erate variation in the induced response. This variation might be enough to cause one to despair that induction could ever be successfully understood. A number of chapters in this volume provide detailed accounts of how the authors either did or did not successfully traverse this obstacle course of variability. Two chapters (Coleman and Jones, Faeth) provide general reviews of major causes of variation that deal with plants and affected herbivores. Coleman and Jones found that about two-thirds of the studies they reviewed showed some evidence of induced resistance, but what they found most striking was the lack of control for a wide range of plant variables that are known to affect induced responses. In particular, plant genotype was neither manipulated nor controlled in most studies. Several chapters (Coleman and Jones, Hartley and Lawton, Faeth) stress that different herbivores can respond very differently to induced plant responses; some herbivores can even benefit from induction (Tallamy and McCloud). The message that I take away from this book is that to determine whether induced responses of plants are defensive, a combined understanding of the physiology of the host plant, of the role of genetic and various environmental variables, and of the responses of different species in the herbivore and pathogen community will be required. Together the chapters of this volume call for a new high standard of experimental control for future induction studies.

The chapters in this volume are mixed in their effectiveness. A sharper editorial pen would have improved the reasoning in a couple of chapters and would have shortened others. These faults do not take away from the importance of this book as the new starting place for researchers beginning to work on induction, however. It is a valuable reference and source of some unanswered questions.

Robert Fritz
Department of Biology,
Vassar College,
Poughkeepsie, NY 12601

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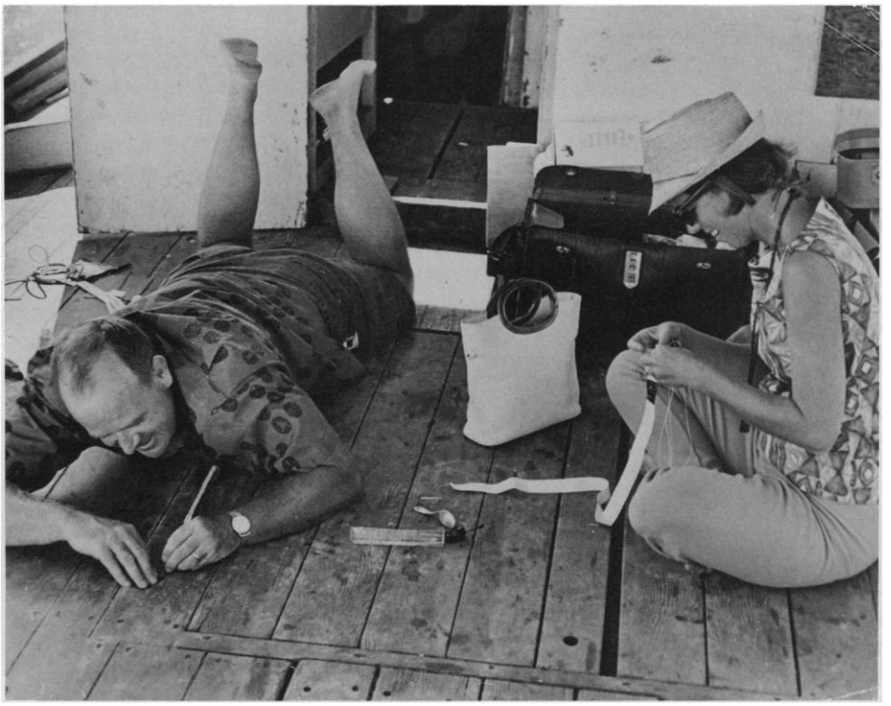
Marine Subjects

Dolphin Societies. Discoveries and Puzzles. KAREN PRYOR and KENNETH S. NORRIS, Eds. University of California Press, Berkeley, 1991. viii, 398 pp., illus. $34.95.

Cetaceans and their adaptations to an aquatic medium are unique among mammals. Furthermore, the animals are notoriously hard to observe, either directly or



"Early days of dolphin research. Editors Kenneth S. Norris and Karen Pryor on the deck of a fishing boat in Hawaii in 1966, creating an instrument belt for a trained dolphin to wear during open ocean diving tests. Odds and ends from the hardware store were used to make a belt with a rachet on it, which was supposed to measure how much the animal's chest compressed during a dive. Unfortunately, the dolphin got so much smaller in circumference, even during relatively shallow dives, that it usually came back with the belt around its tail." [From *Dolphin Societies*; photo by Harry Grodzhinsky for *Life* magazine]

with instruments. Hence compilations of work on the group are eagerly awaited, especially when they come, as this one does, from well-established workers in the field.

Rather than offering a thorough review of current work on dolphins, the editors here present a selection of what they consider to be pivotal studies woven together by informative essays on the development of this field. Their stated purposes for compiling this work are to inspire readers with the inventiveness of dolphin study methods, demonstrate the value of studying captive dolphins, and generally dispel various popular myths and misconceptions about both dolphins and dolphin research.

The book has three main sections, devoted respectively to studies of dolphins in the wild (seven chapters), analysis of teeth in the laboratory (two chapters), and studies in captivity (four chapters). Of the 13 data-oriented chapters, six present previously unpublished material and seven are new reviews of work already in the literature. Each section has one or more essays by the editors. There is no general summary in which the results are welded together into a unitary view of dolphin life.

The book clearly shows the difficulty of studying these mammals and the dedication of those who do it. Bel'kovich studied dolphins from horseback; Pryor and Schallenberger dove among dolphins captured in tuna purse seines, calmly quantifying social structure while lookouts protected them from sharks; Wells dedicated 20 years to studying a single population and concludes that it is still not possible to describe the mating system.

Three of the chapters deserve special mention because they suggest promising directions for the field in the near future. Würsig *et al.* describe a study that compares social structure of two dolphin species in both shallow- and deep-water environments in a kind of two-by-two analysis. This work shows the power of the comparative method to reveal broad-scale adaptations within a family. Wells's chapter shows that when studies do focus on single species a diversity of approaches yields the greatest in-depth information. His group links behavioral observation with selective captures to collect data on age, sex, hormone levels, and genetic markers. This approach produces more data on herd social dynamics, kinship, and survival than any other approach has. Finally, Herman's chapter on cognition and information processing shows the value to cetacean studies of applying principles developed in other disciplines, in

this case comparative psychology. Other cetacean studies seem parochial in comparison to his. Herman offers a telling comparison between aquatic and terrestrial mammals and simultaneously proves the editors' assertion that dolphin truth is more alluring than myth.

A prominent feature of the book is that it addresses several audiences at once using two distinct writing styles. The editors' essays are written in a manner that directs them squarely at the lay audience, whereas virtually all the other authors have written in journal style for a professional audience. There is a concomitant disparity in how results are interpreted. The authors of data chapters interpret their results for other scientists, that is, in the most parsimonious manner possible. The editors interpret these same results for lay readers in a freer, speculative vein. In one instance, writing about Marsh and Kasuya's fascinating chapter on the life cycle of female pilot whales, the editors indulge in the very speculation the authors specifically caution against. There is a certain irony here in that speculation on the results of others is what the editors credit with having created the dolphin myth in the first place.

Of all the audiences addressed, this book may best satisfy beginning marine mammal biologists and general scientists who are looking for a broad perspective on modern dolphin research. Cetacean specialists will already be familiar with over half its contents and will cite other books in preference to this one. Lay readers may become lost in the jargon, statistics, and writing style of the data chapters and thereby miss the larger points about dolphin research that the editors hoped to convey. For all who read it carefully, the book offers a tantalizing cross-section of adaptations within the dolphin world and raises a satisfying number of unanswered questions.

Roger L. Gentry
National Oceanic and Atmospheric Administration National Marine Mammal Laboratory, Seattle, WA 98115–0070

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Some Other Books of Interest

Teleconnections Linking Worldwide Climate Anomalies. Scientific Basis and Societal Impact. MICHAEL H. GLANTZ, RICHARD W. KATZ, and NEVILLE NICHOLLS, Eds. Cambridge University Press, New York, 1991. x, 535 pp., illus. $54.50.

In keeping with the modern communication age, which has made us ever more aware of unusual happenings in all parts of the globe, meteorologists have coined the word "teleconnection" to describe families of related climatic phenomena at far-spread locations. This book is a collection of 17 self-contained papers dealing with the geophysical, ecological, and human dimensions of "teleconnected" climate perturbations in various geographical regions. One unifying theme of the volume is the teleconnection complex known as El Niño–Southern Oscillation (ENSO), the strong coupling between temperature changes in the surface ocean water off the Peru-Ecuador coast (El Niño episodes) and oscillations in the east-west gradient of atmospheric pressure across the South Pacific Basin. This phenomenon has a distinct cyclic character, with typical periods of several years. The reader will learn how the strong ENSO episodes are linked with droughts and food shortages in India, Australia, China, and Brazil, as well as how snow cover over the Eurasian land mass, the Asian monsoon, and Atlantic hurricanes might fit into this teleconnection. Also documented are the effects of ENSO events on the yield of cereal crops and the well-being of various exotic marine creatures in Australia, the population of anchoveta in the southeastern Pacific, and shrimp landings in the Gulf of Mexico. Efforts of various governments to alleviate the associated hardships through agricultural reforms and improved long-range forecasting are also described. Lest the reader gain the impression that ENSO is to be blamed for every possible climate calamity, one chapter points out that rainfall variability in certain locations, such as Morocco and the Sahel region of Africa, is most likely related to other teleconnections. The book is targeted at a general audience. With the exception of the two chapters on theory and statistical methods the text has a strong empirical and descriptive flavor and includes an abundance of charts and drawings, as well as historical anecdotes that make for entertaining reading. For readers who desire to pursue the subject at a more technical level there are extensive and up-to-date bibliographies at the ends of the chapters.

—Ngar-Cheung Lau, Princeton University

Glass. Nature, Structure, and Properties. HORST SCHOLZE. Springer-Verlag, New York, 1991. xiv, 454 pp., illus. $98. Translated with revisions from the German edition (Berlin, 1988) by Michael J. Lakin.

This work by the late Horst Scholze is intended to provide a unified overview of the subject for engineers and scientists who are concerned with glass. However, it has value for any researcher who desires an overview of the fundamentals of glass science and technology and for students of the field. The book's introduction covers the basic phenomenology of crystallization and vitrification and gives a detailed review of each of the major types of glass. The main text is divided into two major chapters. The first, divided into six subsections, discusses the nature and structure of glass. The second, which consists of nine subsections, covers viscosity, thermal expansion, and density and includes large sections on optical and mechanical properties. It also reviews electrical properties, surface tension, the technologically important subject of chemical resistance, and finally thermal properties. The author's primary interest in glass as a technological material is readily apparent, but he gives ample coverage to the structural and theoretical aspects of the glassy state. The discussion of each topic is thorough and shows an impressive understanding of the material, and each also includes a pleasant historical perspective and, in most instances, an up-to-date account of new developments. However, computer-simulation investigations, which have recently provided much structural insight, receive little attention. On the whole, Scholze's book should provide an excellent source of information on glass in all its aspects. The author has read, digested, and organized a vast amount of literature (more than one thousand references are cited), and the result is a valuable overview of the whole field.

—C. A. Angell, Arizona State University

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Books Received

Advances in Coal Spectroscopy. Henk L. C. Meuzelaar, Ed. Plenum, New York, 1992. xx, 416 pp., illus. $85. Modern Analytical Chemistry.

The American Atom. A Documentary History of Nuclear Policies from the Discovery of Fission to the Present. Philip L. Cantelon, Richard G. Hewlett, and Robert C. Williams, Eds. 2nd ed. University of Pennsylvania Press, Philadelphia, 1992. xvii, 369 pp. $39.96; paper, $16.95.

Behçet's Disease. Basic and Clinical Aspects. J. Desmond O'Duffy and Emre Kokmen, Eds. Dekker, New York, 1991. xii, 679 pp., illus. $175. Inflamatory Disease and Therapy, vol. 8. From a conference, Rochester, MN, Sept. 1989.

The Bone Hunters. The Heroic Age of Paleontology in the American West. Url Lanham. Dover, New York, 1992. xiv, 285 pp., illus. Paper, $5.95. Reprint, 1973 ed.

Children in Poverty. Child Development and Public Policy. Aletha C. Huston, Ed. Cambridge University Press, New York, 1992. x, 331 pp., illus. $44.50. From a conference, Lawrence, KS, June 1988.

Computational Aspects of the Study of Biological Macromolecules by Nuclear Magnetic Resonance Spectroscopy. Jeffrey C. Hoch, Flemming M. Poulsen, and Christina Redfield, Eds. Plenum, New York, 1991. x, 464 pp., illus. $115. NATO Advanced Science Institute Series A, vol. 225. From a workshop, Il Ciocco, Italy, June 1990.

Directions in Electromagnetic Wave Modeling. Henry L. Bertoni and Leopold B. Felsen, Eds. Plenum,