LOVE, is to be commended for overcoming what must have been a most difficult task.

The book is divided into three parts. Part I contains the text of the book. Part II is titled "Index of Chemical Substances" and provides a list of well over two hundred chemical substances in different tissues of a great many species. Many of the substances are introduced by a sentence or two on their role in the tissues in which they have been found. Actual values are not included because the enormity of the task would put the book, in the author's words, "hopelessly out of date before publication". In Part III over one thousand species are listed alphabetically and for each a reference list of chemical studies. While the reference list is not complete, at least for some species it certainly will provide most researchers with a wealth of information. The final one hundred pages of Part III of the book are devoted to an extensive bibliography of over fourteen hundred references.

Part I is divided into five chapters. In the first chapter, the reader is shown how anatomical heterogeneity and stress can in some cases lead to almost worthless results. The author is to be applauded for this chapter for only through constant reminders of this sort will adequate standardization of techniques be possible. Chapter II is titled "The Life Cycle". In this chapter the chemical composition of fish is examined from the early embryonic stages through maturity and finally death. The third chapter deals with chemical differences and similarities among and within species. The author includes in the chapter an interesting and constructive section on the diversity of chemical substances as related to phylogeny. Other sections in this chapter describe differences between fresh and saltwater species, alterations in chemical composition due to intrinsic activity of the species and finally chemical changes within the species themselves. Chapter four describes the influence of a number of important environmental factors, season, motion of the sea, oxygen, depth, illumination, salinity and temperature, as well as diet on body composition. In the final chapter, chemical alterations associated with depletion are discussed.

In the reviewers opinion this book is an excellent compendium of chemical studies on fishes and should find wide acceptance wherever there is an interest in the chemical biology of fishes.

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THOMAS H. LINEAWEAVER III and RICHARD H. BACKUS: "*The Natural History of Sharks*". Andre Deutsch Ltd., London, 1970, 256 pp., 55s.

Except for a few species, sharks are not commercially important and in consequence, the natural histories of these few species only are known in detail. Of the remainder, and as the authors record there are about 300 species of sharks, our knowledge is far from comprehensive. Thus any book on sharks tends to be a miscellany of information. Certainly these authors seem to have

left no source unculled for theirs; OPPIAN, the Old Testament and SHAKESPEARE are all quoted, as well as more expected references. However, with a refreshing and admirable use of the English language the authors have welded their miscellany into a very readable and enjoyable book. I wish that more editors and publishers would encourage the use of such "pithy" writing instead of standard "scientific English".

Unfortunately though, the authors seem to have been uncertain at what level to write their book, which ranges from the scientific to the anecdotal. In the former category are the two chapters on physiology and deterrents, both of which are exellent, and in the latter the chapter on remoras, in which the authors lapse into irrelevance about the use of these fish in turtle fishing. This is the worst of several such lapses which occur in the book.

The presentation is not topic by topic, as might be expected from the book's title, but by a series of chapters each of which, for the most part, deals with the natural histories of a group of sharks. Thus, to learn anything about a single topic, say migration, it is necessary to read the whole book because this subject is not mentioned under this heading even in the index and in fact is hardly mentioned at all. Only one chapter is devoted to a single topic, that of reproduction.

There are a few errors. The fecundity data for *Squalus acanthias* on p. 156 would appear to be taken from KAGANOVSKAIA (1937) who studied one of the Pacific stocks; European stocks of *S. acanthias* are more fecund (see HOLDEN and MEADOWS, 1964). The differences between the Atlantic and Pacific forms are so great that they are often considered separate species, that in the Pacific being *S. suckleyi*. Elasmobranchs do not have otoliths, as stated on p. 200, but ootoconia, and the thornback ray is *Raja clavata* as correctly described on p. 204, and not *Raja radiata*, as stated on p. 89. The use of the word "Hokettle" by British trawlermen for the Greenland shark, *Somniosus microcephalus*, also suggests that this was the species referred to in the quotation from COLLINS on p. 143, not *S. acanthias* as the authors suggest.

For me the title implied a comprehensive scientific book and in this I was disappointed. I think that if it had been called "About Sharks" I could have accepted it both in its limitations and for what it is, a popular scientific account of sharks. Taken at this level it is a very enjoyable book from which much can be learned.

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