

I find it interesting that this book and one by Mann and Lazier (2), which together formulate "modern" biological oceanography, were both written by scientists who spent a significant portion of their careers at the Bedford Institute of Oceanography in Nova Scotia. What attribute of that environment stimulated these authors? Certainly not the snow, fog, and mud, I presume.

Ecological Geography of the Sea is based upon the inseparability of physical environments and the biological communities and processes that occur within them. Its elaboration of this major theme provides another reminder of the earlier synthesis by Sverdrup, Johnson, and Fleming (who noted that marine ecology "must be based in part on data which provide a reliable picture of ocean currents both locally and in general"). Longhurst has provided the intellectual successor to *The Oceans*; his synthesis will be used in biological oceanography for a very long time. It is an inspiring, "I wish I could have done it," book.

References

1. H. U. Sverdrup, M. W. Johnson, R. H. Fleming, *The Oceans* (Prentice-Hall, Englewood Cliffs, NJ, 1942).
2. K. H. Mann and J. R. N. Lazier, *Dynamics of Marine Ecosystems* (Blackwell Science, Cambridge, MA, 1996).

BOOKS: BIOETHICS

Choosing to Favor Animals

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One of society's more contentious debates concerns its use of animals. In recent years, a number of people have entered the fray as adjudicators between those who would stop research involving animals and the scientists who believe animal research is necessary for medical progress. *The Human Use of Animals* was written by five such individuals to promote discussion of the ethical issues related to animal welfare.

The authors come from different disciplines: physiology, philosophy, law, veterinary medicine, and psychology. They cover a variety of subjects, including Santeria sacrifice and modern agricultural practices, in 17 chapters, but emphasize questions arising

from biomedical research. Readers new to the issues may assume it is balanced. The knowledgeable reader, though, will detect a distinct tilt toward what I surmise to be the core belief of at least some of the authors: Use of animals to benefit humans is morally wrong. A strong statement, but examine the evidence that this premise underlies much of the discussion in the book.

The first chapter, a primer on ethics and "moral issues about animals," forms the heart of the book. It begins by segueing from a 16th-century debate between two Spaniards on whether American Indians were human to the authors' statement, "Many believe that today's debates about human-animal interactions are fundamentally similar." It ends with quotes from neurosurgeon Robert White (a long-time target of animal rightists), who (quoting the authors) "believes that including non-human animals in our ethical system is a 'philosophically meaningless' ambition." Although White is presented as an extremist, his papers reveal a humane physician who holds that humans are special in comparison to animals, which is certainly not an extreme view. In the intervening pages, the authors consider questions about the validity of drawing sharp distinctions between humans and other animals.

The authors seem to give little consideration to all the ways that humans can rightfully claim significant differences from the rest of the animate world. Yet reasons abound for taking pride in being human and feeling worthy of special consideration. We are the only species to care for other species, or for our brain-damaged children for that matter. It is humans who have eliminated or alleviated the miseries of many animal diseases (as well as our own afflictions), and we are the hope for future advances.

I cannot leave this key chapter without also noting that the authors exhibit a remarkable inconsistency in demanding rigorous, scholarly defense of claims from scientists, while not displaying the same standards themselves.

Note 70 announces their search of "every available database" found nothing documenting claims that "too much clinical experimentation with humans occurs prior to scientific animal studies." Yet the chapter (and book) is awash with off-the-cuff, unsubstantiated statements. For example: "In the scientific literature, there is a tendency to assume that animals have different forms of pain per-

ception and cannot anticipate or remember pain—and therefore suffer less than humans." Have the authors not heard of conditioned aversion?

Most of the case studies are presented with an obvious slant against animal use. In one chapter, the University of Pennsylvania's Head Injury Research Laboratory, raided by the Animal Liberation Front (ALF) in 1984, is treated with the same unbalanced, scientifically uninformed bashing it has received in the animal-rights literature for 15 years. One learns little not found in literature from People for the Ethical Treatment of Animals (who handled ALF's publicity) and almost nothing to put the research in a medical context. I could find no consideration of what is, to me, the key question: Can one ethically choose to injure a limited number of baboons in efforts to solve the awful problems of severe head injuries (which, in the United States, occur every 15 seconds and lead to a death every 5 minutes)?

The authors' choices and presentations of individual cases frequently seem bent on portraying the use of animals in the worst light possible. The diverse issues of wildlife research are illustrated only with discussion of one bizarre case: A graduate student killed an out-of-range bird for collection and study by (non-sportingly) enticing it out of a national park with recordings of its voice. Are the authors leading the reader toward negative views of museum collecting by stating at the chapter's end that the vagrant vireo's skin lies untouched in a museum case and that no published report of the collector's research could be found? The vast and important field of aggression research is treated in similar fashion, with a focus on one experiment involving infanticide in mice. Is this to make it easier to exploit the readers' emotions? The discussion of ethical issues in pet ownership is restricted to tail docking of dogs, and is introduced with an obviously inhumane act by an untutored layperson.

Some subjects are more fairly treated. Harry Harlow's monkey experiments and their significance for understanding primate social development are described as accurately as I have seen. The ethical questions the authors raise seem quite appropriate to me. A chapter (which should have been the book's standard) on Santeria sacrifice addresses the difficult question of balancing religious freedom with legal and community standards in a measured, informed manner. Although good questions are asked throughout the book, too often they are presented in a leading fashion. One question remains: Should a book designed to foster ethical reflection push so obviously in one direction?

The Human Use of Animals Case Studies in Ethical Choices

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