Book Reviews

The Ethology of Homo sapiens

Man and Beast. Comparative Social Behavior. Papers from a symposium, Washington, D.C., May 1969. J. F. EISENBERG and WILTON S. DILLON Eds. Smithsonian Institution Press, Washington, 1971. 402 pp., illus. $11.50. Smithsonian Annual 3.

Ethology is commonly defined as the biology of behavior. In contradistinction to psychology, however, it might be called the evolutionary biology of behavior. In *Man and Beast* evolutionary biology in its broadest and most modern sense is applied to man's behavior. The contributions are written by specialists, but they all seem to have taken pains to present their subjects in a style that is more readable than their usual technical papers. Most of the authors avoid the extremes of popularizing and dramatically one-sided claims which characterize the well-known best-selling books on the subject.

The range of subjects that are competently surveyed is greater than could be covered by any single author, and starkly opposing viewpoints are included. Yet the book suffers less than might be expected from the lack of organization that characterizes group-authored volumes. This benefit seems to stem from careful planning of the conference and an editorial prologue (by Eisenberg) to each section.

The contributions are grouped to relate to four main questions. The first asks, "What are the biological bases for social behavior?" Answers are attempted on three levels, population genetics, neurobiology, and development. W. D. Hamilton explains some fascinating implications of his theoretical formulations on the genetic and evolutionary bases of aggressive and altruistic behavior. D. Ploog presents a brief but inclusive account of the neural basis of social behavior in a selected primate, the squirrel monkey, in which he summarizes a large amount of experimentation on the primate brain, much of it done in his laboratory. The nature-nurture problem is explained once again for the benefit of those few poor souls who still are either confused or narrow-mindedly one-sided about it. Apparently one of the contributors must be included in this group, for he implies the existence of a nature-nurture dichotomy, perhaps unconsciously, as follows: "Explanations in terms of . . . instincts are no longer satisfactory. And if we are prevented from relying on such traditional answers, we immediately turn to experiential factors, such as learning and reinforcement."

The second question is "What are the basic mechanisms of social behavior in animals and man?" The answering essays concentrate on describing various types of competitive and cooperative behavior in a variety of animals, mostly primates, and on explaining their evolutionary and developmental history. E. O. Wilson presents a stimulating and ecologically sophisticated discussion of competitive and aggressive behavior in social species. His redefinition of territoriality should be useful to both ethologists and ecologists: "Territory is an area occupied more or less exclusively by animals or groups of animals by means of repulsion through overt defense or advertisement." J. H. Crook surveys cooperation in primates and finds its developmental and evolutionary origins in kinship groups and competition for various social roles in the group. H. Kummer describes spacing patterns and processes in selected primates. A theory of development of social attachment through "mere repeated exposure of an individual to a given stimulus object" in animals including man is advanced by R. B. Zajonc.

Question three is the old familiar "Is man unique?" The usual answers are reiterated and discussed with style, gusto, and sophistication. R. Fox brings a fervor worthy of a Bible-belt preacher to his sermon that man's uniqueness is explicable in the same way as the uniqueness of every other species, namely, through natural selection. I. DeVore uses material on ecology and behavior of nonhuman primates to sketch some probable features of australopithecine life. S. K. Langer, in contrast, "has tried to show how deep the division between beasts and men goes." She describes what might be conceived as a boundary line between them and how it was crossed. I am no more convinced by her 15 pages of jargon and definitions than I would be by someone who tried to explain to me precisely where on a continuum of grays the boundary line between black and white lay. Ethologists might be amused by her scathing charge that they are guilty of "scientific malpractice" in the use of terms. They might also be taken aback by her arguments that "speech is not derived from animal communication" and that practically nothing directly applicable to man can be learned from studying animal communication. J. Jaynes and M. Bressler caution us that popularized ethology is full of pitfalls and they attempt to show us how the job of relating man to nonhuman primates should be done by the use of various "universals."

For readers at the level to which it is directed, somewhere between the intelligent layman and the professional ethologist, *Man and Beast* should be valuable. Perhaps it will also find appreciative readers among social scientists and others who are attempting to weave ethological concepts into the fabric of their work with *Homo sapiens*.

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Chemical Zoology

Communication by Chemical Signals. Papers from a meeting, Auburn, Mass., June 1968. JAMES W. JOHNSTON, JR., DAVID G. MOULTON, and AMOS TURK, Eds. Appleton-Century-Crofts, New York, 1971. xii, 472 pp., illus. $21. Advances in Chemoreception, vol. 1.

This book should impress on the reader that chemical communication is ubiquitous in the animal world. Attention is focused on insects, fish, and reptiles. A penetrating analysis by Burghardt of definitions of "communication" in an early chapter dispels at least some of the semantic confusion that is inevitably generated when an international group of specialists attempts to integrate new information in their fields—which in this case include insect physiology, mammalian