

Introducing TIME magazine on the iPad™

ON SALE NOW >>> [click here](#)



[Back to Article](#)

[Click to Print](#)



Monday, Aug. 01, 1977

Why You Do What You Do

The concepts are startling—and disturbing. Conflict between parents and children is biologically inevitable. Children are born deceitful. All human acts—even saving a stranger from drowning or donating a million dollars to the poor—may be ultimately selfish. Morality and justice, far from being the triumphant product of human progress, evolved from man's animal past, and are securely rooted in the genes.

These are some of the teachings of sociobiology, a new and highly controversial scientific discipline that seeks to establish that social behavior—human as well as animal—has a biological basis. Its most striking tenet: human behavior is genetically based, the result of millions of years of evolution. Some sociobiologists go so far as to suggest that there may be human genes for such behavior as conformism, homosexuality and spite. Carried to an extreme, sociobiology holds that all forms of life exist solely to serve the purposes of DNA, the coded master molecule that determines the nature of all organisms and is the stuff of genes. As British Ethologist Richard Dawkins describes the role and drive of the genes, they "swarm in huge colonies, safe inside gigantic lumbering robots, sealed off from the outside world, manipulating it by remote control. They are in you and me; they created us body and mind; and their preservation is the ultimate rationale for our existence we are their survival machines."

Sociobiologists—whose growing ranks include some 250 biologists, zoologists and social scientists—argue that without consideration of biology, the study of human culture makes no sense. Indeed, sociobiology has significant implications for most areas of human concern—from education to relations between the sexes. Says Harvard Physicist Gerald Holton: "It's a breathtaking ambition . . . as if Sigmund Freud had set out to subsume all of Darwin, Joyce, Einstein, Whitehead and Lenin." Robert Trivers, a Harvard biologist and leading sociobiology theorist, makes a bold prediction:

"Sooner or later, political science, law, economics, psychology, psychiatry and anthropology will all be branches of sociobiology."

These and other claims by proponents of sociobiology have made it one of the most inflammatory doctrines to emerge from the campuses in decades. Since 1975, when Harvard Zoologist Edward Wilson's mammoth 700-page book *Sociobiology: The New Synthesis* brought the new science to public attention, the controversy has spread beyond Harvard—where it originated—dividing faculty departments and disrupting academic conventions. Angry opponents denounce "soso biology" as reactionary political doctrine disguised as science. Their fear: it may be used to show that some races are inferior, that male dominance over women is natural and that social progress is impossible because of the pull of the genes.

By far the most vocal critics have been Marxist and other scholars with political points to make. University of Chicago Anthropologist Marshall Sahlins dismisses sociobiology as "genetic capitalism"—an attempt to defend the current structures of Western society as natural and inevitable. Jerome Schneewind, a philosopher at Manhattan's Hunter College, calls it "mushy metaphor . . . a souped-up version of Hobbes." Harvard Evolutionary Biologist Richard Lewontin is earthier; he thinks sociobiology is "bullshit."

Edward Wilson has been picketed, and at Harvard, the left-wing Committee Against Racism has called sociobiology "dangerously racist." The committee also charged that the new science would give comfort to the supporters of Psychologist Arthur Jensen, a leading proponent of another controversial theory: that racial differences in IQs have a genetic basis. Wilson angrily called that attack "slander," and even Lewontin came to his defense, conceding that "sociobiology is not a racist doctrine." But he added, "Any kind of genetic determinism can and does feed other kinds, including the belief that some races are superior to others."

Opponents of sociobiology were heartened this spring when Harvard failed to give tenure to Biologist Trivers, though denying that his work in sociobiology was the reason. It was a surprising move that Trivers interpreted as an invitation to leave the university—which he plans to do. Still he insists: "I don't think they will be successful in stopping me or slowing down the work. It has spread too far, to too many people, and to far too many studies." Indeed, sociobiology is establishing itself as part of the scientific spectrum. In June, for example, academics from around the nation gathered at San Francisco State University for a two-day meeting on the implications of sociobiology.

Sociobiologists call their doctrine "the completion of the Darwinian revolution"—the application of classic evolutionary theory and modern studies of genetics to animal behavior. Darwin's theory, now

virtually unchallenged in the world of science, holds that all organisms evolve by natural selection—those that are better adapted to the environment survive and reproduce; the rest die out. Thus organisms are constantly perfected by the cruel competition to survive. Sociobiologists believe the behavior that promotes survival of the winners in the evolutionary game is passed on by their genes.

Many recent theorists—such as Nobel-prizewinning Ethologist Konrad Lorenz and Scots Biologist V.C. Wynne-Edwards—have focused on the group or species as the primary unit of selection. Darwin wrote that it was the individual organism. But Sociobiologists believe it is the genes themselves that conduct the life-or-death evolutionary struggle. This gene-based view of life is compatible with a finding made independently by researchers in a widely divergent branch of science. Rutgers Biochemist George Pieczenik has discovered patterns in DNA coding that he sees as evidence of selection occurring at the molecular level (TIME, April 4). "What this means," he says, "is that the DNA sequences exist to protect themselves and their own information. It's not the organism that counts. The DNA sequences don't really care if they have to look like a lowly assistant professor or a giraffe."

Yet sociobiology did not arise from molecular studies but as an answer to a century-old gap in Darwinian theory: Darwin could not fully explain why some organisms help other members of their species. His theory held that every organism fights for its own survival and chance to reproduce, not that of others. Since altruistic behavior reduces an organism's chances to survive, evolution should be expected to breed it out of all species. Still, some birds risk their lives for the flock by crying out to warn of the presence of a predator—thus chancing attracting the attention of the enemy and being singled out for attack. Dolphins sometimes try to save injured dolphins from drowning. Social insects serve the entire community, some going so far as to give their lives to protect the colony from invaders.

Sociobiology tries to resolve the dilemma. Its solution: altruism is actually genetic selfishness. The bird that warns of an approaching hawk is protecting nearby relatives that have many of the same genes it has—thus increasing the chance that some of those genes will survive. Sterile female insects work and give their lives to promote the spread of genes they share with their sisters.

Some 20 years ago, British Biologist J.B.S. Haldane anticipated the gene-based view of sociobiology when, tongue in cheek, he announced that he would lay down his life for two brothers or eight cousins. His reasoning: the survival of two full siblings (each with about half of his genes identical to Haldane's) or the group of cousins (each with about one-eighth of his genes the same as Haldane's) made the decision genetically acceptable.

According to sociobiologists, evolution produces organisms that automatically follow this mathematical logic, as if they were computers, totting up the genetic costs or benefits of helping out relatives who bear many of the same genes. If aiding the relatives increases the chances that familial genes will prosper and propagate, the organism will act altruistically—even to the extent of giving up its life, as a parent may, for example, by rushing into a burning house to save a child. Yet in humans, this genetic push is less binding; sociobiologists believe that human social behavior is largely controlled by facultative genes—the ones that can be influenced by environment to change their effects. Thus there is room for cowardly and selfish—as well as unselfish—behavior.

British Biologist William Hamilton in 1964 explained how altruism could help an individual spread his genes; he argued that the principle explained the social life of insects.

In all ants, bees and wasps, daughters of the queen share an average of three-quarters of their genes (see diagram). Because the daughters are more related to each other than they would be to their own offspring, said Hamilton, it is in their genetic self-interest not to breed but to assist the queen in producing more daughters.

Thus the females evolved as sterile workers who cooperate socially for genetically selfish reasons.

Some years later, Trivers reasoned that if Hamilton was right about the social insects, worker ants would spend three times the energy rearing sisters as rearing brothers, because the workers are three times more closely related to their sisters than to their brothers. Trivers and his associate, Hope Hare, then analyzed thousands of ants of 20 different species and confirmed the 3-to-1 female dominance—the strongest evidence so far that organisms act as if they understand the underlying genetics.

Still, there are problems in explaining all altruism as a direct investment in one's own genes. For example, some birds give warning cries for the flock even when their young and close relatives are absent. Trivers proposed a solution in a 1971 paper on reciprocal altruism that has become a central text for sociobiologists. "In other organisms," Trivers wrote, "the evidence that altruism is genetic is rather overwhelming. It is therefore irrational to argue that the first species in which altruism has no genetic contribution is human beings." Using game theory, he concluded that natural selection produces individuals that exchange favors—in effect saying, "You scratch my back; I'll scratch yours." In other words, the favor will eventually be returned, thus improving the outlook for the genes of the first altruist. According to the theory, human charitable acts are therefore rooted in biology and gene selfishness. This theory could explain human loyalty to nation, corporation or church; these institutions can provide benefits to members that increase the chances for them to survive and

propagate.

Some philosophers and theologians have been dismayed by the theory. So was one young man who had won a Carnegie Gold Medal for saving a drowning victim; he wrote Wilson a troubled letter. Recalls Wilson: "He found it difficult to grasp the notion that somehow his act was preordained through genes. I convinced him that the impulse and emotion behind his rational choice, though genetically determined, in no way detracted from the rationality and value of his altruistic act."

For many, such explanations of noble deeds are cold comfort. But Harvard Anthropologist Melvin J. Konner sees a bright side to reciprocal altruism. Sociobiologists, he says, "have in fact uplifted [human nature] by showing that altruism, long thought to be a thin cultural veneer, belongs instead to the deepest part of our being, produced by countless aeons of consistent evolution."

In Trivers' model, non-backscratchers (who refuse to play the game) and overt cheaters (who accept favors but never return them) are long-term losers in the evolutionary game. Yet subtle cheaters who pretend to cooperate but do not are winners. As a result, Trivers believes, humans survived by evolving a complex psychology and set of emotions to keep the altruist from being exploited by cheaters: indignation, guilt, gratitude, sympathy and moralism.

Indeed, to sociobiologists deceit is a crucial factor in evolution. Some birds, like the nighthawk, can feign a broken wing to lure predators away from a nest. In some avian species, a female that has been inseminated by a departed male may try to hide the fact, thus tricking a new male into investing his time and resources in offspring—and genes—that are not his. In the long run, however, natural selection sharpens up both the ability to cheat and the ability to detect cheating. Trivers and Dawkins suggest that the need for deceit—and for its detection—may have been responsible for the rapid enlargement of the human brain during the Pleistocene era.

Sociobiologists believe that self-deception is also a product of evolution, simply because a cheater can give a more convincing display of honesty if he lies to himself as well as to his neighbor. Says Zoologist Richard Alexander of the University of Michigan: "Selection has probably worked against the understanding of such selfish motivation becoming a part of human consciousness." Adds Trivers: "The conventional view that natural selection favors nervous systems which produce ever more accurate images of the world must be a very naive view of mental evolution."

Of all sociobiologists, Trivers has been the boldest in applying the gene-based view to humans. In part, that accounts for his rise—in just ten years—from an author of children's texts to a biology guru at age 34. The son of a Foreign Service officer, Trivers entered Harvard on a scholarship in 1961

to study math and prepare for a career as a civil rights lawyer. He was a bright, moody, private person who turned up at all the civil rights demonstrations and student protests. But his marks were so mediocre ("I was more interested in chasing women and the real world than in math") that his Harvard scholarship was canceled and he was turned down after graduation by two law schools.

Abandoning a law career, he took a job writing children's textbooks for the Educational Development Center in Newton, Mass., and while working on an animal volume was struck by a photo of baboons disciplining their young. It looked so much like human parents dealing with their children, recalls Trivers, "that it was possible to imagine language as just so much froth on the ocean, and that there was something else underlying human discipline. It occurred to me that to understand human behavior, it would be very helpful to examine the behavior of other organisms."

At the time, Trivers knew little about evolution and nothing at all about biology, but he plunged into the literature and sought out mentors. "Once I learned what natural selection was," he says, "it was clear that for one hundred years since Darwin, almost no work had been done in applying Darwin's reasoning to social behavior. It was an incredible opportunity to be able to move into this enormous vacuum."

Excited by his new interest, Trivers borrowed money and went back to Harvard as a special student in biology, gaining his Ph.D. and a faculty appointment in 1972. Zoologist Ernest Williams, one of his teachers, describes him as a brash, brilliant student who turned in papers with slashing attacks on well-known biologists, some of whom have not forgotten—or forgiven. Brashness is still part of Trivers' character. He derided an anthropologist (who, incidentally, admires his work) as too old to understand the implications of sociobiology. The anthropologist was then 38.

The second of seven children, Trivers admits that the problems of growing up in a large family and the arguments he had with his father helped to point him toward his theory that parent-child conflict is biologically certain. Trivers believes that the child shows a selfish interest in itself and seeks to get more than its fair share of the energy and resources of parents. But the parent has only a partial genetic interest in each child and thus is preoccupied with sharing resources. The result, according to Trivers, is biologically certain conflict between the child, who tends toward selfishness, and the parent, who insists that the child share.

Another example of the conflict, in a variety of mammals, is weaning. When the benefit to the child begins to be outweighed by the cost to the mother (reduced ability to bear or care for other offspring), the mother will deny milk, though the offspring will continue to demand more. But parents have an edge. (Says Trivers: "An offspring cannot fling its mother to the ground at will and

nurse.") So evolution has provided a defensive weapon for the offspring: psychological warfare. Some fledgling birds will scream with hunger—even when they are reasonably well fed—to induce the parent to bring more food. Dogs withhold tail-wagging to get more food. Children withhold or provide smiles—as a means of reinforcing maternal behavior they need. Says Trivers: "Strong selection pressures tend to favor the infant's efforts to express its own self-interest. Once you explore the stratagems of parent and child, I think you can see that the child is not just an empty vessel to be filled by the parents but a sophisticated organism capable of acting in its own self-interests from early on."

So early, Trivers thinks, that the action may actually begin before birth. He believes there are "chemical tactics" that the fetus uses on the mother to increase its size and fitness while still in the womb. Even more surprising is Trivers' theory (for which he admits there is yet no evidence) of genetic conflict between egg and sperm before conception: under some conditions, the egg may try to repel sperm with female-producing X chromosomes in order to be fertilized into a boy rather than a girl.

Parents, as well as children, have genetic interests that emerge as manipulation. One of Trivers' examples: a parent may be overprotective in order to keep a grown child at home helping with the other offspring—something that promotes the self-interest of the parents and the younger kids but diminishes the chances of reproductive success for the older child. Says Trivers: "Humans are caught in an intense co-evolutionary struggle with their closest relatives. Parents, siblings and offspring are our allies as well as our opponents."

In fact, sociobiologists believe, conflict—both in the family and with outsiders—is the essence of life. But they do not think that man is at the mercy of an irresistible aggressive instinct, as Lorenz (On Aggression) and Author Robert Ardrey (The Territorial Imperative) insisted in their popular books more than a decade ago. For sociobiologists the trick in becoming an evolutionary winner is to hit just the right level of aggression. Too little, and the organism may be muscled out by competitors. Too much, and it may die in battle without reproducing, or use up time and energy in fighting while competitors steal its food or mate. Aggression, in other words, pays off only when the cost-benefit ratio makes it a workable strategy.

Sociobiology seems to have an explanation—usually a deflating one—for nearly every human phenomenon. Maternal love is a genetic investment policy. Friendship and law are probably rooted in reciprocal altruism and its calculus of self-interest. The socialization of children, at home and school, is as much forced indoctrination in reciprocal altruism as it is genuine teaching. Ethnic pride (as well as racism) can be viewed as an irrational generalization of the biological tendency to distrust

strangers and prefer the company of individuals who look like ourselves. Says Wilson: "We are likely to see some of our most exalted feelings explained in terms of traits which evolved. We may find that there is an overestimation of the nature of our deepest yearnings."

Sociobiologists argue that those yearnings are so encrusted with self-deceit and rationalizations that only a rigorous evolutionary analysis will make them clear. Wilson, in fact, calls for "ethics to be removed temporarily from the hands of the philosophers and biologized." Though Wilson is hazy about what a biologized ethic might be, he suggests there could be different moral strictures for males and females, old and young. An ethic of children, he says, might account for their genetically based resistance to parental control, as well as for the tendency of teen-agers to band together and set their own rules.

Wilson, 48, curator of entomology at Harvard's Museum of Comparative Zoology, is currently writing a book on the evolution of ethics in relation to sociobiology. A specialist in the social insects, he wrote *The Insect Societies* (1971), then put in three years of 90-hour weeks working on his sociobiology text. Says he: "I wanted to synthesize and draw the boundaries to shape sociobiology into a discipline."

In the spectrum of current theories about human behavior, that discipline falls between the thinking of Harvard Psychologist B.F. Skinner, who regards people as pliable beings whose behavior can be almost entirely shaped by their environment, and Lorenz, who believes that man is a prisoner of his aggressive instincts. Like Freudian psychology, sociobiology stresses the innate but allows for the influence of environment. Indeed, sociobiologists concede the possibilities of a Freudian connection. Trivers says that he can think of 16 ways the discipline could "revitalize" the teachings of Freud, who also had something to say about inevitable parent-child conflict and the role of self-deception.

Many social scientists are now contributing to the development of sociobiological theory. Anthropologist Napoleon Chagnon of Penn State University (TIME, May 10, 1976) reports that the Yanomamo tribes of southern Venezuela and northern Brazil seem to be engaged in almost continuous war over the right to reproduce. The tribes "invest" more heavily in raising boys, practice female infanticide and constantly raid other settlements for women. Anthropologists Lionel Tiger and Robin Fox (*The Imperial Animal*) insist that evidence points to a "biogram," or biological program, guiding human behavior.

Harvard's Irven DeVore, already one of America's leading anthropologists when he converted to sociobiology, now says he will go back and redo all of his major primate studies. He has gone to Africa this summer to conduct the first real test of sociobiological theory on primates.

Donald Campbell, former president of the American Psychological Association, believes that psychology must adapt itself to evolutionary theory, if not sociobiology. He thinks religious teachings have evolutionary importance—an idea a few theologians have picked up from sociobiology. Says Unitarian Ralph Burhoe of Chicago's Mead-ville/Lombard Theological School: "The truths in religion have been selected because they are necessary and essential to man." Though no sociobiologist has yet worked out a full theory of religion, the general view is that the golden rule about love of neighbor evolved out of reciprocal altruism.

All told, sociobiology seems to have won the first round with its critics—largely because their accusations were overblown and based on emotional response rather than hard evidence. "Our rhetoric was at fault," admits Biologist Stephen Gould, an opponent of sociobiology. Lewontin adds glumly: "Other people may have listened more if we had presented our arguments differently."

Still, Trivers agrees that the critics have a point in being concerned about the social implications of what sociobiologists preach. "Social theory," he says, "ought to be looked at from the standpoint of what its implications are. It's not like particle physics." Wilson's book, for instance, raises some unsettling questions that most social theorists shy away from: Is it possible that social classes reflect genetic differences? Do the upper classes gradually accumulate a separate and superior gene pool? After stating that the idea has "plausibility," Wilson goes on to say there is "little evidence" of its truth: culture moves too fast, and even the 2,000-year-old castes of India are not genetically different in any measurable way. Still, Wilson believes there is a "loose correlation of some of the genetically determined traits with success." Such beliefs worry many readers, so Wilson often devotes himself to reassuring audiences that sociobiology is not threatening. He says, for example, that only about 10% to 15% of human social behavior is genetically based. (After this less-than-scientific guess, Sahlins replied with some dry academic mockery that human behavior cannot be reduced to 10% biology, 5% physics, 3% chemistry, .7% geology, 81% symbolic logic and .3% the action of heavenly bodies.)

Wilson also stresses that genes need not always be obeyed.

He notes that man has "a genetically inherited array of possibilities. Some of these possibilities set limits on man's aspirations, others do not, and the search should be for where biology pushes mankind and where man can resist the push." He also admits that "genetic constraints evolved during the millions of years of prehistory, under conditions that to a large extent no longer exist." It would be foolish, he says, to rear as many healthy children as possible in today's crowded world, no matter what the genetic push.

Despite the weaknesses in sociobiological doctrine that required these concessions, opponents have been slow to mount a scientifically based counterattack. A major reason for the delay: few critics feel competent to cut across all the disciplines involved, from ethology and mathematics to anthropology and game theory. But a more sophisticated opposition is beginning to take root in the academic community.

Anthropologist Sahlins in *The Use and Abuse of Biology*, the only anti-sociobiology book published to date, contends that kinship patterns among humans do not—as sociobiological theory predicts—always follow bloodlines. He also argues that Trivers' theory of reciprocal altruism simply does not work: an individual may help himself by behaving altruistically, but he also helps one of his competitors. Thus there is no net advantage to altruistic behavior, and it should be selected against by evolution.

Another common objection: human sociobiology is long on theory, short on proof. Some sociobiologists concede that large chunks of the theory may have to be modified as studies proceed.

But the strongest argument against sociobiology is that it underrates the emergence of the human brain, consciousness and culture. Said Columbia Anthropologist Marvin Harris to an M.I.T. audience last year: "Sociobiologists tend to drastically underestimate the result to which human cultures represent an emergent novelty." His point: even simple organisms show great variation in behavior, but only the genes can pass it on. Among humans, learning can be passed on by culture, thus overwhelming the genetic contribution to behavior.

The fear of many of sociobiology's opponents is that it will prove nothing but leave a heavy political impact anyway. Sahlins fears it may disappear as a science but go on and on in the popular culture.

Indeed, few academic theories have spread so fast and with so little hard proof. Apart from the Hamilton-Trivers work on altruism, there has been little to impress the skeptics, and no hard evidence has been presented to show that genes influence human cultural behavior. The power of sociobiology comes from its astonishing promise to link the physical sciences with the human sciences and to bring all behavior from *Drosophila* to *Homo sapiens* under one great discipline.

What is more, sociobiology may have appeared at the right cultural moment. The 1970s have brought with them growing impatience and disillusionment over failed educational and environmental experiments designed to alter social behavior. The concept of social theorists that man is infinitely malleable and perfectible has fallen into disfavor. At such a time the emergence of a doctrine preaching that man is caught in history, able to exercise free will only within the limits set by his

genes, may do very well indeed.

 [Click to Print](#)

Find this article at:

<http://www.time.com/time/magazine/article/0,9171,915181,00.html>

Copyright © 2011 Time Inc. All rights reserved. Reproduction in whole or in part without permission is prohibited.

[Privacy Policy](#) | [Add TIME Headlines to your Site](#) | [Contact Us](#) | [Customer Service](#)