anthropology by bringing together a collection of original papers that demonstrate the material and methodological diversity of the field.

The introduction devoted to Howells's life and work is followed by a section on the nonhuman primates. This spans the order, beginning with a study of orangutan social structure and concluding with a discussion of dental reduction in the Indriidae. As importantly, the papers take a diversity of approaches, the paper on orangutans presenting results of a computer simulation, our confidence in which is greatly strengthened by behavioral and biological data from field studies, and that on indriids making use of data of a classical type but discussing them in a broad context, taking into account function, behavior, ecology, and zoogeography in both living ontogenies and fossil radiations.

A second section deals with aspects of growth processes. Again, the work is varied, including an assessment of secular change in body size over a large part of the adult life cycle (a comparison of data from a remote preliterate group gathered by Oliver in 1939 with data on the same group gathered in 1967 by Friedlaender) and a study (by Bleibtreu and Taylor) in which a sequence of multivariate techniques is used to examine somatometric differences between sexes in three different ethnic-racial groups.

A third section is devoted to variation in populations. The papers here range from one showing the importance of basic data from the field (Bailit's paper on dental eruption) through a most useful paper by Baker that displays a series of research strategies, to papers that focus on the genetic results of past adaptation. These last, in their turn, demonstrate a methodological opposition common in population genetic analyses; the single-gene, discrete traits available to Harpending and Chasko contrast with the quantitatively varying traits utilized by Froehlich.

The fourth section, on the uses of bone, is not surprisingly the largest. Bones do yield a great deal of information and they have the undeniable advantage of durability. In a study of a medieval Yugoslav osteological collection Edynak attempts to show just how much can be inferred about life styles through cluster-finding methods and an understanding of the effects of physical stress and the ethnographic picture. This compares with the study by Rightmire of two complementary, but sometimes conflicting, methods for examining morphological distances and thereby deriving information for assessing phylogenetic relationships among populations represented by osteological samples. Capping this section is Hursh's evaluation of a variety of methods for studying cranial form, including some not yet actually tried. This final section of the book demonstrates that Howells's interests are broad enough to encompass the cultural context. Though within anthropology the biological presence is strictly a minority representation, the contributions in this section remind us that anthropology is a "whole" subject and that passage to and fro across the physical-cultural interface has much to offer to both sides. The future of biological anthropology seems assured by the vigor, diversity, and potential of the methods tested throughout this book.

Finally, the demonstration this book provides of Howells's impact upon his students is a clear reminder that the oft-mentioned dichotomy between teaching or research is a false one and that the best teaching cannot be divorced from investigation and scholarly work. *The Measures of Man* cannot be the "measure of the man"; but it comes close.

CHARLES E. OXNARD
Department of Anatomy, University of Chicago, Chicago, Illinois 60637

A Teleost Family

The Biology of the Sticklebacks. R. J. WOOTTON. Academic Press, New York, 1976, x, 388 pp., illus. $29.50.

The sticklebacks, particularly the threespine stickleback (*Gasterosteus aculeatus*), are intensively studied by workers in a number of biological subdisciplines, and it has been difficult to incorporate the diverse information about them (much of which is in unpublished British and Canadian theses) into the design and interpretation of new research. Wootton's book alleviates this problem while providing a review for a more general audience.

The book is divided into two parts, the first consisting of 14 chapters on the threespine stickleback and the second consisting of a chapter each on the other well-defined stickleback taxa (*Gasterosteus wheatlandi, Pungitius, Culaea, Apeltes,* and *Spinachia*) and one on systematics.

It is appropriate that three-fourths of the book is devoted to the threespine stickleback. Its anatomy, distribution, development, ecology, behavior, physiology, reproduction, genetics, and evolution are covered. A detailed review of male reproductive biology is justified by the wealth of information on that topic and by its importance in the development of ethology. Wootton ties together information from different subdisciplines by frequent cross-referencing among chapters, and the first part of the book is further integrated by a final chapter on genetics and evolution.

The chapters on the other sticklebacks cover the same topics as those on the threespine stickleback, but the coverage is limited by lack of knowledge. Distribution maps and drawings of each form are presented, and their biology is discussed in comparison with that of the threespine and other sticklebacks. Numerous aspects of stickleback biology are compared in the chapter on systematics. Each chapter of this part of the book could be read in isolation from the others.

The book has useful author and subject indexes, and the bibliography lacks few important references through 1975 of which I am aware. There are occasional typographical errors, and some of the illustrations are only adequate.

The author points out gaps in knowledge, sets obscure details in a theoretical framework, contrasts and criticizes existing hypotheses, and occasionally proposes new ones. However, some hypotheses are accepted uncritically. For example, the abundance of intermediate phenotypes (semiarmatus) of threespine sticklebacks in polymorphic western European populations is accepted as evidence of gene flow between phenotypically extreme populations, although monomorphic semiarmatus populations are maintained elsewhere by natural selection. A few generalizations about threespine sticklebacks, such as those concerning the duration of the breeding season, minimum size at reproduction, structure of the pelvic girdle, and the distribution of red nuptial coloration over the male's body, are premature. Flaws such as these do not detract from the utility of the book, however. I will reread parts of the book and spend a substantial part of this summer field season collecting data to test hypotheses suggested by it.

MICHAEL A. BELL
Department of Biology, University of California, Los Angeles 90024
and *Section of Fishes, Natural History Museum of Los Angeles County, Los Angeles 90007*