, and aggressive interactions with and without territoriality are some of the newer ones. The methods of studying all of these are discussed critically and in detail. The special problems encountered in sampling fish populations, estimating mortality rates and the numbers of fish, and measuring fish production itself are reviewed.

Of the 28 authors, 16 are from Europe, and Israel, Japan, and the Congo Democratic Republic are also represented. The non-English literature receives much more than the nod customarily accorded it, but the fishes and ecological situations dealt with are almost entirely those of the North Temperate Zone. Although the book could hardly be used as a text, because not all major aspects of the ecology of freshwater fish are given adequate treatment, it would serve admirably for supplemental reading. Professionals, especially those involved in fish production or conservation, are sure to find worthwhile reading in it.

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Deep-Earth Geophysics

The Earth's Mantle. T. F. GASKELL, Ed. Academic Press, New York, 1967. xiv + 509 pp., illus. $26.50.

Nearly eight years have elapsed since the Upper Mantle Project was brought into being at the Helsinki meeting of the International Union of Geodesy and Geophysics. In that period the quantity of research effort, both by institutions and by governments, has increased several times. It is no longer possible for a single investigator or group to hold effective leadership in all the many aspects of research on the earth's interior. Communication of progress to the earth-science community as a whole has not been as effective as it might, with the usual mechanisms of journal articles, textbooks, and review volumes. This book, although in the latter format, has a good deal of the cohesion of a textbook, owing to a substantial contribution, both explicit and implicit, by the editor. It may be recommended as by far the best single-volume reference-textbook on general matters of the earth's interior.

The subject matter is taken up in the conventional categories, and the authors are drawn from an equally unsurprising list of major names. By comparison with other review volumes, this one stands out for the way the parts fit together in a whole. Several topics are treated in more than one paper: heat flow by both Von Herzen and Lubimova; convection theory by Knopoff and Tozer; seismology by Bullen, Lehmann, and D. Anderson; density and composition by Kuno, Clark, and Ringwood and D. Anderson. The final two papers, by J. Tuzo Wilson and S. K. Runcorn, provide an appropriate frosting of theory and speculation. The student is given an opportunity to compare brands; it becomes unnecessary for the reviewer to offer dark warnings about papers with which exception might be taken.

The editor's excellent opening chapter provides an appropriate overview of the material. It is also recommended to the general reader, since it gives a good sense of the where and why of the public investment in deep-earth geophysics. By an accident of timing, this book was assembled just prior to the discovery of very strong evidence for sea-floor spreading, in the magnetic anomaly and earthquake source mechanism data. The implications of this are found in every area of earth science; in particular, the mantle must be regarded as the most important component of the heat engine which drives the horizontal motions of the lithosphere. This book is probably better for its innocence, however, since no good summary discussion of these implications will be possible until some of the dust has settled in a few years.

The only shortcomings worth bringing up may be laid at the door of the publisher. The price is, as usual, quite steep. The binding warps. The references are given without titles of papers, a real annoyance when the reference list must be frequently used. With respect to content, however, this book is recommended without reservation for both reference use and graduate teaching. I would also suggest that the teacher of general geology might find this a good way to bring himself up to date on recent progress.

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Denizens of Alaska

Eskimos of the Nushagak River. An Ethnographic History. JAMES W. VANSTONE. University of Washington Press, Seattle, 1967. xxiv + 192 pp., illus. $6.95.

In spite of the fact that more Eskimos live in southwest Alaska than anywhere else, extraordinarily little has been written about them. A few years ago James VanStone decided to join the very small group of anthropologists who are attempting to fill in this gap in our knowledge of the aboriginal peoples of North America. Utilizing a combination of archeological, historical, and ethnographic techniques over the course of several years of research, VanStone has turned his attention to the Eskimos of the Nushagak River region. The volume under review is based primarily on the documentary aspects of this research, supplemented in the appropriate places by ethnographic material. This is the first of what probably will be a series of monographs on this area by the same author.

The book is divided into two major parts. In part 1, entitled Agents of Change, the author treats in separate chapters the influences in the region of early Russian and American explorers, missionaries, traders, commercial fishermen, mining and reindeer herding, and educational and medical services. Each chapter consists of a chronological account of events related to the specific subject being considered. Part 2, in contrast, is comprised of three essentially synchronic studies. Under the heading Emerging Socioeconomic Patterns, VanStone deals in successive chapters with population groupings and settlement patterns in the 19th and early 20th centuries, the yearly cycle at about the same period, and the yearly cycle today. The book ends with a chapter devoted to comparison of developments following the arrival of Europeans in southwestern with those in northwestern Alaska.