

THE EVOLUTIONARY BASIS FOR RELIGIOUS BELIEF: MARX'S TAKEOVER BID FOR DARWINIAN SOCIOBIOLOGY

F. R. HAYES*

E. O. Wilson's evidence is examined, that altruism and religion are explicable as offering genetic and evolutionary advantage. Reasons are given for regarding Wilson's critics in the so-called Harvard controversy, as a Marxist religious group rather than as science-based biologists. The implications of the controversy on scientific belief, religious belief, and on truth are discussed.

A general problem which I am going to talk towards and talk around this evening is one of the oldest in biology and one of the first to be introduced to beginning students. It is called nature versus nurture, that is the extent to which the hereditary characters of an organism can be eliminated or altered by manipulation of the environment. We are all performing such manipulations all the time, with activities which range from adding fertilizers and weed killers to our lawns, to training efforts with children and adults. The particular example which we shall examine is the social behavior of man, particularly in the religious area and in its relation to recent research in biology.

Our discussion is concerned with recent expansions which have taken place in the scope of several familiar ideas. One of them is about the term religion which, among materialist groups aggressively opposed to the supernatural, tends to become confused with political and social movements. Another is in the field of human evolution, evidence for which was originally developed from an examination of structures, but whose study today is concerned as well with behavior. A third area of vigorous contemporary research is in the study of animal and human social groups, whose survival through natural selection may be aided by inherited unit characters—Mendel's word, today we say genes - genes of altruism and, among humans, of religion.

May I begin with a word about the levels of approval which are enjoyed today by religion and science. The two stand in unexpected and reciprocal relations, where the predicted directions of their growth patterns are not borne out by events. On the one hand formal religion, which has been on the decline ever since the Renaissance, has failed to regress towards its final extinction, which was supposed to accompany the wider spread of the Enlightenment. It is evidently more deeply rooted in our behavior patterns than had been thought. On the other side science has, during the centuries, been coming up towards its final triumph as the universal remedy for life. But instead of the expected adulation, it is increasingly embattled by groups of critics whose attacks are many-sided and include (Graham 1978):

damage to the environment, such as destruction of the ozone layer by escape into the upper atmosphere of chemicals used in aerosols, or the killing of children by spruce budworm sprays

fears about the outcome of "genetic engineering", perhaps through the accidental production of a pathogenic organism immune to antibiotics, or even eventually tinkering with the gene pool of humanity

*Department of Biology and Institute for Resource and Environmental Studies, Dalhousie University, Halifax, N.S.

all sorts of doubts about nuclear research and development, ranging from over-costly proposals such as the Chalk River project to build a super-reactor called ING (rejected), to fears about our inability to find safe storage places for radioactive waste, or concern about the costs of power plants in both energy and money compared with their expected returns

“subversive knowledge” which is seen as conflicting with the theories of ruling authorities, and ranges all the way from Galileo to the subject of the present report.

When theory and fact are at odds it is worthwhile to enquire why, and my purpose is to look at one facet of the general dilemma.

Godless Religions

In his Massey lectures with the title “Nostalgia for the Absolute”, George Steiner talks about the effects of the decline in influence of formal religions and churches on Western society. Various causes for the decrease have been cited, including the rise of scientific rationalism since the Renaissance; scepticism about superstition and the supernatural; Darwinism; modern technology. But really the causes are secondary—the point is that in the West the life-springs of theology have dried up.

When men are deprived of the beliefs which have governed their lives, and their father’s lives, they are left with a deep-seated nostalgia for the absolute. That nostalgia—profound in most of us—was brought on by the decline of the ancient and magnificent architecture of religious certainty. We hunger for total explanation; we are starving for guaranteed prophecy. The response to our hunger has been to create substitute theologies or, as Steiner prefers to call them, mythologies. To qualify for the status of mythology, that is to attract widespread belief, a doctrine or body of thought must meet the criterion of totality; it must affirm that the analysis which it puts forward of your life and mine, is a total analysis. To become a religion, a mythology must claim to draw a complete picture of “man in the world” and invite people to offer themselves totally to a Founder, say Marx. Secondly, religious movements have usually begun with a remarkable event from which the entire system springs (publication of *Das Kapital*). Soon some of the disciples break away into rival groups or sub-mythologies or heresies; the orthodox in the movement will hate such heretics more violently than if they were heathen unbelievers, recognizing that heretics are the real threat. As its third criterion a true mythology will develop its own language, its own characteristic idiom, its own images, metaphors and dramatic scenarios, to be found for example in the Marxist analysis of capitalism.

Steiner goes on to suggest that our political and philosophic history of the past 150 years represents a series of attempts to fill the central emptiness left by the erosion of theology. The “Little Green Men” as he calls them, encompass one of the most discouraging and inadequate of the series of post religious mythologies. They flourish especially on our continent and include such beliefs as Astrology and Horoscopes, Flying Saucers, Clairvoyants, the Hidden Atlantis, saffron-robed votaries of Hare Krishna, Chariots of the Gods, and all the rest of the spooks.

Another post religious theology, whose description I shall not pursue, is called by Steiner “Voyages into the Interior”, and deals with the variants of the science, or pseudo-science, of Freudian psychoanalysis. The classical theories of Freud, we are told, are already receding into history, they are not clinically verifiable, and his techniques are falling into disuse.

Of all the substitute theologies, Marxism is the one that has had the widest acceptance and greatest influence. For millions it satisfies the criteria for a mythology. From the believer it asks for total commitment of conscience and person. In return it

offers a complete explanation of man's biological and social reality and a hope for society's future redemption. It had an identifiable founder with his original small group of followers. Soon it acquired heretics like Trotsky and Mao who have been in ferocious conflict with the orthodox. To bring about the promise of Marxism—the withering away of the state and the classless society without poverty, oppression, or war—for all this generations of idealists have sacrificed their lives and have visited untold suffering on dissenters and heretics. In the academic world Darwinism has for a long time been an heretical view, and today the chief dissenter-in-residence is Edward O. Wilson.

Like other materialistic faiths, Marxism was from its outset savagely anti-religious with its Godless world and denial of an after life. Nonetheless its claims on the believer have always been religious in strategy and effect and have shown at decisive points the marks of a theological past. Now as we shall see later, it is central to Wilson's thesis that religion is a genetic character with a survival advantage for man; accordingly one may anticipate the gradual acceptance of the supernatural by Marxism.

The direction towards re-entry is evident in these quotations (cited from Wilson, the second one abbreviated).

From Mao Tse-tung: We must persevere and work increasingly, and we too will touch God's heart. Our God is none other than the Chinese people.

From a Lenin disciple and spokesman: A real Communist becomes in a way a miracle man and will readily cast from his mind ideas in which he has believed for years, and will submerge his personality in the collectivity of the Party.

On Sociobiology

Our discussion deals with a dispute which has arisen about whether the behavior and social structure of mankind is more correctly to be interpreted by the theories of Darwin or of Marx. It may be asked where religion comes in, since both of these gentlemen were atheists. But if, as evidence suggests, the tendency to religious belief is among our genetic characters, subject to the laws of heredity, then it may be argued that Marxism itself has become a theology. In many countries Marxism is part of a state-religious-complex which, as we shall see, is one of the oldest systems known to human civilizations. The Marxists then, may be taken to occupy the position in the modern dispute that was filled by the Bishops in the Darwinian debates of a century ago.

The central figure in the present debate is Edward O. Wilson, a Harvard biologist, and the leadership of opposition to his views is also Harvard led, which is perhaps an appropriate status for a great university to occupy. Wilson has written a trilogy that unfolded, like Mendel's laws or Darwin's thesis, out of his own field of research. The first volume was on insect societies, which led him in turn to apply to vertebrates the approach to population biology that had worked so well in explaining the social systems of insects. In the final chapter of the second book he argued that his approach could profitably be extended to the social sciences to explain the behavior of man. "This suggestion" as Wilson remarks in understatement, "created an unusual amount of interest and controversy". In truth it evoked a renewal of the furor that had greeted Darwin's research findings a century earlier. The debate has now led Wilson to amplify his views in a third volume "On Human Nature" in which he develops, among other topics, his conclusion that religious practices can be mapped onto the two dimensions of genetic advantage and evolutionary change.

But, as he warns, even if there is a material basis for religion, its comparative study will be difficult to interpret, because human mythologies are unique and not derived in any direct way from animal behavior.

In the modern extension of Darwinism called Sociobiology, behavior is studied as well as structure. Darwin's famous dictum "Man still bears in his bodily frame the indelible stamp of his lowly origin" is considered to take in his mental operations as well as his flesh and bones. It is held that behavior should be pursued and its findings weighed as the best means we have of tracing the evolutionary history of the mind. Sociobiology carries with it the implication that much of man's behavior towards his fellows may be a product of evolution. But how much? A key scientific issue concerns the extent to which human social behavior is genetically determined (see Caplan 1978).

Our nearest relatives, structurally, are the Old World monkeys and the great apes and with them we share such behavioral patterns as these among others:

Our intimate social groups are about 10 to 100 adults, not 2 as in most birds or thousands as often with fishes and insects. The early hunter-gatherers lived as extended family bands of 25 to 100 who assembled when searching for food. Their customs included territoriality and aggression, and their ranges were similar in size to those of wolf packs and somewhat larger than those of gorilla bands. Studies of the human groups have included, among others, Eskimos, Australian aborigines, and North American Indians.

Males are larger than females and the larger among males compete more successfully for females. There is mild polygamy, so that the average male consorts with up to three females.

The young are moulded by a long period of social training with the mother, then with older children.

Social play is strongly developed, featuring mock aggression, sex practice and role practice.

Altruism and food-sharing with close relatives has been observed among chimpanzees.

There are parallels in styles of facial expression and in grimaces of fear, smiles, and laughter.

Added to these shared characters, our own species is distinct in ways that can only be explained as a result of our unique set of some 250,000 genes which bring about the composite human behavior patterns. From a list of 67 cited by Wilson, here are a few random samples: athletics, adornment, cooking, education, food taboos, hairstyles, language, law, medicine, propitiation of supernatural beings, religious rituals.

The heart of Darwinian evolutionary theory, as applied by Wilson, is that during that past 5 million years or so, genes determining many of the specifics of human behavior spread through the population. Changes occurred under the influence of natural selection, random drift, etc., just as with the genes that determined the

characteristics of human anatomy. Individuals who displayed the traits now considered distinctly human stood a better chance of having their genes represented in the next generation. When the process began man's progenitors were not yet in the genus *Homo*, much less the species *Homo sapiens*. Genetic fitness for human behavior offered improved chances for personal and reproductive survival for the individual, as well as for his or her close relatives who shared the same genes.

Taboos against incest are among the universals of social behavior which are supported by religious sanctions. In the case of the brother-sister taboo there is an even stronger than cultural enforcement, namely a physical sexual aversion which develops between small children. These taboos confer genetic fitness and a corresponding loss of fitness results from incest. Even a moderate amount of inbreeding results in children who are diminished in stature, in muscular coordination and in academic performance. More than 100 recessive genes have been associated with hereditary diseases. It appears that natural selection has guided human beings into a favorable instinct based on genes.

Biology's Unique Handicap and The New Anti-Darwinism

Our first effort in this discourse was to clarify a certain confusion which exists between religious and secular convictions. We turn now to a peculiarly biological involvement. The history of science has been a search for principles which could bring order to a large body of hitherto discrete facts. Take chemistry for instance: its earliest classification was into 4 elements, earth, air, fire, and water. Gradually knowledge was extended until, about the middle of the last century, Mendeleev unified the subject with his remarkable periodic table, which was so advanced that it was even capable of predicting the properties of still undiscovered elements. During the early years of this century, his table was expanded by the addition of radioactive elements which decayed into other ones. In the '30's another great expansion began with Urey's discovery of heavy hydrogen and the manufacture by the Joliot-Curies of the first of the long series of artificial elements. Throughout all these developments Mendeleev continued to be held in high honor and repute, as researchers developed, modified, and expanded his unifying principle.

The illustration provided by chemistry could be paralleled in other fields; indeed we think of science in general as a disinterested search for truth with no evident ideological base. Biology, like other sciences, has a long history of its search for order. In early times the variety of living creatures was encompassed by two classes, animal and vermin. Refinements to this simplistic explanation of life continued to appear until, just 10 years before Mendeleev, Darwin offered in *The Origin of Species* his great unifying principle of natural selection. But, as we all know, Darwinism turned out to be too dangerous to the interests of churchmen to be left free for objective evaluation. It aroused a protracted storm of controversy which during this century has gradually become less prominent. But quite recently a new flare-up has appeared and a new idea is being pressed by some scientists—call it religious or political or ideological—an idea that in certain aspects of biology, research should be restricted so that unwanted conclusions may not appear. Questions concerned with the inheritance of human behavior, or possible differences in intelligence between sexes or between races are to be regarded as 'off limits', and prudent scientists are warned to stay in an acceptable stream of research if they are to hope for funding and for publication in reputable academic journals (Graham 1978).

As an aside to the activities of the private critics, one may query the prediction of George Orwell that by 1984 the control of thought would be in the hands of the state. It has turned out instead that in the West the pressures to conform come from private groups who are claimants of a certainty of rightness which is above scientific findings and for that matter above law.

Turning to the new anti-Darwinism, the general modern charge, which reaches back a century for its attack on Darwin, is that he was a product of his times born in the England of laissez-faire capitalism. Presumably, like citizens of all ages, he did have the bias of his times, surely a stricture that could be universally applied. His critics have developed a sort of natural-selection-in-reverse theory, which is that Darwin looked at the structure of human society in England (so-called social Darwinism) and then applied it to nature generally (Gould 1977). It is conceded by the critics that Darwin himself did not say that nature was constructed according to the business principles of early capitalism. But Karl Marx did. He wrote:

It is remarkable how Darwin recognizes among the beasts and plants his English society with its division of labour, competition, opening up of new markets, 'invention' and the Malthusian 'struggle for existence'.

Marx was an admirer of Darwin and asked him to accept dedication of the second volume of *Das Kapital* but Darwin declined.

The overt attacks on Darwinism have come, first from the Right and latterly from the Left. The early critics of human evolution were church people who objected to Darwin as a materialist who threatened their established religious systems. Under the climate of materialism which had come into vogue in Darwin's time, his ideas flourished and were accepted and his opponents were vanquished.

In recent years the vigorous new assaults on the study of human evolution have been made by biologists of the radical Left, comprising an anti-Wilsonian center of Harvard heretics. Among the more equal of the officially unled group are Richard Lewontin and Richard Levins (Allen 1975; Wade 1976). It is sometimes said that the new objectors to Darwinism differ from those of the past century because they are led by practicing biologists who are proponents of social change rather than stability. But the difference disappears when it is realized that the new assailants of natural selection are fundamental Marxists who, like the Bishops, are fearful that their particular version of Truth might not survive the results of free scientific research.

The anti-Darwin position might be summed up in this way. One hundred years ago the Bishops objected to Darwin on the ground that his ideas degraded the quality of man's spiritual life and contradicted the Book of Genesis. Today the Harvard group object to Wilson because his ideas are thought to reduce the incentives for good behavior and contradict the theory of natural altruism which is basic to the Book of Marx. Both groups seek more agreeable ideas about the nature of man than science is likely to produce. Both want science to conform to non-scientific postulates.

The acceptance of Darwinism was aided in his time by the general approval of free-enterprise capitalism. Today the situation is reversed and contemporary criticism of natural selection as applied to man, derives its plausibility and effectiveness from disapproval of a human world of unrestrained competition. Darwin upsets the Left, according to whom the behavior of animals ought to be presented as showing a socialist ideal of equality and sacrifice for the general good. Mutual aid or altruism becomes the theme. It is desirable among humans and it can be observed among social animals.

Certain small birds, robins, thrushes and titmice for example, warn others of the approach of a hawk by a distinctive whistle (Wilson).

The balance between heredity and environment could be examined using evidence derived from any of our elemental bases of behavior: of sex and the family, of aggression and possession, of race relations, of food habits, or of altruism and religion. I have chosen religion because it invites a comparison between the early at-

tacks on Darwin and the recent ones on his successor. My attribution of contemporary opposition only to Marxists is also a selective simplification; many groups suspect that Wilson will be interpreted by conservatives as offering implicit approval to one or another undesired class structure. Workers against group prejudice, for example, are outraged to be told that our social tendency to form small, defensive class units of a few dozen families, may have some hereditary basis.

One more aside: the attacks on evolutionary discoveries could lead easily to a denial of evolution itself, and so allow the advocates of Genesis to say "We told you so". It would be a weak debating position to deny Darwinism but affirm that evolution had indeed occurred through some mechanism not yet understood.

Altruism and Religion

My own introduction to this section came many years ago from remarkable papers published by Trotter in 1908 and 1909. As he tells us, there are some animals whose conduct can be generalized very readily into the categories of self-preservation, nutrition, and sex, for instance the tiger or cat. The three solitary drives or primitive instincts, attain their maximal activities only over short periods of time and in special circumstances, and are fundamentally pleasant to yield to. When the circumstances are appropriate for yielding to one, the others automatically fall into the background, so that they are only infrequently in conflict.

The behavior of other animals is more complex, for example the dog, with his conscience, his humor, his terror of loneliness, and his devotion. A little examination will show that the animals whose conduct is difficult to generalize under the three primitive instincts are gregarious. Gregariousness then, is to be taken as a major biological instinct. Trotter, following Karl Pearson, holds that there have been two very striking advances in complexity and in the size of the unit upon which natural selection acts. These are the passage from the unicellular to the multicellular, and from the solitary to the social. The appearance of the herd instinct introduces a conflict with the other three, since its sanctions inhibit physically pleasant acts and ordain deeds that may be unpleasant.

It is a corollary of gregariousness, expounded originally by Pearson, that human altruism is a natural instinctive product. Man is altruistic because he must be, not because reason recommends it, for herd suggestion opposes any advance in altruism. When it can the herd executes an altruist, not of course as such, but as an innovator.

And now let us return from the London of 1908 to the Harvard of 1978. As Wilson notes, generosity without hope of reward is the rarest and most cherished kind of human behavior. However, any study of the evolutionary basis of self sacrifice and altruism is complicated by the many 'unselfish' acts that are products of social development rather than of genetic inheritance. Wilson calls the former 'soft core' or culturally evolved altruism, the good deeds that smooth the social contacts of our daily lives. It is the predominant variety, in which the 'altruist' expects rewards for himself and his relatives, and its examples are too familiar to warrant extended treatment. Wilson rather cynically lists its psychological vehicles as lying, pretense, and deceit, including self deceit.

'Hard core' or genetically explicable, unselfish, kinship altruism is restricted to helping close relatives, and declines in intensity as relationship becomes more distant. It is reasoned that the Darwinian advantage of the hard-core altruism of an individual lies in the improved chance of survival of his closest relatives who carry the same generous genes. Hard-core altruism or nepotism is an enemy of the development of civilizations beyond the small-tribe size. Family style cooperation would soon reach its upper limit and be replaced by the imperatives of blood and territory.

Geneticists have had difficulty in finding a satisfactory explanation of how kinship altruism can be expanded to take in the large-scale sacrifices observed, for instance, in national wars. Wilson, however, postulates that genes of religion enter here to permit hard-core altruism to co-exist with large civilizations. For religion, with its system of supernatural rewards, bridges the gap between individual aggression and acceptable behavior within national groups. The third-century dictum of Tertullian that "The blood of martyrs is the seed of the church" and its contemporary reiteration by the Ayatollah Khomeini of Iran, intimated that the purpose of sacrifice is to raise one human group over another. The effect of the policy has been to sanctify and channel individual aggression and bloodshed into the socially acceptable direction of large-scale war. To accept the probability that supernatural religion has an hereditary basis is a blinding flash of the obvious. It clears up at once the difficulty of adding the existence of group-selection altruism to the already genetically reasonable kin selection. The reward expected for the hard-core altruism of martyrs and patriots is to be obtained after death in a future world.

Biologists have not found any series of fossil remains which offer clues as to when and what practices related to religion and immortality entered the behavioral patterns of our hominid ancestors. As speculation on the question we may recall that the primary instinct of self-preservation includes resistance to death and the fear of death. Superimposed on this from among the herd characteristics is kinship altruism which extends the personal concern about dying to take in our relatives as well as ourselves. With the beginnings of man-like intelligence come thoughts about the future and how to ease the terror of passing, by exercises of propitiation towards whatever spirits may be in control of this major event. The evolutionary value of religion would lie in the strengthening of the bonds of unity within the tribe, enabling it to be more effective in war as well as in the hunting-gathering practices.

No parallels have been observed between human religious practices and behavior patterns of other social animal groups. The usual comparative studies have not been available, through which to determine the possible evolutionary advantages which were originally conferred on our ancestors by the development of the ceremonies. The first evidences we have of supernatural belief are shown by the intentional burial arrangements to be seen in early human graves. Sixty thousand years ago Neanderthal people in Iraq decorated a grave with seven species of flowers having medicinal and economic value, perhaps to honor a priest (Solecki 1975).

From the beginnings of divine belief, authorities have traced the expansion and utility of organized religions which accompanied the change from hunting, fishing and nomadic herding into agriculture, some 10,000 years ago. Farming required a more reliable water supply than on-the-spot rainfall. Wittfogel documents in detail how the earliest civilizations, with their structured societies, originated around rivers, where elaborate and parallel class structures arose. The systems were first described for the East, and since then similar civilizations have been studied in Mexico and elsewhere in the Americas. Theirs were despotic governments whose heads included a ruler, peace chief, war leaders, and priests. Commenting on the systems Karl Marx noted that "The necessity to calculate the periodic movements of the Nile created Egyptian astronomy and with it the rule of the priest caste as leader of agriculture". (*Das Kapital*, vol. 1).

The prestige and maintenance of power by the rulers, were closely linked to that of their divine protectors, who were eager to bulwark the legitimacy of the heads of state by underlining their supernatural support. The government engineers who created canals and waterworks also constructed palaces and temples to provide the supreme gods and their earthly functionaries with adequate surroundings for worship and residence.

From the dawn of the river civilizations it was upon the head of state that the magic powers of the commonwealth converged. He was a god, or the descendant of

a god, or a high priest with divine powers. He attached to himself and the government the symbols of supreme authority. Religious functionaries were the best educated class of society and were entrusted with many administrative and fiscal tasks. Through the priesthood the ruler could claim divine sanction instead of using force to assist in keeping peace; the distinction between politics and religion virtually disappeared, as today in the Iranian revolution.

Varieties of Salvation

Discussions about the control of man's behavior in this world by the will of genes, invite comparison with the theological doctrine of predestined salvation or damnation of souls in the next world by the will of God. Marxist theologians do not accept gene predestination, but rather affirm that Marx wills the salvation of all souls. Capitalists however may be damned by reason of their resistance to the grace offered them. The natural selection of Darwin (who did not himself write on human behavior) would reject the role of free will and imply that from eternity some souls are foreordained to success and others to failure. Wilson, a modernist, teaches that predestination is consistent with free will, since an individual is moved to behave according to his nature.

The position of Wilson's Harvard-centered critics seems to set up a distinction between our earth-bound human bodies with gene controlled animal functions, and something comparable to a soul through which desired motives can be evoked, and where heredity through natural selection no longer operates. By some philosophers the soul has been seen as a useful element in a system of ethics, and a worldly soul would be equally useful to biologists and others who did not wish to confront unacceptable scientific directions.

From the Left it is held that people, free from the blight of heredity, can be brought by indoctrination into the attitudes and behavior towards social equality that socialist theory requires them to have. (It will be recalled that in earlier times the Russians denied the general rules of heredity, as the name of Lysenko will bring to mind). The relatively scholarly recent attempt to undermine Darwin has turned to active hatred of Wilson's supposed claim that human beings are fixed, in an important fraction of their behavior, by their genes.

The pivotal indictment against Wilson is that he follows Darwin as the new leader of the long parade of advocates of biological predestination, whose work has served to excuse society from the acceptance of its responsibility for social problems. Such people provide the scientific base for expectation that the world will continue with existing social arrangements which include racial and anti-feminist prejudices, genocide and the rest. So even if Wilson's argument is right, is not research in sociobiology so fraught with the possibility of misuse that it should be stopped? Scientists in this field, it is asserted, must be held accountable for the political consequences of their academic activities, such as policy towards discrimination, militarism and social injustice. Theirs is indeed a heavy burden, to be escaped only by offering up their souls to Marx and coming forward to be born again.

The Future of Truth

The belief that the natural sciences would fill the emptiness left in the human spirit by the decay of religion was one of the major forces bringing about the decay.

To pragmatic thinkers the rise of the sciences was logically inseparable from the decline of religion. As Marx argued, religion itself would be recognized as having been little more than a naive, anthropomorphic attempt by the human species to understand the natural world and its many enigmas. By moving from the spurious explanations of theology to genu-

ine scientific understanding, man would satisfy the cravings of the human spirit and of the human soul for truth.

But can science assuage the nostalgia, the hunger for the absolute? What, today, is the status of the classical concept of truth? There is, for the first time in the Western tradition, an incongruence, a coming out of phase, between truth and human survival, between the rational pursuit of truth and contrasting ideals of social justice. It is not only that the truth may not make us free, but that it may destroy us. (Steiner)

How should we respond to the political and social implications of the dilemma? Should we say with the antagonists of Wilson's Darwinism: we are not interested in your results, we do not even want to know them. Society has not reached a point of balance, in which it can handle that kind of dynamite. Stop your research. We won't finance it. We won't accredit your laboratories. We won't give degrees for theses written in that field. Or do we say, on the contrary, all right, go ahead, pursue your research to whatever end of truth it leads. And if the end is totally unbearable in moral terms, too bad, that's how the universe is built and we simply cannot stop research.

Wilson's solution is to recognize that religion as well as altruism is to be considered as part of our genetic inheritance, which will make it respectable for materialists to adopt. He hopes to abolish the dilemma by bringing biological thought into the center of the social sciences and humanities. Recognizing that religious mythology will remain with us, he offers the evolutionary epic as probably the best base for a myth that we will ever have. Its particular merit is that scientific materialism can rearrange its great goals from the pursuit of pure knowledge.

The social scientists and humanistic scholars, not omitting theologians, will eventually have to concede that scientific naturalism is destined to alter the foundations of their systematic enquiry by redefining the mental process itself.

The rituals of religion, especially the funeral rites and the sanctification of nationhood, are deeply entrenched and incorporate some of the most magnificent elements of existing cultures. They will certainly continue to be practiced long after their etiology has been disclosed. The anguish of death alone will be enough to keep them alive. It would be arrogant to suggest that a belief in a personal God will disappear. (Wilson)

There have been many other proposals for secular, materialistic religions. One wonders how we have come so far without having the environment presented as a claimant to status as the real, all embracing, formal mythology. Some have made approaches to the idea (Hayes 1976). Environmental idealism is rooted in our Western religious traditions, according to which the quality of our surroundings has fallen, because of our sins, from some Garden of Eden ideal to its present deplorable state. Through our faith and work it is eventually to be redeemed to new glory (formerly only in Paradise, now thought to be awaited in this world).

And so one could go on and on through science-based theologies. But in the end the essential fault remains: no matter how much you fiddle with definitions, materialism and myth remain complementary if not contradictory terms. In the face of real human needs and experience both have failed in the totality test.

Science cannot really satisfy our nostalgia for the absolute because the disinterested pursuit of truth, subject to logical constraint, is not a universal one. Science has withheld recognition of the other vision of truth, beyond rational grasp, or experimental control; this is the mystical tradition, the part of Asia inside Western

man. The churches have fought for ownership of the mystical tradition, claiming that any 'truth higher than truth' comes under their control; it is revealed to man by divine intervention. And science, in the heat of its general struggle against the supernatural, has been led to overstate its own case; has pretended that it can offer total explanations; has neglected to develop an alternative mode of thought and feeling.

Although science's brand of truth cannot offer a complete picture of man, and hence is found wanting as a substitute theology, it does supply fully, the need of half the brain, and it might use the new sociobiology in its possession to buy half ownership in a more comprehensive mythology. At stake is the most interesting question in the world today; whether our civilization, or our species, or for that matter all higher life, can be saved from imminent extinction. Can the trick be accomplished by channeling the primary instincts, moderated by family ties, through the religious genes, to bring about a strong enough unit of purpose among mankind to successfully oppose destruction? My own experience offers nothing to contradict the verdict given by Trotter at the end of the First World War.

Throughout the enormously long period during which modern man has been established on the earth human society has been left to the uncontrolled contention of constructive and destructive forces, and in the long run the destructive have always proved the stronger. Whether the general level of consciousness will reach the height necessary to give a decisive predominance to constructive tendencies, and whether such a development will occur in time to save Western civilization from the fate of its predecessors, are open questions. The small segment of the social process of which we have direct knowledge in the events of the day has no very encouraging appearance.

Acknowledgment

Roger Doyle has kindly furnished assistance and advice and has critically read the manuscript.

References

- Allen, E.** and fifteen others. 1975. *Against "Sociobiology"*. New York Review of Books, Nov. 13: 43-44.
Elizabeth Allen signs as a pre-medical student and alphabetically first. Richard Lewontin signs later; elsewhere he has said that the Marxist perspective leads him into modes of thought that tend to be conducive to looking at complex systems. In the Dec. 11 issue, p. 60, Wilson replies to the letter.
- Caplan, A.L.** (editor). 1978. *The Sociology Debate. Readings on Ethical and Scientific Issues*. Foreword by E.O. Wilson. Harper and Row.
The readings go back to Darwin, Huxley, and Spencer; then on through Allee to Lorenz and up to the contemporary debate. The cited papers by Allen and by Wade are included.
- Gould, S.J.** 1977. *Ever Since Darwin*. Norton.
Gould, a Harvard biologist and civil rights worker, holds the view that almost all scientific work is likely to be tainted by the expectations and prejudices of the observer.
- Graham, L.R.** 1978. Concerns about science and attempts to regulate enquiry. *Daedalus*. Spring: 1-21.
This entire volume is devoted to 16 articles on aspects of the "Limits of Scientific Enquiry". Graham offers analyses of 10 Areas of Concern, one of which is "Prejudicial Science" which tends to excite racial, sexual or class antagonism.
- Hayes, F.R.** 1976. Quantitative and aesthetic factors in the definition of an ideal environment. *Can. J. Zool.* 54: 809-815.
- Marx, Karl.** Cited from Wittfogel or Gould. The remark about Darwin was in an 1862 letter to Engels.

- Solecki, R.S.** 1975. Shanidar IV, a Neanderthal Flower burial in northern Iraq. *Science* 190: 880-881.
- Steiner, George.** 1974. *Nostalgia for the Absolute*. Massey Lectures, 14th Series. Can. Broadcasting Corp. Publications.
Of Steiner's accumulated knowledge and tradition it has been said that the loss of his mind would rank with the burning of the library at Alexandria.
- Trotter, W.** 1919. *Instincts of the Herd in Peace and War*, 2nd Edition, T. Fisher Unwin, London.
The book reprints two of Trotter's papers from the *Sociological Review* of 1908 and 1909. Sometime before that, as he notes, Karl Pearson in his essay entitled "Socialism and Natural Selection" dealt with the biological significance of gregariousness.
- Wade, N.** 1976. Sociobiology: troubled birth for new discipline. *Science* 191: 1151-1155.
An excellent introduction to the debate between Wilson and the Marxist collective.
- Wilson, E.O.** 1971. *The Insect Societies*, Harvard Univ. Press.
- Wilson, E.O.** 1975. *Sociobiology the New Synthesis*, Harvard Univ. Press.
The final chapter of this book, comprising 30 of its 600 pages, is devoted to human behaviour. This chapter is the focus of the vehement attacks, led by the Harvard-centred Sociobiological Study Group of Science for the People.
- Wilson, E.O.** 1978. *On Human Nature*, Harvard Univ. Press.
The author's thesis is here amplified and re-expressed with consideration of the charges made by his opponents.
- Wittfogel, K.A.** 1957. *Oriental Despotism*, Yale Univ. Press.
An extended study of the states which arose as the first civilizations around river systems and with which modern Russia is said to compare. The term "Oriental Despotism" comes from early Marx, and his later proposal for "Dictatorship of the Proletariat" was denounced as such at the time by fellow Communists.