SOCIOBIOLOGY AND POLITICS


The subject-matter of sociobiology is as old as life on the planet, but its approach is as new as the current generation. Its focus is on the micro unit of heredity—the gene—but its scope encompasses nearly every facet of life. The form of life that it has probably treated most scientifically and systematically is the social insect, but it threatens, in its own words, to "cannibalize" those disciplines that presently encompass the social sciences. Whatever the legitimacy of these claims of sociobiology may be, the political scientist must prepare himself to confront them; it is his own field that is among those threatened with extinction.

Sociobiology traces its intellectual ancestry to Charles Darwin, but its name, its systematic exposition, and its wider and controversial recognition awaited the publication in 1975 of the monumental synthesis by that name by Edward O. Wilson. How much the term if not the approach is uniquely Wilson's can be seen by the fact that in the following year, Richard Dawkin's *The Selfish Gene,* covering some of the same ground, mentions the term "sociobiology" and, for that matter, E. O. Wilson, only when referring to the title of Wilson's volume and that by way of a critique. To this I shall return later but, as a convenience, will employ "sociobiology" as a term covering the approaches taken in all three works to be reviewed.

The most important concept that sociobiology takes from Darwin is that of natural selection: the notion that the environment favors the survival and successful reproduction of some organisms as against others—with the presumption that the individual differences which

---

1 E. O. Wilson, *Sociobiology: The New Synthesis* (Cambridge, Mass.: The Belknap Press of Harvard University, 1976). All references to Wilson, unless otherwise specified, are to this work.
2 D. P. Barash, *Sociobiology and Behavior* (New York: Elsevier, 1977). All references to Barash, unless otherwise specified, are to this work.
3 R. Dawkins, *The Selfish Gene* (New York: Oxford University Press, 1976). All references to Dawkins, unless otherwise specified, are to this work.
are involved have an important genetic component. The characteristics which may be selected for and which may have a genetic basis include the behavior of the organism; thus Darwin, in explicitly recognizing this possibility, became, in effect, the father of ethology, the study of animal behavior within the context of natural selection and the evolutionary process.

The recognition that the gene was the particulate unit of heredity was Mendel's and not Darwin's and did not become incorporated into Darwinian evolution until the advent of the present century. This marriage of Mendel and Darwin, the modern synthetic theory of evolution, made possible as well the later union of ethology with the field of population genetics, that is, the study of the statistical frequencies of various genes in animal populations and the change of those frequencies over time, the latter development encompassing the evolutionary process.

The immediate cause of the union of ethology and population genetics—out of which came sociobiology—was the publication in 1962 of Wynne-Edwards' *Animal Dispersion in Relation to Social Behavior*. Wynne-Edwards argued that individual animals deliberately reduced their own birth rates for the good of the group as a whole. Thus, Wynne-Edwards argued for group selection as the mechanism for evolutionary change. As Dawkins characterizes it, "a group, such as a species or a population within a species, whose individual members are prepared to sacrifice themselves for the welfare of the group, may be less likely to go extinct than a rival group whose individual members place their own selfish interests first. Therefore, the world becomes populated mainly by groups consisting of self-sacrificing individuals" (p. 8).

The most obvious problem for group selection was in showing how organisms which restricted their reproduction would be selected for against organisms which did not. Hence, the question which, according to Wilson, constitutes "the central theoretical problem of sociobiology: how can altruism, which by definition reduces personal fitness, possibly evolve by natural selection?" (p. 3).

Almost in the very nature of things, would not the more selfish organism also more successfully reproduce? If so, would not there-

---

5 Fitness need not conform to any social-Darwinian sense of "survival of the fittest," but merely to the relative increase (or decrease) in the frequency of a genotype in succeeding generations.
fore individual selection, not group selection, constitute the basic mechanism of the evolutionary process? And yet even opponents of group selection had to admit that some behavior appears self-sacrificing or altruistic, most clearly in the case of the mammalian mother and her concern for her offspring but also recognizably in such cases as warning calls by one animal to others in a group. How does one explain such apparent examples of altruistic behavior while at the same time rejecting group selection?

In the immediate section I shall examine one possible response which is common to all of these works and which indeed, if valid, constitutes the distinctive contribution of the new sociobiological literature to contemporary biology. I shall then proceed to consider each of these works in turn; following which I shall explore the ways in which they differ as well as conform in their approach. A general critical assessment will then be attempted. I shall conclude by considering the larger ideological and political questions that are raised by the works, including the relevance of their approach to the study of politics.

I. Basic Principles of Sociobiology

Those rejecting the theory of group selection substituted the gene as against either the group or the individual as the unit of natural selection. The evolutionary process thus becomes viewed from the perspective of the gene, and all life becomes understood as the result of the effort to survive of the genetic units which are contained on the long nucleotide chain of the DNA molecule.

"Samuel Butler's famous aphorism," Wilson writes, "that the chicken is only an egg's way of making another egg, has been modernized: the organism is only DNA's way of making more DNA" (p. 3). Dawkins is even more succinct: "A body is the gene's way of preserving the genes unaltered" (p. 25). Therefore, Dawkins asserts, we humans "are survival machines-robot vehicles blindly programmed to preserve the selfish molecules known as genes" (p. ix).

The "selfish" gene makes possible, however, the altruistic individual. To understand this possibility, we should understand first what Barash terms "the Central Theorem of Sociobiology": "When any behavior under study reflects some component of genotype [i.e., is genetically influenced], animals should behave so as to maximize their inclusive fitness" (p. 63), inclusive fitness being defined as
"their net genetic representation in succeeding generations, including other relatives in addition to offspring" (p. 81).

To understand "the central theorem," one must keep in mind that from the perspective of the gene, the survival of the gene—not the individual and not the group—is paramount. If, however, a number of individuals are closely related, they necessarily share a number of genes in common. A child, for example, receives half of his genes from each of his parents and will, on the average, share half of his genes with each of his siblings. Thus if a parent or even one of the children in a four-member family sacrificed his life to save the remaining three members (say, from a burning house), the sacrifice, from the perspective of the gene, would be more than justified: the cost benefit ratio is a net plus since more of the same genes survive than would be the case if no self-sacrificing act on the individual level were attempted. The individual is altruistic, the genes remain selfish. (Presumably, therefore, on a strict cost-benefit analysis, it would not "pay" for a mother to sacrifice herself for "only" one of her children.)

As we are constantly reminded in these three works, when one says that the genes attempt to survive or that organisms are altruistic, no conscious acts are to be inferred; rather genes and organisms act as if they might be attempting to survive (or to sacrifice themselves in order that others may survive), natural selection being the mechanism that gives the appearance of deliberate choice.

Individual altruistic behavior can be explained, then, by "kin selection." This concept, which originated in the work of the British population geneticist W. D. Hamilton in the mid 1960's, refers to the selection of genes because of their effect in favoring the reproductive success of relatives, and which, according to Barash, "is of enormous explanatory power and is basic to the intellectual momentum of sociobiology" (pp. 84-85).

II. Sociobiology: The New Synthesis

Wilson's masterful synthesis of evolutionary theory, population genetics, and ethology—together with informed references to such diverse fields as entomology, behavior genetics, and communication theory—is, if nothing else, far-reaching.

Edward O. Wilson, presently Frank B. Baird, Jr. Professor of Science at Harvard, has been intellectually daring throughout his
professional career. His previous book, *The Insect Societies*,\(^6\) was also hailed as a monumental synthesis, in this case of knowledge concerning the social insects. Even here, Wilson chose to transcend the broader limits of his original field of expertise, entomology; for as the dust jacket to his *Sociobiology* states, Wilson concludes *The Insect Societies* by writing: "When the same parameters and quantitative theory are used to analyze both termite colonies and troops of rhesus macaques, we will have a unified theory of sociobiology," a task which will constitute "one of the great manageable problems of biology for the next twenty or thirty years."

*Sociobiology* is, of course, Wilson's own contribution to that task. Its scope is as broad as Wilson's definition of the term "as the systematic study of the biological basis of all social behavior" (p. 4). Wilson means "to establish that a single strong thread does indeed run from the conduct of termite colonies and turkey brotherhoods to the social behavior of man" (p. 129). The social scientist can thus look forward to seeing his discipline "truly biologized" (p. 4). By the year 2000 Wilson also forsees the areas of ethology and psychology as "destined to be cannibalized by neurophysiology and sensory physiology from one end and sociobiology and behavioral ecology from the other" (p. 6).

As if such an ambitious project were not sufficient to occupy Wilson, we are informed at the outset of the volume (and reminded at the end) of the next task to be performed: "Scientists and humanists should consider together the possibility that the time has come for ethics to be removed temporarily from the hands of the philosophers and biologized" (p. 562). Wilson's present preoccupation is apparently to subsume philosophy under sociobiology.

Wilson, moreover, at the time that he was still completing *Sociobiology*; anticipated at a seminar on evolution "that a wholly new picture of organic evolution may be about to emerge, and that this may be one of the turning points in the history of science."\(^7\) Perhaps Wilson will turn his hand to his monumental task as well. If Wilson does not become the Darwin of the 20th century it will not be through any lack of aspiration.

---

Wilson's grandiose aim of developing a comprehensive science of animal behavior that is reducible to biological principles is clear. Fortunately, there is also a more self-critical side to Wilson. This has found expression in a recent article in which he concluded: "The urge to be reductionist is an understandable human trait," especially for a biologist viewing the social sciences, "impatient to set aside complexity and get on with the search for more fundamental ideas. The laws of his subject are necessary to the discipline above, they challenge and force a mentally more efficient restructuring; but they are not sufficient for its purposes. Biology is the key to human nature, and social scientists cannot afford to ignore its emerging principles. But the social sciences are potentially far richer in content. Eventually they will absorb the relevant ideas of biology and go on to beggar them by comparison." 

If social scientists are indeed to "absorb the relevant ideas of biology," they will eventually read Wilson's Sociobiology. Perhaps "consult" would be the more appropriate word. With a two column bibliography of over 60 pages, and, together with the index and a glossary; extending for over 120 pages, the volume proper continues for 575 two-columned oversized pages. A storehouse of information as well as a comprehensive synthesis, the book may double as a reference work as well as a theoretical guide. Obviously no brief review can do it justice; and I shall provide here only a general overview.

The work is subdivided into three major parts: (1) social evolution; (2) social mechanisms; and (3) the social species. One notes immediately that, consistent with his definition of "sociobiology," Wilson is interested in accounting for social behavior. Despite an emphasis on the individual, if not the gene, as the unit of natural selection, the unit of analysis exists closer to the level of the society, "a group of individuals belonging to the same species and organized in a cooperative manner" (pp. 7, 595). Indeed, at the outset of Part III, Wilson singles out four groups of organisms-the colonial invertebrates, the social insects, the non-human mammals, and man-as having occupied four pinnacles of social evolution; and of these groups, the first, or colonial invertebrates, "come close to producing perfect societies" in which the individual members are "fully subordinated to the colony as a whole," not just functionally but also "more literally, through close and fully interdependent

---

physical union" (p. 372). By contrast, the higher social insects, such as the ants and termites, are "much less than perfect." Aggressiveness and discord, moreover, "are carried much further in vertebrate societies, including those of mammals" (p. 380). Hence, Wilson views the overall trend of evolution to be "downward" (p. 380). This implicit valuing of sociality is further indicated when Wilson, far from discounting the possibility of group selection, opens the door to its theoretical existence (p. 30, ch. 5), even to the point of introducing it as a possible explanation for the evolution of human indoctrinability (p. 562). It is not, therefore, surprising that a holistically oriented biologist, Lewis Thomas, sees a holistic concern as "the central preoccupation of this large book."

If Wilson does begin his volume with a short chapter on "the morality of the gene"—on its blind will to survive—the second chapter of Part I, "Elementary Concepts of Sociobiology" immediately and explicitly takes up "the new holism," the recognition and study of emergent properties within the context of contemporary biology. And the very first "elementary" concept of sociobiology defined by Wilson is that of "society."

The reader "must plan to make a careful study of chapters 4 and 5," we are told, in order to gain a solid understanding of the foundations of sociobiology" (p. 32). These chapters introduce us to the basic principles of population genetics and to their application to the questions of group selection and altruism. These are two of the longest and most technical in the book and provide precisely the biological background that most social scientists lack.

Part II treats social behavior as a means of adapting to the environment over evolutionary time. Within this context some of the more familiar ethological concepts—e.g., aggression, dominance, and territoriality—are discussed. In addition, more uniquely sociological concepts are introduced, such as Robert Trivers' theory of "parent-offspring conflict," which holds that because of an inevitable genetic dissimilarity between parent and offspring, the basis for conflict between them is innate and continuing. This theory runs counter to conventional definitions of the socialization process that stress conformity on the part of children to adult standards and, rather ironically, to Wilson's own later emphasis on the biological

---

basis for human indoctrinability ("Human beings are absurdly easy to indoctrinate. They seek it [p. 562; emphasis in original]).

Part III, in describing the social species, takes us all of the way from microorganisms, social insects, fish, reptiles, and birds through various mammalian species culminating in the non-human primates and, finally, in the last chapter: "Man: From Sociobiology to Sociology."

This last chapter has been rightly criticized as the most sketchy and improvisational of all, but since it is clearly most central to the concerns of our discipline, it deserves some attention. Thus Wilson devotes a page or so toward the very end of the chapter on "warfare," the closest he gets to discussing human politics (to be sure, by extension a good deal of Part Two on aggression, dominance, and territoriality might be applied to the human species). Wilson speculates that in understanding the frequencies of wars over human history-apparently one of every two years throughout European history has involved war, "the spread of genes has always been of paramount importance" (p. 572). The victor wishes to propagate his own genes, often at the expense of the vanquished against whom genocidal policies may be instituted. This theory, even as briefly stated here, indicates the provocative, the provisional and, given the multitude of historical circumstances that it is presumably meant to cover, the inadequate character of sociobiological thought as applied to human politics. We shall return later with an extended critical assessment; still, the political scientist who dismisses the entire approach on the basis of a few tentative controversial assertions may be insuring his own obsolescence, either by failing to adapt to new ideas or by being unable to resist them because of a self-imposed unfamiliarity.

III. Sociobiology and Behavior

If any one individual qualifies as the leading disciple of Wilson's sociobiological synthesis, that individual would be David Barash, presently teaching in the departments of psychology and zoology at the University of Washington. Accordingly, Barash's work, which prominently displays Wilson's "sociobiology" in its own title and boasts of a foreword by Wilson, reflects faithfully the approach of the larger and senior volume. Indeed, Barash's book is, in effect, his abridgment of that work made suitable, in paperback form, for classroom use for courses in biology, psychology, and the social sciences.
Barash leaves out, in particular, the more technical discussion in Wilson of population biology and his extended treatment of the social species other than man. As Barash tells his readers, any of them "desiring further technical information are urged to consult E. O. Wilson's magnificent, if rather imposing, volume . . . virtually all issues raised in the present book are covered in greater detail in this carefully documented work" (p. xi).

Wilson, for his part, begins his foreword to the Barash book by strongly endorsing it: "Professor Barash has provided an excellent primer that can serve well in biology courses but is also particularly suitable as an introduction of the subject to social scientists."

The irony in Wilson's endorsement, however, is that Barash is weakest precisely where Wilson is: in relating sociobiological theory to man. Barash, too, reserves his last chapter for a brief speculative discussion of human sociobiology. Again, there is little that is explicitly political in its focus; but Barash toward the very end takes up the same topic of human warfare that Wilson had considered, but from a different speculative angle.

Barash speculates that man may experience a unique conflict between his culture and his biological inheritance with the result that "we are literally in danger of destroying ourselves" (p. 320). This neo-Freudian picture may gain strength by being grounded in contemporary evolutionary theory, but it's sketchy espousal hardly provides the political scientist much of a platform upon which to develop any more of extended framework of his own. The point in question concerns not the underlying validity of Barash's analysis but rather the failure to develop and relate it to the social sciences. Those in the latter enterprises cannot harvest what has yet to be grown.

IV. The Selfish Gene

The thinnest book of the three, *The Selfish Gene*, is perhaps the most pretentious in its claims. Written simultaneously for the layman (in nontechnical language), for the expert (to provide a new way of looking at familiar ideas), and for the student (to interest, educate and persuade him to pursue a zoological career), ten of the eleven chapters derive their substance from the premise that the gene is the "fundamental unit of selection, and therefore of self-interest" (p. 12) and that "a predominant quality to be expected in a successful gene is ruthless selfishness" (p. 2).
Of course, as Stent critically observes,²° selfishness (or altruism) is here being defined solely in terms of evolutionary survival. Nevertheless, Dawkins sees the biology of selfishness and altruism as touching "every aspect of our social lives" (p. 102). And, since even individual altruism is ultimately reducible to genetic selfishness through the theory of kin selection, the "selfish gene" is the critical factor in understanding life. The other suggested titles for the book "Immortal Coils," "The Gene Machine," and "Genesmanship," all stressed the central role of the gene in the evolutionary process and in ethological analysis and all became employed as chapter titles. Unlike Wilson's more holistic approach, Dawkins, in referring to social phenomenon, discusses it in such revealingly entitled chapters as "The Battle of the Generations" and "You'll Scratch My Back, I'll Ride On Yours."

Richard Dawkins, a young ethologist trained and now teaching at Oxford University, studied primarily under Nobel-prize winning ethologist, Niko Tinbergen, whose influence he acknowledged in the Preface. "But ethology," Dawkins goes on to write, "has recently been invigorated by an invasion of fresh ideas from sources not conventionally regarded as ethological" (p. x). His book, Dawkins says, is based on these new ideas, whose principal originators include G. C. Williams, J. Maynard Smith, W. D. Hamilton and R. L. Trivers (p. x).

Somewhat more than either Wilson or Barash, Dawkins stresses those ideas which explain group cooperation by reference to individual selfishness. Thus Dawkins finds W. D. Hamilton's paper, "Geometry for the Selfish Herd"¹¹ especially congenial. The model proposed in this paper, whose title Dawkins hastens to translate for his readers as "geometry for the herd of selfish individuals" (p. 180), basically proposes that a herd of animals which appears to be a collective, cooperative act of self-protection against predators in fact is composed of individual animals all attempting to escape into the center of the group and away from the peripheries which of course provide the most likely targets for a predator. Hence the phenomena of the herd in general and of bunching toward the center in particular can be accounted for by individual selfishness alone. The


model, as Dawkins makes explicit, "has no place for cooperative interactions," rather "only selfish exploitation of each individual of every other individual" (p. 181).

Dawkins' stark, uncompromising perspective, set down in clear language was certain to open himself to attacks of reductionism, neo-social Darwinism and the like. But at least Dawkins' volume has the virtue of being eminently readable and provocative. It will, no doubt for some time, remain the best single introduction for the layman to sociobiological theory, even if it is not the most well-balanced or comprehensive.

It remains, finally, to mention Dawkins' attempt in his last chapter to relate his perspective to man. If Wilson and Barash turn out to be rather disappointing in comparable attempts, Dawkins is positively frustrating: Finding that a genetic reductionism does not begin to square up to the formidable challenge of explaining culture; cultural evolution, and the immense differences between human cultures around the world," Dawkins decides that it is necessary "to start again and go right back to first principles": "The argument I shall advance, surprising as it may seem coming from the author of the earlier chapters, is that, for an understanding of the evolution of modern man, we must begin by throwing out the gene as the sole basis of our ideas on evolution" (p. 205).

Dawkins proceeds to recognize the independent primacy of human culture in explaining human behavior. And, analogous to biological evolution, Dawkins postulates a fundamental unit of cultural evolution, the "meme." This word is chosen because, in addition to a monosyllabic resemblance to "gene," it is derived from the Greek root word for imitation. The meme is the "new replicator," the mode by which human artifacts are culturally inherited. `Examples of memes," Dawkins writes, "are tunes, ideas, catch-phrases, clothes fashions,' ways of making pots or of building arches. Just as genes propagate themselves in the gene pool by leaping from body to body via sperm or eggs, so memes propagate themselves in the meme pool by leaping from brain to brain via a process which, in the broad sense, can be called imitation" (p. 206).

Thus, in a broad sense, Dawkins has produced a two-memed book but the second meme—which involves the exposition of its own significance; which is virtually unrelated to the first meme of the ten chapters, the gene, and which is consigned to a final chapter of a scant dozen pages, must appear an entirely artificial creation that
negates much of the previous analysis. Having, for example, previously explicated Triver's theory of the genetic basis for parent-offspring conflict and hence suggested the uneven course of the socialization process across generational lines, Dawkins concludes by stressing as a unit of human evolution a cultural factor that assumes imitation and, hence, continuity. Such intellectual schizophrenia hardly inspires confidence on the part of political scientists (or on the part of anyone else).

V. The Sociobiology of Sociobiology: Reciprocal Altruism vs. Individual Conflict

If we resort to sociobiological principles (conveniently ignoring Dawkins' last chapter in the process), how will we explicate sociobiology itself. After all, if "self-knowledge is constrained and shaped," as Wilson asserts, by the emotional control centers in the hypothalamus and limbic system of the brain" (p. 3), then sociobiology is itself to be thus understood. But even if this assertion were valid, it would be premature to attempt such an analysis; and what I have in mind is simply to apply in a speculative manner the biology of selfishness and altruism," as Dawkins terms it, to the sociobiological discipline itself.

Academic fields, like most areas of life, are both cooperative and competitive. Competition would of course be expected, given sociobiological theory; but since most academics are not related through kinship, any cooperation would appear not to be genetically based. Why, then, would it exist? The theory of "reciprocal altruism," formulated by Robert Trivers in 1971 attempts an evolutionary explanation. Operating within an individualistic framework and on strict cost-benefit terms, Trivers argues that cooperative behavior often pays (as measured by fitness). If you save an unrelated person's life, he may reciprocate; and so, as Trivers tries to show, both of you come out ahead. Consequently, such cooperative behavior may be selected for; and so even non-kinship based altruism becomes reduced to individual selfishness. At least, however, larger cooperative action becomes theoretically explicable in sociobiological terms—though, of course, reciprocal altruism is more likely to occur between genetically related individuals. In its more general formula-

tion, reciprocal altruism simply means, "You scratch my back, I'll scratch yours."

This kind of cooperative endeavor is frequently to be observed within academic life. Thus Wilson endorses Barash's "excellent primer," while Barash in turn refers to Wilson's "magnificent" volume. On the other hand, as Trivers also has postulated in his theory of parent-offspring conflict, even closely related kin will quarrel as a result of differing genetic endowments and hence survival interests.

If children, especially adolescents, assert their individuality in opposition to their parents, academics may act similarly vis-a-vis their peers and superiors. The Wilson-Dawkins relationship may manifest some of this underlying theme. To be sure, there is no clear break between the two; Dawkins, for his part, would certainly gain no advantage from an open attack on Wilson, whose work precedes his both in time and monumentality.

Nonetheless, the alliance between them is an uneasy one. Dawkins nowhere mentions Wilson in his preface nor Wilson's term "sociobiology" in connection with the general perspective of the book. As had been pointed out, Dawkins' only mention of Wilson is by way of a critique. He takes Wilson to task for defining kin selection as a special case of group selection; by contrast, Dawkins concludes that, "kin selection is emphatically not a special case of group selection. It is a special consequence of gene selection" (p. 152; emphasis in the original). He then proceeds to criticize Wilson for deliberately excluding offspring from his definition of kin selection. Dawkins does praise Wilson for his "otherwise admirable" and "justly influential" book, but the overall tenor of his remarks is negative. Indeed, self-consciously like a rebellious but remorseful adolescent, he begs "the general reader's indulgence for this little diatribe" (p. 102), as if he were just a bit embarrassed that an outsider had witnessed a private family quarrel.

It is also of interest that R. L. Trivers, in his "Foreword" to Dawkins book, nowhere mentions Wilson, Wilson's book, or Wilson's term "sociobiology." Such neglect cannot be simple oversight, especially since Trivers, as a younger colleague of Wilson at Harvard, is prominently credited by Wilson in his own acknowledgements to Sociobiology "for reading most of the book and discussing it with me from the time of its conception" (p. v). (Trivers' recent move to the University of California at Santa Cruz should remove
him more effectively from the presence and shadow of his senior colleague. It will be of interest to observe if the publication of his long-awaited first volume further establishes his independence.) But enough, the reader must be protesting, of such "socioanalyzing."

Now whether sociobiology can be turned inward against itself depends of course ultimately on the validity of the basic approach. I, myself, believe that there is enough substance here to help account for comparable situations elsewhere in academic circles; that is, the ambiguity that results from the attempt to borrow, use, or praise a colleague's idea (at least in part in the hope that he will return the compliment) and at the same time the desire to place one's individual stamp on it. But if the reader should object that genuine concurrences or divergences of opinion may occur on the level of the ideas themselves, I should agree; for seemingly unlike Wilson, I see no reason to exclude the frontal lobes of the brain and the capacity for reason in considering the basis for self-knowledge.

Whatever its basis, divisions have emerged within this fledgling discipline of sociobiology, including one apparently over the very suitability of the name. The reader stands as advised, therefore, not to regard the new field as monolithic—any more than his own is. And the differences are more than meme-deep; they concern significant matters of interpretation and emphasis. Perhaps the most important revolves about the presence in Wilson (and Barash) of a dualism in which an emphasis on genetic individualism is at the same time counterbalanced by a holistic emphasis on social relationships, the latter emphasis being absent in the Trivers-Dawkins approach.

Perhaps the most revealing single example of a difference in outlook is in the way both Dawkins and Barash independently happen early in their, respective books to cite Tennyson's phrase "nature red in tooth and claw." Whereas Dawkins thinks Tennyson's "famous phrase" to sum up "our modern understanding of natural selection admirably (p. 2), Barash, by contrast, views Tennyson's "unfelicitous" phrase to symbolize the erroneous equation of natural selection with violence, aggression, unbridled world of bloody competition" (p. 22). Such contrasting readings of the nature of natural selection, in itself no small matter, serves to alert us that the youth and enthusiasm of a new approach does not insure unanimity.

VI. A Critical Appraisal

The seven critical observations that I am about to offer apply generally though unevenly to all three works under consideration.
I refrain from making technical criticisms for the obvious reason that I lack the competence to do so; in any case, other sources provide these. I also do not critique this literature from the particular perspective of any of the sister social sciences for the same reason given above. Thus, for a critique of kinship theory and of its asserted inapplicability to human cultural patterns, the reader is advised to consult the vigorous attack mounted by the prominent anthropologist, Marshall Sahlins.

The critical remarks offered below refer to observable tendencies but not, I believe, to inherent vices. Obviously, there may be a valid disagreement as well with the strictures that I am about to impose; in any event, the seven unfortunate tendencies that I detect are as follows:

1. **Sociobiological theory displays a mechanistic tendency.** Life is blindly programmed through the genes. Hence human consciousness or reason hardly acts as an independent force. "We are survival machines, to repeat Dawkins' assertion, "-robot vehicles blindly programmed to preserve the selfish molecules known as genes" (p. ix). Even ethical philosophers, according to Wilson, gain no exemption from blind necessity: They "intuit the deontological canons of morality by consulting the emotive centers of their own hypothalamic system" (p. 563).

Yet elsewhere (e.g., pp. 120, 516, 548), Wilson recognizes that intelligence is a prerequisite quality for complex animal societies and certainly human culture, although he nowhere acknowledges its independent causal force, or, for that matter, even defines it. Wilson does recognize a virtually co-equal role for the neurosciences in conjunction with sociobiology, in eventually accounting for human behavior; but nowhere does he also acknowledge that at least some of the leading contemporary neuroscientists reject mecha-

---


nistic models of the brain and assert that human consciousness may function as an independently important causal agent."

2. Sociobiology tends toward reductionism. Closely related and parallel to the first tendency is one that reduces the explanation for all behavior to the level of the genes. There are, to be sure, in the case of humans, explicit admissions that factors other than genetic are relevant (e.g., p. 550 in Wilson; p. 134 in Barash; and, of course, the last chapter in Dawkins), but the overwhelming propensity is to return to a paradigm in which the genes, through a process of natural selection, explain all. If ethical philosophers cannot escape such a force, it is difficult to envision who can. Yet their own acknowledgements that environmental and cultural factors are also important serves an indictment of the failure of each of the authors to develop a more balanced account of behavior.

3. Sociobiological theory has a typological tendency. When the prominent Harvard biologist, Ernst Mayr, stated that anyone dealing with human beings was "bound to make a grave mistake if he ignored the two great truths of population zoology; (1) no two individuals are alike, and (2) both environmental and genetic endowment make a contribution to nearly every trait," he was warning against both reductionistic and typological thinking. The latter involves a failure to recognize the profound genetic diversity underlying any animal population. A typological orientation, by contrast, tends to "type" individuals of a given population, to endow that population with particular characteristics which are then imposed systematically on every member. It is tantamount, for example, to taking the "average taxpayer" and hypostasizing his characteristics onto every other member of the relevant population, even though "the average" may be nothing more than a statistical abstraction.

It is indeed ironic to accuse sociobiological writers of being typological. Both Wilson and Barash in particular not only have been associated with Mayr through a common Harvard tie, but also prominently cite his work. Certainly they acknowledge the fundamental fact of genetic variability that is central to Darwinian evolution and to contemporary population genetics. But they fail ade-
quately to link that genetic diversity to behavior for the reason that their overriding concern is one of building a systematic general
science of behavior whose goal is inherently typological. Thus, Wilson, we have seen, looks forward to "a united theory of socio-
biology" in which "the same parameters and quantitative theory are
used to analyze both termite colonies and troops of rhesus macaques"
(p. 4). This mode of analysis obviously stresses the behavioral com-
monality that exists both between and within species. Wilson's goal
with respect to the human species is clear: "In a phrase, we are
searching for the human biogram," that is, for human qualities
"insofar as they appear to be general traits of the species" (p. 548).

Now to be sure, similarities as well as differences characterizes
species. The human capacity for speech would surely appear to be
a species specific universal. Yet even here I find, Toulmin's popula-
tional critique of Chomsky both provocative and relevant in its con-
tention that individual differences in the capacity for speech are not
necessarily superficial but are, in fact, ingrained in any population
evolving over time and therefore constitute a more solid description
of reality than amore uniform, typological construct.18

Simply put: if, as sociobiology insists, the genes critically in-
fluence behavior and if each of us start life with a different set of
genes, our behaviors perforce will differ on genetic grounds alone,
although B. F. Skinner acknowledges explicitly in addition the
uniqueness of each environmental contingency.19 Although Wilson
recognizes that, "Even in the simplest societies individuals differ
greatly" (p. 549), his overriding concern remains with the general
and the nomothetic.

The reason for belaboring this point is that a basic issue in the
philosophy of science may be at stake. George Gayord Simpson20 dis-
tinguishes between the physical and the life (and hence social)
sciences: the physical sciences, on this view, stresses the recurrent
and repetitive; evolutionary biology may also proclaim nomothetic
principles, but such general laws, as in the processes of genetics,
invariably operate so as to yield diversity and uniqueness. Thus if
in important ways each succeeding generation is unique, scientifc

generalizations and predictions are hazardous and probabilistic at best. Sociobiology appears reluctant to recognize the full implications of its evolutionary and hence, historical framework.

To level a charge of typological thinking against Dawkins' appears especially ironic in view of the thorough-going individualism of his approach. Yet his individuals are, in his own words, "blind robots," hardly individuals at all save in their overpowering desire to preserve their genes. A comparable problem exists in Freudian psychology: the picture of self-seeking individuals who are interchangeable precisely for that reason; and if Dobzhansky validly criticizes Freud for postulating an id that insufficiently allows for genetically grounded individual differences, sociobiology may be open to a parallel charge regarding selfish and altruistic behavior. Aside from the question of functionality, which we shall discuss shortly, it is only plausible; given the context of population genetics, to suppose a wide range of individual differences for any given human trait, including altruism and unselfishness (as defined at least in elementary survival or fitness terms).

4. Sociobiological theory has a surprisingly static quality. This charge is the most startling of all, for how can an explicitly evolutionary perspective be open to the attack that it fails adequately to deal with change-changing gene frequencies, changing environmental circumstances, and hence changing patterns of behavior. Note, however, I say "adequately to deal with change," for clearly sociobiology does place animal behavior within an evolutionary context and discusses its changes over time. But insofar as its emphasis is in uncovering general laws, it emphasizes an order, a constancy that may transcend the actual ravages of evolutionary time.

Two examples may make the point. The first concerns Trivets' concept of parent-offspring conflict. This idea is formulated in a universalistic fashion reminiscent of Freud; that is, it is an innate recurring pattern characteristic (for man) of all families. The emphasis is on the general pattern, but not on its actual manifestation through time. For such universal conflict necessarily implies a good deal of disruptive discontinuity in actuality that may well elude scientific prediction.

Dawkins' concept of the "meme" graphically illustrates a static cast to his thinking, even if it goes well beyond what may be termed

sociobiological theory. You will recall the meme to be "a unit of imitation" that becomes faithfully transmitted culturally from one generation to another. Dawkins admits that he is on shaky ground here: "Every time a scientist hears an idea and passes it on to somebody else, he is likely to change it somewhat" (p. 209). Dawkins might also have referred to the Jamesian stream of consciousness in which our own ideas never quite remain the same within our own minds. On the level of culture, he might have heeded the warning of Edward Sapir a generation ago that it is an illusion to think of culture as a "neatly packed up assemblage of forms of behavior handled over piecemeal, but without serious breakage" to the newest generation.

Dawkins nonetheless attempts to rescue the meme from "continuous mutation" by defining it, as he had the gene, in units so small and presumably bask that they must survive intact (p. 210). Whether or not this self-confessed "verbal trick" is effective, the motivation underlying its resort bespeaks a curiously ahistorical temper for an evolutionary biologist.

5. Sociobiological theory has a functionalist bias. It is of course only natural for an approach grounded in evolutionary biology to view all aspects of life, including behavior, as adaptive for its survival and hence functional in that sense. "A fundamental assumption of sociobiology," writes Barash, "is that behavior patterns are in fact adaptive" (p. 33).

But is this assumption entirely valid? Over a generation ago J. B. S. Haldane called attention to the fallacy that the action of natural selection must make a species fitter in its relationship to the environment. If it is true, after all, that some 99 percent of all species that ever existed have become extinct, then, at some point in time a notable discrepancy must have developed for most species between optimally adaptive traits and empirically observable ones. Even for successful species, a wide range of individual differences will exist and those that persist over time may include even clearly maladaptive traits. What function is served by the recurrence of Down's syndrome, Tay Sachs disease or any other genetic defect in human populations? Yet their recurrence constitutes an empirical reality that runs counter to any wholly functionalist approach. Surely human behavior cannot be wholly different in this respect.

6. Sociobiological theory shows a concern for ultimate as against proximate causes that is not wholly appropriate for the social sciences. It will appear strange that I should criticize the sociobiological literature for one of its unique contributions and hence strengths. For sociobiology stresses the original or ultimate evolutionary conditions responsible for behavior as against the immediate physiological factors and environmental contingencies that may trigger a particular response. Such an emphasis separates sociobiology, for example, from both behavior genetics (with which it otherwise has a natural kinship) and behaviorist psychology. I do not doubt the value that a broader evolutionary perspective brings to the study of behavior, although I also believe that knotty empirical problems clearly exist in interpreting the evolutionary process in general and human evolution in particular, especially in a necessarily post hoc fashion.

My major concern, however, is with the application of ultimate causes to the social sciences. It is here that I fear the same mechanistic, reductionistic, and typological outlook just discussed will be brought to bear to account for historical events that resist easy generalizations. To return to examples of parent-offspring conflict, sociobiological theory may provide a valuable evolutionary basis for understanding its recurrence—certainly in contrast to current socialization theories which dwell exclusively on proximate environmentalist explanations. Nonetheless, the social scientist must ultimately concentrate on the proximate causes which account for such conflict within the context of necessarily unique biological, historical, and cultural circumstances. Like a good doctor, the social scientist must, in addition to being conversant with the general principles of his science, also be able to apply them to suit the individual case before him.

7. Sociobiology as a young science exhibits imperialistic propensities. "Give a small boy a hammer and he will find that everything he encounters needs pounding," was the way Abraham Kaplan explained the youthful exuberance of behavioral science in its own heyday. The inflated claims and ambitious pretensions of sociobiology are also, in many ways, interchangeable with those of Skinnerian psychology, only of course in different dress.

Despite the hubris of a frontier science—which no doubt helps

account for all of the other excesses listed above—sociobiology does have one clear advantage over the approaches currently dominant in the social sciences: Unlike behavioralism, sociobiological theory fully takes into cognizance the biological nature of man within the context of the contemporary evolutionary life sciences. Such a biologically based approach is bound to pose increasingly a challenge to the social sciences.

At this point, it makes sense to distinguish between a "narrow" and a "broad" sociobiology. The former tends toward a genetic reductionism that comes to be uncritically and unqualifiedly applied to all social phenomena. The latter involves an open, continuing effort to incorporate and integrate all the major strands of contemporary knowledge relevant to the study of social behavior—neuroscience, ethology, behavior genetics, etc. It is sociobiology, taken in this broad sense, that will be impossible to ignore in future years.

VIII. Implications For Human Politics

Students of human politics will simply have to become biologically informed, if only to be better able to resist uncongenial ideas. Ignorance provides no defense against would-be intellectual conquerors. (For those receptive to this new biology, on the other hand, and would therefore transform the present social sciences, the proposal of Glendon Schubert—to biologize the political science curriculum will prove welcome.)

It should be clear from this review that the leading exponents of sociobiology have only dimly applied their new discipline to human behavior, including human politics. Biologically-oriented political scientists have only now begun to make the connection, but until their efforts are published, the two areas remain widely disparate. Let me briefly suggest three sociobiological concepts that are sure to be related to human politics: (1) reciprocal altruism; (2) parent-offspring conflicts; and (3) sexual dimorphism.

I. Reciprocal altruism. If such a trait as the propensity to per-

---

26 I am presently editing a volume on "Sociobiology and Human Politics" which is based on a symposium on the subject held at Temple University on April 11, 1977 which featured Robert Trivers and as discussants Albert Somit, Glendon Schubert, and Marvin Bressler. The projected volume will also include contributions by Roger Masters, Hirani Caton, Fred Willhoite, William Etkin, and myself.
form and return favors were in fact genetically based and selected for, its relevance to human politics becomes clear. As Jacob Arvey\(^27\) stated a generation ago, "Politics is the art of putting people under obligation to you." Or as Richard Nixon\(^23\) put it, "In politics, most people are your friends only as long as you can do something for them or something to them."

Performing favors and collecting the "IOU’s" later is a well-known modus vivendi for a rising politician. Lyndon Johnson and Robert Byrd, in their elections as Senate majority leader, provide only two cases in point. "I remember," recalls William "Fishbait" Miller,\(^29\) "when Dale Carnegie was must reading for every Congressional candidate-and still should be. The message he gives is that the little services pay off, favors are usually returned."

Such reciprocity is expected if not always realized in the political relationships within non-Western nations as well. "Vietnam is a very strange country," Chinese Deputy Prime Minister, Teng Hsiao-ping is reported to have said\(^30\) following the withdrawal by China of all economic aid projects in Vietnam. "We helped them with more than $10 billion, but yet they have come up with all this anti-Chinese propaganda."

2. Parent-offspring conflict. As the sociobiological literature makes clear, the dominant view of the socialization process in the social sciences as one in which children passively acquire adult attitudes may become biologically untenable. A dynamic model of political socialization that recognizes both parent and children as independent actors would indeed better account for the political conflict and change characteristic of times past and present and for the generational conflict which Lewis Feuer\(^31\) asserts to be "a universal theme of history."

Clearly physiological, developmental, and environmental factors may also play important roles in parent-offspring relationships; but insofar as these influences imply conflict, sociobiological theory is


not refuted but rather augmented. It remains for the social scientist empirically and systematically to sort out the genetic, biological, and environmental factors which may affect this and other aspects of human politics.

3. Sexual Dimorphism. That the sexes differ biologically is hardly news; but that these biological differences may be genetically and evolutionarily based and may imply differing parental and work roles for males and females such that an absolute sexual equality is highly problematic—these latter assertions remain highly controversial.

Simply to suggest a biological basis for sexual inequality indicates how directly relevant for human politics any biological perspective is likely to be. "Almost every major issue in political philosophy," Somit observes, "traces back to the nature of human nature."

If in this key respect sociobiological theory has yet to be verified, neither has behavioral theory. And neither too has the charge of racism that has inevitably been directed against any biologically based theory. None of the works under review discusses race at any length or suggests any biological basis for racial inequality. Wilson's emphasis on describing the human biogram transcends racial division; but I would add that the acknowledged fact of genetic diversity could equally lead to an emphasis on individual as against group or racial differences. If red-or perhaps more appropriately, black-herrings exist in social science, this issue is clearly one.

But there is, to repeat, no question of the relationship between sociobiology and the larger question of human nature and human politics. As Robert Trivers forthrightly admits, the recent work

---


For other areas of political sciences, see Roger Masters, "Politics as a Biological Phenomenon," *Social Science Information* 14 (2), pp. 7-63, and consult as well his extensive bibliography.


that characterizes sociobiology "does tend to remove support from
naive utopianism. And to me, naive utopianism is the view that we
could soon, within 50 or 100 years, so structure socializing expe-
riences among the young such that they would grow up with hardly
a vestige of selfish, aggressive, or other unfortunate tendencies. I
myself feel much more dubious about such possibilities just contem-
plating three billion years of natural selection grinding away in ever
more subtle forms of maximizing inclusive fitness. I doubt whether
we can design a utopia in the next fifty or hundred years."

It may be no tribute to behavioral theory that it does permit the
possibility of such a utopia. As James Madison maintained at the
time of the founding of the republic, "the latent causes of faction
are thus sown in the nature of man." Sociobiological analysis does
not perhaps add much to Federalist No. 10.

ELLIOTT WHITE

*Temple University*