the general biology of these species but have little in the way of behavioral content. Papers on social organization in humpback dolphins by G. S. Saayman and C. K. Tayler and in sperm whales by P. B. Best are excellent and illustrate well the heroic inferential efforts required to study the behavior of cetaceans.

With respect to acoustic behavior, P. Beamish reports on vocalizations in several entrapped baleen whales and remarks on the production of pulsed sounds that may be suitable for echolocation. Graded whistle repertoires of North Atlantic pilot whales are described by A. G. Taruski as varying little over several behavioral and environmental conditions. D. W. Morgan reports variable vocal and behavioral reactions by wild and captive belugas to playbacks of conspecific vocalizations. M. C. and D. K. Caldwell present a good description of the ontogeny of whistles in Atlantic bottle-nosed dolphins. Whistles in the young dolphin are variable in structure and acquire stereotyped individual features only after the first year. Finally T. J. Thompson *et al.* give a brief review of mysticete sounds and discuss the possible social and orientation functions of known vocalizations.

There is some that is new in the present volume but little that is exciting for behaviorists. The volume does not attempt to give general reviews or directions for future work and is far from a general or balanced coverage of cetacean behavior. It is a disappointment compared with earlier volumes in the series.

JON LIEN

Department of Psychology, Memorial University of Newfoundland, St. John's A1B 3X9, Canada

Astrophysics

Nonradial Oscillations of Stars. WASABURO UNNO, YOJI OSAKI, HIROYASU ANDO, and HIROMOTO SHIBAHASHI. University of Toyko Press, Tokyo, 1979 (U.S. distributor, ISBS, Forest Grove, Ore.). x, 324 pp., illus. $32.50.

As the authors of this book point out, recent observations have revealed that nonradial oscillations "are inherent to most of the stars that are the main constituents of the universe." This is therefore a timely book.

Fundamental advances in our understanding of nonradial oscillations have in recent years been made by a number of Japanese astrophysicists (most of whom are among the authors of the book). In addition to summarizing much of the work on the subject, the book also provides information and details that usually cannot be found in research papers.

Chapter 1 is masterly and should be required reading for every astronomer or astrophysicist. In less than 20 pages, it gives a brief history of the subject, summarizes the reasons for studying nonradial oscillations in stars, discusses the kinds of objects in which nonradial oscillations are suspected and some of the physics involved, and gives some inkling of the mode classification problem and its difficulties.

Chapter 3, on adiabatic oscillations, gives an excellent and thorough discussion of "trapping" of nonradial oscillations in certain portions of a stellar interior. The concept of trapping is relatively new and was first applied to nonradial oscillations in stellar interiors by Unno and Osaki. The chapter also contains a good, thorough discussion of boundary conditions; surface boundary conditions are also considered in chapter 4.

A number of specific features of the book are attractive. Particularly welcome to this reviewer were three helpful drawings illustrating spherical harmonics for various values of ℓ and m, a detailed application of perturbation theory to slow rotation and a weak magnetic field, the application of perturbation theory to a general small perturbing force, a detailed and careful treatment of the ϵ-mechanism, and an analysis of the one-zone model of fully nonadiabatic oscillations. This reviewer also found useful the physical derivation of an equation expressing the growth rate of the most unstable modes as a function of surface gravity and effective temperature and discussions of the stability of rotating stars and of tidal forced oscillations in stars. There are even brief discussions of the Lin-Shu density wave theory of spiral galaxies and of toroidal modes.

There appears to be little on the debit side. However, a few criticisms should be mentioned. Perhaps of most importance is the attempt to include a discussion of the interaction between pulsation and convection. The subject is discussed at some length, but the conclusions and equations derived are not especially convincing. Our theoretical understanding of convection (particularly time-dependent convection) is in a rudimentary state, as the authors admit. One therefore wonders about the advisability of trying to discuss the subject in detail. There is little in the book about either nonlinear effects in general or about mode coupling in particular.

The book is an excellent complement to the encyclopedia article written in 1958 by Ledoux and Walraven and should become a standard reference on nonradial oscillations in stars.

JOHN P. COX

Joint Institute for Laboratory Astrophysics, University of Colorado and National Bureau of Standards, Boulder 80309

Books Received

Accessory Glands of the Male Reproductive Tract. E. S. E. Hafez and Elinor Spring-Mills, Eds. Ann Arbor Science, Ann Arbor, Mich., 1979. xii, 304 pp., illus. $30. Perspectives in Human Reproduction, vol. 6.

The Acquisition of Reading. Cognitive, Linguistic, and Perceptual Prerequisites. Papers from a symposium, Newark, Del., June 1975. Frank B. Murray and John J. Pikulski, Eds. University Park Press, Baltimore, 1979. xiv, 178 pp. $14.50.

Basic Electronics. Devices, Circuits and Systems. Michael M. Cirovic. Reston (Prentice-Hall), Reston, Va., ed. 2, 1979. xviii, 568 pp., illus. $19.95.

Basic Set Theory. Azriel Levy. Springer-Verlag, New York, 1979. xiv, 394 pp. $24.90. Perspectives in Mathematical Logic.

Computer Graphics in Archaeology. Statistical Cartographic Applications to Spatial Analysis in Archaeological Contests. Steadman Upham, Ed. Arizona State University Department of Anthropology, Tempe, 1979. vi, 156 pp., illus. Paper, $8.50. Arizona State University Anthropological Research Papers No. 15.

Convex Analysis and Mathematical Economics. Proceedings of a symposium. Tilburg, The Netherlands. Feb. 1978. Jacobus Kriens, Ed. Springer-Verlag, New York, 1979. vi, 138 pp., illus. Paper, $9. Lecture Notes in Economics and Mathematical Systems, vol. 168.

Countertransference and Related Subjects. Selected Papers. Harold F. Searles. International Universities Press, New York, 1979. xii, 626 pp. $27.50.

The Coyote. Defiant Songdog of the West. François Leydet. University of Oklahoma Press, Norman, 1979. 224 pp., illus. Paper, $5.95. Reprint of the 1977 edition.

A Cross-Cultural Study of Cognitive Development. Jerome Kagan, Robert E. Klein, Gordon E. Finley, Barbara Rogoff, and Elizabeth Nolan. Published for the Society for Research in Child Development by University of Chicago Press, Chicago, 1979. iv, 84 pp. Paper, $4.50. Monographs of the Society for Research in Child Development, vol. 44, No. 5, Serial No. 180.

Energy. The Countdown. A Report to the Club of Rome. Thierry de Montbrial with recommendations by Robert Lattés and Carroll Wilson. Pergamon, New York, 1979. xiv, 256 pp. Cloth, $30; paper, $10. Pergamon International Library.

The Energy Controversy. Soft Path Questions and Answers. Amory Lovins and his critics. Hugh Nash, Ed. Friends of the Earth, San Francisco, 1979. vi, 450 pp. Cloth, $12.50; paper, $6.95.

Energy in America's Future. The Choices

(Continued on page 316)