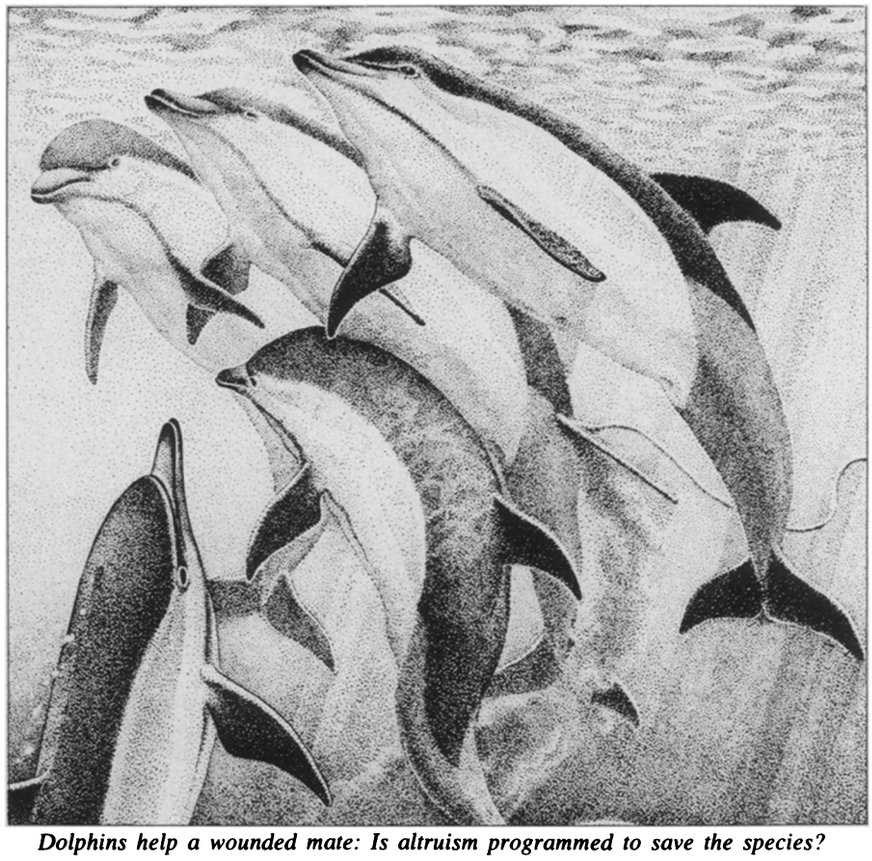
Taking Stock of Sociobiology

Credits, Debits & Future Accounts

Is it a 'coffee table piece' or 'the founding book for a new field'? Probably both. But observers agree, it will lead to a newer synthesis.

BY JANET L. HOPSON



Dolphins help a wounded mate: Is altruism programmed to save the species?

Edward O. Wilson's *Sociobiology: The New Synthesis* (Harvard University Press, $20), out for several months now, has produced states of mind ranging from "ecstasy" to "high dudgeon" in reviewers of the book. It has been called "ambitious." "prophetic," "magnificent" and everything from a "coffee table piece" to "a nice textbook" to "the founding book for a new field." The most common label given it by sociobiologists and others in adjacent fields is "important." Wilson has synthesized facts and theories from several disciplines into an important set of principles for understanding social instincts in living communities and for gaining a perspective on human behavior. But, his colleagues agree, this new synthesis by no means wraps up the subject in a neat package. It will, more likely, set off a scientific shopping spree.

"Here is a prophetic book," says zoologist Peter Marler of Rockefeller University, "which presents a completely novel synthesis of present data on the biological basis of social behavior. Neither Wilson, nor anyone else, has worked out all of the details of how social behavior relates to genetics—particularly human behavior and human genetics. But it is likely, I think, to catalyze a fertile climate for working out those details."

Wilson explains that the "new synthesis" combines traditional facts and ideas about social behavior from psychology and ethology with the principles of genetics and ecology. In so doing, he and other sociobiologists search for the baseline, inheritable traits that mold individual societies and the biological commonalities that underlie all societies.

The first part of *Sociobiology* discusses modern evolutionary theory and its relationship to social evolution. It is here that Wilson outlines the now widely discussed theories of kin selection and altruism. ("Kin selection" is the theory that an individual's fitness is measured not just by his own reproductive success and survival but by the contributions he makes to the success of his "kin," those who share some of his genes. These contributions, these self-sacrificing deeds, are called "altruism.") Altruism, Wilson says, is the central question in sociobiology. Because if one cannot explain the evolution—the genetic retention—of the tendency for self-destructive, altruistic deeds, "it is difficult to incorporate social behavior into the rest of biology."

The book's second part reviews the social mechanisms that have evolved to deal with environmental pressures—communication, aggression and dominance systems, for example. And the third section examines societies throughout the animal kingdom, presenting anecdotes and fascinating descriptions of social behavior among the colonial microorganisms, insects, amphibians, reptiles, birds and mammals.

While the book has received, in Wilson's words, an "overwhelmingly favorable response," there have been exceptions and criticisms. Perhaps the most common criticism from other sociobiologists is that Wilson, himself a specialist in insect social behavior, must stretch sociobiological theories a bit to include both vertebrates and nonvertebrates. "Wilson," says Northwestern University psychologist Donald T. Campbell, "lumps vertebrates and social insects together much of the time, but the most fanatically extreme cases of altruism, for example, always come from the social insects. I myself," he says, "would draw a great deal more contrast between the two groups." Wilson acknowledges that the research linking genetics and ecology and vertebrate social behavior has not been as

Sarah Landry, from *Sociobiology*, permission of Edward O. Wilson

Honeybees: Fanatically extreme altruism.

conclusive as insect studies and needs great expansion. But he says, "Although I am an entomologist, I had the help of some of the best vertebrate specialists while I studied and wrote the book, and for that reason, I am reasonably confident about the treatment of both groups."

What is, at least to this social creature, the most interesting application of the new synthesis, has led, not surprisingly, to the most vocal criticisms. Where sociobiological theories can be tested and proved, "they will," Wilson writes in the Oct. 12 NEW YORK TIMES MAGAZINE, "at the very least, provide perspective and a new sense of philosophical ease about human nature." As basic, instinctual human patterns emerge, and are viewed in the context of sociobiology, behavior that was once thought "aberrant" or "antisocial" begins to appear not so.

Two cases in point are human homosexuality and aggression. Homosexuality is often viewed as a genetic dead end (no progeny) and therefore unnatural. "But," Wilson writes, "homosexuals can replicate genes by kin selection, provided they are sufficiently altruistic toward kin." This theory, although unsupported by scientific evidence at this point, "should give us pause before labeling homosexuality an illness." Human aggression, too, when compared to the social aggression of, for example, hyenas, lions and langur monkeys, can be exonerated. These animals engage in lethal fighting, infanticide and cannibalism at a much higher rate than humans. "When a count is made of the number of murders committed per thousand individuals per year, human beings are well down the list of aggressive creatures," Wilson says.

Some observers, however, are apparently not comfortable with the sociobiological perspective. "A relatively small group," Wilson says, "which one would identify as the radical left," are unhappy with discussions of the genetic basis of human behavior. They believe that all human variations are due to social and cultural influences, he says, and they fear the consequences—social, cultural and political—of investigations into the genetic determinants of human behavior.

A few of Wilson's professional colleagues are, in fact, planning to issue a formal refutation to the implications *Sociobiology* draws for understanding human behavior. The group, loudly critical in the past of XYY testing and other genetics/behavior studies (SN: 2/8/75, p. 87), includes Richard Lewontin, Stephen Jay Gould and Jonathan Beckwith of Harvard, Anthony Leeds of Boston University, Stephan Chorover of Massachusetts Institute of Technology and John Vandermeer of the University of Michigan.

Campbell takes a similarly cautious approach to the possible genetic basis of human behavior, but bases his criticisms more on methodology than politics. In the December AMERICAN PSYCHOLOGIST he writes: "Without giving a single personality test or even evaluating any systematic behavioral observations, these population geneticists are willing to talk about characteristics of species 'personality,' using terms like altruism, coyness, spite, jealously, selfishness, deceitfulness, greediness, cooperativeness, etc., with the explicit assumption that there are specific genes determining these traits." This is a source of speculation, he says, that psychologists and psychiatrists should pay close attention to.

Wilson feels the criticisms themselves make certain assumptions about human behavior and sociobiological theories. "What we are talking about," he told SCIENCE NEWS, "are the human-specific traits. Almost no one will deny that human social patterns are distinct from those of the hamadryas baboon or the ring-tail lemur. And what we are saying is that this *pattern* of tendencies is inherited." Among these, he says, are the capacity for culture, the drive to form true, semantic language, the avoidance of incest, the uniquely human facial expressions, the formation of monogamous bonds and division of labor by sex and certain types of aggression and territoriality.

"The significant question," Wilson says, "is how much of the individual variation within these set patterns is due to differences in the genes and how much is culturally based. Almost everyone agrees that most, perhaps all, of this individual variation is culturally based. When you see this," he says, "it makes sense to talk about the genetic evolution of basic social behavior."

One runs the risk of misrepresenting the consensus view by focusing, however briefly, on critics and criticisms. Harvard sociobiologist Robert L. Trivers represents, more nearly, that consensus view. "Is *Sociobiology* weighted toward the insects? Yes, a little. Wilson built upon his own superb book on insect behavior. But he has produced another superb book, this time broader. Is there a genetic basis to human behavior? I suspect yes. By the 23rd century, we will probably have discovered exactly which are the genetic contributions and which are the cultural ones."

But neither of these points, Trivers says, is central. The field of sociobiology is all of about 10 years old and a long way from saying much of anything right now. What Wilson has done is to set up a dialogue and a direction that should guide social behavioral research toward some future new synthesis. □

MASS MEDIA INTERN PROGRAM

The American Association for the Advancement of Science announces a program permitting up to 15 advanced social and natural science graduate students to spend the summer of 1976 as intern reporters, researchers or production assistants in a variety of media. Interested students should contact William A. Blanpied, AAAS, 1776 Massachusetts Ave., NW, Wash., D.C. 20036