

## SOCIOBIOLOGY, SELFISH GENES, AND HUMAN BEHAVIOR:

## A BIO-CULTURAL CRITIQUE

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Sociobiology is a controversial new field of study, defined by its most prolific spokesman as "the systematic study of the biological basis of all social behavior" (Wilson 1975a:4). Although much excellent work has been done in this field within the areas of entomology and ornithology, the application of sociobiology to humans (Wilson 1975a:547ff; Wilson 1975b; Hamilton 1975; etc.) has generated considerable acrimonious debate (Caplan 1978). This paper represents an attempt to present sociobiology and social anthropology fairly, and to evaluate the central arguments of sociobiology within a synthetic framework of biology and social anthropology. My purpose in this paper is to explore the foundations upon which human sociobiology is constructed; to demonstrate that human sociobiology is not so much a more scientific approach to anthropology as it is a novel philosophical approach; and to evaluate critically the value of such an approach in the study of human behavior.

The Genesis of Sociobiology

Classical evolutionary works tended to see natural selection, and thus evolution occurring primarily with respect to the individual: the original definition of natural selection was "this preservation of individual differences and variations, and the destruction of those which are injurious" (Darwin 1962 [1872]:91). However, selection also operated at higher levels: "Natural selection...will adapt the structure of each individual for the benefit of the community; if the community profits by the selected change" (Darwin 1962 [1872]:96). With the introduction of genetics

into evolutionary theory, this posed a problem. Evolutionary geneticists viewed evolution in terms of altered gene frequencies across generations: however, those genes are expressed in individuals. It is the individual (i.e., the phenotype) which is exposed to the rigors of the environment, resulting in different fitnesses between individuals. How, then, could a gene or genotype<sup>1</sup> which exists "for the good of the species" be perpetuated unless it were good for the individual? If it is good for the individual, the gene will be perpetuated for that reason; the fact that it is also good for the species is incidental. If it is bad for the individual, it will simply not be perpetuated. Thus, Fisher (1930) and Haldane (1932) emphasized individual-level selection, and heavily downplayed selection at higher levels.

Subsequent generations of evolutionary biologists followed these guidelines, and with Williams' (1966) major codification, the concept of the individual (or his genes) as the only units of selection became a virtual canon. Part of the interest in evolution, however, was specifically in the evolution of behavior -- and the evolution of behavior needed to follow the same rules as the evolution of the rest of the organism: selection must occur at the level of the individual or below; and any behavioral trait, in order to spread through a population (i.e., to "evolve," in a loose sense of the term) must be beneficial to its carrier.

Behavioral evolutionists, however, faced an even greater problem. Evolution operates, they considered, through the differential reproduction of individual organisms. Any gene which enhances individual fitness will increase in frequency in the population through time; any gene which lowers individual fitness will be reduced and ultimately eliminated. Here is the problem: many organisms display altruistic behavior, or action which

benefits another individual at the expense of the actor. But such behavior cannot evolve, since it is decreasing the carrier's fitness. The resolution of this paradox came from Hamilton (1964), on ideas derived from Haldane (1932:207ff.) and has come to be known as kin-selection (Maynard Smith 1964). In its simplest form (devoid of mathematics), Hamilton showed that an altruistic trait can evolve if one's close relatives are benefited by the altruistic act. The altruist's kin are likely to share such a genetic trait, and thus the altruistic genes can spread through the population by way of the altruist's favored collateral kin, even if his lineal descendants are not favored.<sup>2</sup>

The implication of this idea, recognized by Haldane thirty-two years earlier, is that in being altruistic in one sense to his relatives, the actor is being selfish with respect to his genes. Thus was born sociobiology, with its tetra-partite theoretical framework:

- 1) Social behavior has some sort of genetic basis (Wilson 1975a). Wade (1976) reports that Wilson "has since stated that maybe 10 percent of social behavior has a genetic basis" although "the reader of Sociobiology may get the impression that the author believes somewhat more than 10 percent of human social behavior is genetically based." Despite considerable vacillation on this point by sociobiologists, the presumption of some heritable component to social behavior puts the "biology" in "sociobiology."
- 2) Any gene increasing the reproductive success of its carrier will be perpetuated differentially; thus, the "struggle for existence" between individuals is merely an epiphenomenon of competition between genes (Dawkins 1976).
- 3) Since genes increasing the fitness of their carriers are favored and perpetuated, the genome of an individual will come to consist of genes which will be operating in such a way as to perpetuate themselves and the individuals carrying them to the greatest extent. Thus, individuals will tend to behave in such a way as to maximize their inclusive fitness (Barash 1977).
- 4) Any behavior which increases the inclusive fitness of the individual (i.e., is to the advantage of either the actor or his genes) can be regarded as having some sort of genetic basis (Wilson 1978).

The application of sociobiological theory to invertebrates and lower vertebrates has been well-accepted; the controversy begins when such theory is applied to humans (May 1976; Wade 1976). On the one hand, anti-sociobiologists have caricatured their adversaries as latter-day Spencers and Hitlers; on the other hand, sociobiologists caricature their adversaries as latter-day Usshers and Wilberforces (Allen et al. 1976; Alexander 1977, 1979). Having outlined the major tenets of this new science, we shall turn now to the issues involved.

#### Social Thought and Darwin

The concept of natural selection, like all ideas at all times, arose in a matrix of culture -- specifically, the culture of Industrial Revolution-era Great Britain. The idea that competition is a natural process in the social world and ultimately good for the human race (Ghiselin 1974) was an explicit part of Adam Smith's economic theories, published in 1776. Thomas Malthus' popular contribution was his grim explanation and elucidation of the competitive conditions that characterized human history, and seemed to be guiding it all the more at the turn of the nineteenth century. Following Malthus, the idea of competition as an inevitability in the human social sphere pervaded much of British contemporary thought (Becker and Barnes 1961:697ff.; Mayr 1974; Greene 1980).

As Europe was busy industrializing, Darwin was observing nature in South America, reading Malthus, reading Lyell (who had been deeply influenced by Malthus), and ultimately applying Malthus' ideas about social struggles to the natural world at large. Though the application of social theory to nature may not have been Darwin's conscious ambition, he succeeded in putting forth intraspecific competition as the driving force in evolutionary

change, just as Malthus has argued for social struggle and competition between people (Darwin 1962 [1872]:78; Ghiselin 1973).

The conception that nature follows the rules laid down for European social and economic theory is a classic ethnocentrism on the part of Darwin, and was immediately evaluated as such by his contemporary Karl Marx, who wrote in 1862:

I am amused at Darwin...when he says that he applies the "Malthusian" theory also to plants and animals, as if the joke with Herr Malthus did not consist of the fact that he did not apply it to plants and animals but only to human beings-- in geometric progression -- in contrast to plants and animals. It is remarkable how Darwin has discerned anew among beasts and plants his English society with its division of labor, competition, elucidation of new markets, "discoveries," and the Malthusian "struggle for existence." It is Hobbes' bellum omnia contra omnes (war of all against all) and it reminds me of Hegel's Phenomenonology, wherein bourgeois society figures as a "spiritual animal kingdom," while in Darwin the animal kingdom figures as bourgeois society (Padover 1979:157).

The recognition that Darwin was a product of his culture and reflected the prevailing social ideas of the times in his scientific writings certainly does not make his writings any less valuable, any more than the knowledge that a rainbow is refracted sunlight invalidates an appreciation of that phenomenon. I certainly do not mean to suggest that Darwin was a "social Darwinist,"<sup>3</sup> but the paradigm he applied to nature with such acclaim derived ultimately from social thought (Lewontin 1968). Darwin did great amounts of empirical research in support of his ideas, but his contribution was in large part the amassing of a wealth of evidence to support the existence of competitive capitalism in nature. Darwin, then, was lucky in a sense: his applications of social ideas to the natural world is apparently valid, while others (notably Spencer in England and Lysenko in the USSR) have not been successful in similar endeavors.

### The Ideology of Sociobiology

The recognition of Darwin's natural world reflecting his ethnocentric enculturated views of the social world can aid us in analyzing the "selfish gene" controversy. The root of the conflict is that the two sides have different world views -- an ideological controversy -- and this will become clear when we analyze the anti-sociobiology side. The most vociferous and prolific declaimers of the new science are two eminent biologists, Stephen Jay Gould and Richard Lewontin; and two eminent anthropologists, Marvin Harris and Marshall Sahlins. The biologists are colleagues at Harvard; as for the anthropologists, if we are to judge by Harris' most recent book (1979), a stand against sociobiology may be the only point of agreement between them. Actually, we need not look far for an ideological link between Sahlins and Harris; indeed between all four scientists, and this will be brought forth below. The key seems to be that sociobiology is not so much a new science as a new outlook. There are no new facts discovered by selfish-gene advocates; only a new framework, a new philosophy for interpreting the data. Thus Irons (1979:12), a sociobiologist, characterizes human sociobiology merely as "the rethinking of sociality in terms of individual level selection."

On the other hand, Sahlins disparagingly refers to it as "genetic capitalism" (1976:72). Sahlins has an a priori disagreement with the contention that all behavior is ultimately directed toward setting oneself above the rest of the species. Sahlins is a Marxist; so are Gould, Harris, and Lewontin. (Marxism is a broad enough umbrella to cover both anthropologists and still have them disagree about everything else.) But any science that attempts to show that humans are "naturally" selfish, competitive, and out for themselves, presents a social philosophy diametrically

opposed to the ultimate Marxist goal of social harmony. At another level, the sociobiological arguments attributing a biological basis to human behavior are simply contrary to the determinism of the social environment that is fundamental to Marxist thought. And the criticisms of both sides are accurate: for the logical extreme of the concept of genetically-based social behavior is Nazism; and the logical extreme of socially-based genetics is Lysenkoism.

As a result of these philosophical disagreements, the sociobiology controversy has generated substantially more heat than light within the scientific community. Neither side has better science: what they have are different outlooks. With the knowledge that the Darwinian Revolution was, at rock-bottom, an application of ethnocentric social theory as a paradigm for the natural world, a view of sociobiology in this sense is enlightening: sociobiology is a biological application of the prevalent ego-centered social attitudes. It is clothed, however, in a classically biological methodology.

#### Beanbag Genetics

Is the gene a discrete isolatable entity, with one function and one manifestation? This question is critical to the controversy -- although the answer is readily conceded in the negative by even the staunchest sociobiologists. The genome is organized systemically, not discretely; a gene "for" a phenotype is either extremely rare or imaginary. As an example, we may consider the human genetic disease known as phenylketonuria (PKU). All available data suggest that PKU is caused by a point mutation in a single gene responsible for the production of a single protein, the enzyme phenylalanine hydroxylase. Consequently, the immediate result of the gene is the inability to metabolize the amino acid phenylalanine. At the

organismal level, however, there is a great deal more to PKU: affected individuals have increased adrenaline; muscular hypertonicity; paleness of hair, skin, and eyes; mental defects; brain abnormalities -- in short, a constellation of phenotypes results from the action of (a double dose of) this mutant gene. This is the result of the genetic phenomena of pleiotropy (one gene having multiple phenotypic expressions) and epistasis (the interaction of several genes with each other through various metabolic pathways).

Phenylketonuria, one of the best known genetic syndromes, can be traced from the gene up through the phenotype. Consider, however, the problem of going in the reverse direction: could one legitimately conclude that the PKU allele is an allele "for" muscular hypertonicity? Since we know that PKU is a mono-genic syndrome and one of its effects is muscular hypertonicity, this proposition might be logically defensible. But if someone has the phenotype of muscular hypertonicity, does that mean that they have PKU? In short, can one legitimately argue from a phenotype down to the genes, in the face of what is known about genetic systems?

The intervening factors between phenotypes and genes, of which there are many, are acknowledged to be the rules rather than the exceptions. And yet the sociobiologists talk about a gene "for" altruism or aggression, ignoring these problems. The reason for this, I argue, is historical, stemming from the theoretical approach taken by the pioneers of evolutionary population genetics. Although it is simple to state that the genes act in a systemic fashion, to treat them as such in the formal mathematics of evolutionary genetics is exceedingly difficult. On the contrary, the seminal mathematical formulations of Fisher (1930); Wright (1931); and Haldane (1932), all treated the genes as formal discrete entities. This simplifying

strategy permitted a sophisticated, yet comprehensible framework for the mathematical treatment of evolution. Naturalist Ernst Mayr, however, disparagingly refers to this practice as "beanbag genetics" (1963:263ff.): the treatment of the genome as a set of non-interacting, discrete "beans." The approach has been defended by Haldane (1964) and Dobzhansky (1970:200) as a heuristic simplification by means of which many valuable insights have been gained into the genetic processes. And yet, it is precisely this "beanbag" simplification which has been literalized in sociobiology (Wade 1980).

When Wilson (1975a:554) talks about the effects of a gene for upward social mobility, conformity, or indoctrinability, he knows that no such genes are known to exist and that such behaviors are exceedingly complex. He is simply following the standard approach of "beanbag" population genetics in treating the evolution of a phenotype as if it were a simple expression of a simple genotype. What sociobiology offers, however, is the novel suggestion that these first-approximations are actually representations of reality, acceptable at face value: in short, they are taking the simplifications of mathematical genetics literally. Given the knowledge that a simple behavior such as aggregation in slime molds involves the interaction of fifty genes (May 1976), one may conclude that "conformity" in humans, if genetically based, would be a very formidable genetic system.

If there is a genetic basis for the pan-human (pan-vertebrate?) phenomenon of "conformity," and it is ordered by the interaction of thousands of genes, as any rational treatment of such a complex behavior would have to contend, it follows that such a system would be highly canalized (Waddington 1956). In the sense that Waddington used the term, he envisioned a co-adapted genotype, with such a "canalized" phenotype

capable of being expressed in spite of variations in environment or genetic background. Along similar lines, Sewall Wright (1932) proposed that for a given battery of genes, several combinations of alleles might be equally or nearly as successful. Thus, for a genetic system like "conformity," it is likely that a wide range of genetic backgrounds would yield similar "conformist" phenotypes. There must also be a considerable range of potential phenotypes (or "norm of reaction") for such a polygenic trait. And as for the basis of "conformity" itself, it might well be simply a result of a general vertebrate trend emphasizing learning responses rather than innate responses as the basis for behavior.

Thus, the conceptualization of genes as "beans," and the postulation of simple genetic bases for poorly defined traits makes sociobiological formulations about the evolution of behavior much more seductive than they are entitled to be. Facile formulations lead to explanations which are further and further removed from reality. In fact, Sewall Wright, upon whose seminal ideas much of the "beanbag" approach is built, recently repudiates such an approach to genetics (1978:464; Wade 1980).

#### Kinship and Kin-Selection

The evolution of altruism, it will be recalled, was a major thorn in the side of evolutionary theorists whose conceptions of Darwinian fitness existed only at the individual level. Hamilton's (1964) resolution was that an individual could be altruistic to his kin-group: in that case, the altruistic behavior could spread through the population. The individual, in this conception, is altruistic to his kin insofar as they represent additional copies of his genes. Thus, the closer the genetic relation, the more altruism is to be expected.

Unrecognized in the kin-selection idea is that in most human societies, the kin group is the same as the social group. Even the most cursory familiarity with the literature of social anthropology (e.g., Fortes 1959) drives home the point that kinship structures human social behavior. If the vast majority of people with whom an individual interacts are his kinsmen, then anything he does for the sake of his social group will also be for the benefit of his kin, and thus kin-selection and group-selection are inseparable. The sociobiological view is that such group selection must be an epiphenomenon of selection for kin. There are no supportive data.

The theoretical divorce sociobiologists have given kin groups and social groups is a major ethnocentrism as it applies to humans. Our industrial society, with its extreme division of labor, has thrust the urban individual into a multiplicity of complex social relations with non-kin (Durkheim 1933 [1893]). And yet the sociobiologists treat this as the norm, rather than as the relatively recent social aberration it is.

As one of the major tenets of social anthropology, the dictum "kinship structures social relations" has been supported time and again, although it was tacitly assumed that it held true for social and cultural reasons. What sociobiology brings is the view that "kinship structures social relations" for biological and evolutionary reasons. The facts have remained the same; only the explanations differ. Thus, attempts to verify Hamilton's formulation for humans have bordered on the pathetic; for instance, Chagnon and Bugos (1979) demonstrated that the Yanomamo come to the aid of their close kin in a fight. Hames (1979) in a sociobiological analysis, concluded "I suggest that the Ye'kwana are taught to recognize kin of various degrees of relatedness and vary their interaction accordingly."

Such a conclusion is obviously warranted from classical social anthropology as well. To justify the sociobiological approach, a controlled study must be performed, in which the social contacts are exclusively non-kin: if there is no altruism, then we may gather that the important factor in human social altruism is the biological tie, rather than the social tie.

Sahlins (1976) has amassed a wealth of cross-cultural data to show that kinship is culturally defined, and that no culture known structures their social relations on the geneticist's definition of kinship. The fact that human social behavior tends to be centered around the kin group may ultimately be related in some obscure way to the basic reproductive strategy of the Class Mammalia, in which individuals are slowly reared in intimate contact with members of their own and other generations; however, as an explanatory tool for anthropologists, it is simply too gross to be useful. One would not want to dissect a frog with a scimitar, nor try to explain cross-cultural similarities and differences in human behavior in terms of mammalian reproduction. The fact that kinship does structure human social relations is not as interesting as the various manifestations that the rule can take. What social anthropologists are interested in is the comparison of the ways in which social behavior is regulated; the rule itself is a cul-de-sac. In short, social anthropology is interested in the candy bar; sociobiology is apparently trying to direct attention to the wrapper.

Thus, kin-selection may be an evolutionary adaptation by means of which individual actions are beneficial to close relatives, creating the framework of a social structure; but the question of whether the altruism is directed at the social group or at the altruist's gene-sharers is a very open question, especially for humans. To assert that altruism is directed at gene-sharers, but only subconsciously, is tantamount to genetic

structuralism (Sahlins [1966] once described structuralism as the idea that "what is apparent is false and what is hidden from perception and contradicts it is true"). I suggest that the test for kin-selection is not whether humans are altruistic to kin, but whether they are as altruistic in a social group which is not kin-based, as they are in a kin-based society. The logical place for such a study would be the Israeli kibbutzim. If the kibbutzniks can be shown to be less inclined to be altruistic to their social non-kin than the Yanomamo are to their social kin, the sociobiological argument would have a pillar.

The final point I shall make with regard to human kin-selection is its logical flaw frequently glossed over by its adherents. This is the fact that all the literature about selection for kin in altruistic acts was designed to solve a basic problem in genetics: namely, the evolution of altruism as a genetic trait (Parker 1978). It will be recalled that kin-selection is simply a mechanism by which altruism, a "beanbag" genetic trait, may spread through a population. Most sociobiologists, even the staunchest, eschew the idea of genetic determinism of specific human behaviors (Alexander 1979; Dawkins 1979); yet sociobiologists continue to invoke kin-selection to explain human altruism -- despite the fact that they have undermined the theoretical foundation upon which kin-selection was erected! Without the supposition of a strict genetic basis for altruism, the only application kin-selection theory can have is metaphorical. I can see no reason why a social scientist should be constrained by the metaphorical application of evolutionary biological principles. How could evolutionary biology have any bearing on the study of human social behavior when it admittedly lacks the theoretical premises on which it is to be applied?

Consider the following two statements from Chagnon et al. (1979:273):

We agree wholeheartedly that there are no such genes (for human social behavior) and that cultural differences in...human social practices are not likely to be the result of genetic differences.

It is legitimate and fruitful to examine human reproductive behavior in terms of predictions based on recently developed theories in evolutionary biology.

I contend that without the theoretical premise of genes for specific social behaviors upon which these "recently developed theories" rest, the application of evolutionary biology to human behavior has about as much explanatory power as the application of quantum mechanics or the zone press. Sociobiology of humans, without theoretical underpinnings in "beanbag" genetics and consequently kin-selection, is a statement of social philosophy, not science; for without genes for altruism, one cannot speak of its evolution, except in a metaphorical sense. And to accept a metaphor as literally binding is surely a breach of logic.

For this reason, I do not deal with such offshoots of sociobiology as Parental Investment theory here. The correlation between "paternal investment" in offspring and "certainty of paternity" across cultures does not presuppose genetic variation as its foundation. It thus falls outside the realm of evolutionary biology. The study of variation in parental investment (e.g., Gaulin and Schlegel, in press) is a study in the adaptiveness of culture: as such, it belongs in the anthropological subdiscipline of cultural ecology.

#### The Units of Human Social Exchange

Another major ethnocentrism in selfish-gene theory is the unqualified assumption that the individual biological organism is the base-line unit

of social interaction. I am incompetent to assess that claim for birds and ants, but when the symbolic world of culture is thrown in, social interactions become vastly more complicated than simply organism-to-organism contact.

In humans, many cultures do not so much as recognize the individual as a social entity. For instance, Hsu (1974:7) attests that in China, individual action is always on behalf of the kin group, so that there are no interactions solely between individuals -- they occur between lineages. The actor is always a representative of his lineage, and acutely conscious of this fact. Thus, it is his cultural role which structures his social behavior: to consider a social encounter there as being between individuals is ludicrous, because the interactants themselves do not regard their interactions as being on an individual basis. The idea of an individual acting as a unit separate from his lineage is as unthinkable in that society (and many others) as would be the conception of one's arms acting independently of his body.

The individual is a biological unit (and a rather arbitrary one at that), but at a social level he is purely a construct of culture. As far as American culture is concerned, the individual is the major socio-cultural unit: possessing rights and obligations; responsible for his actions and interactions. But as a paradigm for understanding the general social behavior of humans, individualism is an idea "social scientists... have been pestered with" and "a problem we are still cursed with" (Bohannon 1963:25).

It would be foolish to imply that interaction between organisms is really not interaction between organisms, because at a superficial level of analysis it obviously is. But if it occurs within a matrix of culture,

which shapes all human interaction and is the major adaptation of our species. The symbolic attribution of meaning to social interactions has led anthropologists to the concepts of "status" and "role" as the units of human social interactions. The same individual, filling the statuses of "husband," "father," "son," "Vice-President in charge of Sales," "consumer," "patron," etc., is very likely to behave differently in each case. I do not know whether ducks and lizards can be considered to be filling statuses; but insofar as culture is a structuring influence, giving meaning to human social action, this is the only way of analyzing human social behavior. How else could one understand avoidance relationships, which are technically non-organismal interactions, but certainly social relationships? To suppose that all social interactions follow a pattern derived from American common-sense cultural values of individualism, is the height of ethnocentrism (Selby 1975).

#### Reciprocal Altruism

Since kin-selection will only account for altruism among relatives, there is a necessity to account as well for altruism between non-relatives. The philosophy of selfishness deals with non-relatives through the concept of reciprocal altruism, as conceived by Trivers (1971). Although frequently invoked as a complementary theory to kin-selection, it is only so in a philosophical sense, if one is simply trying to account for all behavior as being selfish. Actually, however, it is an alternative in a theoretical sense, although the adherents of "selfishness" rarely present it as such.<sup>4</sup> The theory is simple and elegant: according to reciprocal altruism, altruism can evolve if the altruist is entitled to expect a favor in return for his altruistic act. Thus, the underlying motive in apparent altruism is the anticipation of a return.

Trivers (1971) has listed five modes of human reciprocal altruism: helping in times of aggression; food-sharing; helping the infirmed, aged, newborn; implement-sharing; and knowledge-sharing. These altruistic forms share two major qualities: 1) they are purely individual interactions, and 2) the interactants know each other. Thus, these forms can easily be explained in terms of "selfish theory." Trivers neglects, however, other, more obvious forms of altruism -- for example, charity and tipping.

The latter case is difficult to account for in "selfish" theory. Tipping occurs in culturally defined situations, between culturally defined roles: patron and servant. Generally, the patron does not even know the servant, let alone share his genes; and the nature of the roles precludes the anticipation of the servant reciprocating. Tipping is an altruistic act almost completely mediated culturally -- there are times when tipping is expected, and times when it is not. One's own fitness is never increased by the action, and there is no Cultural Board of Review to check on who is tipping and who is not. Of course an imaginative explanation could be made up: for example, it could be argued that tipping (or simply following any cultural norm) is beneficial for the organism since it eases his conscience. Thus, the conscience would be an evolutionary adaptation for ensuring altruism by making the altruist feel pleasure upon performing the act, and guilt if the act is not performed. Two criticisms apply here: 1) postulating reasons for the evolution of something is fun for parlor games, but as biological science, this practice is the "adaptationist program," soundly criticized by Lewontin (1979); and 2) relying on the evolution of the conscience as an explanation for altruism is more metaphysical than any self-respecting sociobiological materialist would dare to get.

Yet Trivers (1974; Bingham 1980) has just such a view of the evolution of human behavior. He sees the evolution of social behavior as a longstanding conflict between altruists and cheaters. At some idyllic time past, everyone was reciprocally altruistic: emotions such as friendship, trust, and gratitude evolved to reinforce this. Then the mutant cheaters (those who took without commensurate reciprocation) came and were at a decided evolutionary advantage; thus it became necessary for the population to evolve a way of protecting themselves, and a mild sort of genetic paranoia developed, so that the individuals became suspicious of being taken advantage of. However, the cheaters responded by evolving even subtler ways of cheating -- for example, preying on weaknesses for sycophancy, neoteny, etc. To this, even subtler detection by complex emotions evolved: for example, disgust, indignation, morality -- all to protect the individual from being taken advantage of.

Despite being oddly Lamarckian in having appropriate genetic systems appear whenever there is a "need;" the piecemeal evolution of the emotions; and the assumption that culturally defined and transmitted feelings are pan-human; in spite of all this, it must be pointed out that Trivers' ideas are logical, coherent, and internally consistent. But then, so are all philosophies: the Trobriand Islanders' ideas about reproduction were so consistent and logical that the anthropologist Malinowski (1929) could never convince them that sex had anything to do with it! The scenario of Trivers is more similar to the archaic concoctions of the 19th century "armchair anthropologists" than it is to modern social or biological theory. Trivers' conception of the evolution of behavior as being a cosmic dialectic between altruists and cheaters is imaginative -- but it is not biology or society: it is philosophy, it is Weltanschauung.

Another example which must be explained by "selfishness" is the kind of altruism extended by American Jews to Israel. Since one's "fitness" is lowered by giving away money, this is a bona-fide altruistic act. However, most American Jews have no close kin in Israel -- whatever kin they have are so distant as to be negligible for kin-selection calculations. On the other hand, they can hardly be expecting to reap juicy rewards from that beleaguered nation. More importantly, this altruism is mediated and institutionalized on a large scale: it simply does not occur on an individual-to-individual basis, as the sociobiological models assume.

An imaginative social philosopher could find an argument for selfishness in this case too. Certainly there are those who contribute to charity in order to deduct it from their income taxes. On the other hand, that does not account for why that particular charity was chosen by the altruist: the "tax-deduction" hypothesis seems to imply a random choice of charities. Hamilton (1964) asserts that distant relations are negligible for kin-altruism; thus, American Jews cannot be assisting their genes, since they probably share as many genes with the Syrians as with the Israelis. With no proximate biological kinship to the Israelis and no hope of reciprocation, American Jews cannot be acting in their own genetic self-interest. What they do share with the Israelis is a spiritual (i.e., cultural) kinship -- a fictive relationship based on shared cultural norms. If these altruists are behaving selfishly, it is toward their "memes" -- elementary cultural particles concocted by a sociobiologist (Dawkins 1976) for just such a contingency.

But look how far we have travelled from the primordial question, how can altruism evolve! Beginning with a purely genetic system (the evolutionary models of Hamilton and Trivers), we have ended up in a world

of "memes" -- which have nothing to do with biological evolution, but are a convenient way to make a plausible selfish explanation for apparently altruistic acts. The obvious question is: why bother? The major adaptation of our species is behavioral plasticity -- that much is acknowledged by all. Even though our genes are constrained to behave "selfishly," culture has taken us out of the realm of the genes and into the realm of decisive behavior. The only phenotype which is necessarily selfish is that which is proximally controlled by the genes. Any phenotypes not directly dictated by the genotype need not be "selfish." Thus, when Dawkins (1976:215) assures us that human behavior is based not so much on genetic evolution as on the "evolution" of culture (Dawkins' word is "memes"), he concedes the fact that human behavior need not be selfish. After all, cultural "evolution" is but a poor analogy to biological evolution, and laws applying to the latter are not necessarily constraining upon the former. This recognition comes hard: biologist P.J. Darlington (1978) overlooks it:

We can guess that among our remote prehuman ancestors altruistic behaviors may have been determined in some detail by specific genes and may have evolved by genetic variation and selection, but now, although our altruism still has a broad genetic base, the details of it and its evolution seem to be determined socially more than genetically. This has involved a shift to evolution at a new, social level....Diversification and selection at the new level are increasingly rapid and complex, but still (I think) result in co-evolution of reciprocal altruists.

But biological and cultural evolution are related only as analogs. Thus, while it is impossible for a genetic trait to evolve "for the good of the group," it is possible -- indeed, likely -- that a cultural trait could "evolve" for the benefit of the group, at the expense of the individual.

It is passé in biology to explain animal behavior as being for the "good of the species." Such a position is called group-selection (Wynne-Edwards 1963) and is not invoked for two main reasons: 1) behavior proximally controlled by genes must evolve at the individual level, for reasons discussed above; and 2) and a "good of the group" trait requires the animal or his genome to be capable of foresight and the knowledge of what is good for his group. Such anthropomorphism is undesirable in explaining animal behavior and rightly so. But what about for explaining human behavior? To explain the behavior of our species, anthropomorphism is not only desirable, it is unavoidable! Homo sapiens is quite capable of foresight and knowledge of what is good for his group. Thus, there is no valid reason for rejecting group selection in explaining human behavior: human action is not necessarily limited to the benefit of the actor or his genes. Whether human action is actually performed for the benefit of self or group is, of course, an open question and may always be open; but for scientists of the sociobiological persuasion to close it is at best premature -- at worst, the biologization of cynicism.

#### Summary and Conclusions

Sociobiology is a new science which attempts to explain why organisms behave as they do. When a given behavior is proximally controlled by the genes, that behavior must be selfish (i.e., must be for the good of either the genes or their possessors). This strictly neo-Darwinian theory has been applied successfully to many species of animals, leading to the world-view that behavior is "selfish." When this world-view is applied to humans, however, the conditions under which the world-view was formulated no longer apply. On the one hand, there are no behaviors known to be proximately

controlled by human genes. On the other hand, culture is an intervening factor between the genes and the behavioral phenotype, and mediates social behavior to a much greater degree and more proximally than genetic propensities.

There are two major points I have not argued. First, there can be little doubt that ultimately biology is in some way related to human behavior. We are, after all, hominoids, anthropoids, primates, mammals, and vertebrates -- and likely share behavioral capacities with those animals to whom we are morphologically similar. The nature of these behavioral similarities -- for example, the relation between human social behavior and the mammalian reproductive strategy -- still remain largely to be elucidated. I have also not argued that humans do not behave selfishly. Certainly there is enough experiential data to illustrate that humans frequently do behave selfishly. The question is whether we have an innate biological propensity to be selfish -- whether it is "natural" to be selfish. I have herein argued that there is no reason to presume that human behavior is best explained as selfishness, for there is no logical reason to believe that human behavior is biologically constrained by selfishness.

The presumption of individual-interest as the root of human behavior is a model derived from classical evolutionary genetics, but formulated and applied within a "culture of narcissism" (Lasch 1979). With the cultural perspective and world-view that glorifies ego, the sociobiological perspective attempts to translate a socio-cultural world into a biological world. Just as Darwin applied a prevailing view of the social world (the struggle for existence) to the problem of the transformation of species, sociobiology attempts to apply a prevailing social philosophy (egocentrism) to the biological world. As models of the real world, both the struggle

for existence and egocentrism are ethnocentric in that they reflect a particular cultural attitude toward the world at large and have been proposed as general schemes for the way in which nature operates. As a model for the natural world, however, Darwin's application appears to have been essentially validated; the sociobiological application still awaits a firm data base. The demonstration that a particular social act can be interpreted selfishly does not mean that the act is necessarily selfish. It only means that if one has a "selfishness" world-view a priori, many social acts are interpretable. The validity of "selfishness" as a model for human social behavior, however, remains to be tested. Darwin's great contribution lay in the fact that he was able to argue convincingly that the "struggle for existence" was an appropriate model for for natural world, as it was already an accepted model of the social world. There is no such convincing bridge for the selfishness paradigm.

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#### Notes

- <sup>1</sup> The case of a balanced polymorphism represents an instance of genotypes being perpetuated "for the good of the species" although selection still occurs between individuals.
- <sup>2</sup> Hamilton coined the term "inclusive fitness" to refer to an individual's genetic representation in collateral as well as lineal kin. The classical conception of "Darwinian fitness" refers exclusively to an individual's lineal descendants.
- <sup>3</sup> Although Darwin did not concern himself with social evolution, it is apparent that he held the predominant view of his age, as the following quote reveals: "...No one can solve the simpler problem why, of two races of savages, one has risen higher in the scale of civilisation than the other; and this apparently implies increased brain-power" (Darwin 1962 [1872]:218).
- <sup>4</sup> Darlington (1978) is a notable exception, wherein kin-selection as a general explanation for altruism is rejected in favor of reciprocal altruism.

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