

ECOLOGY, THEOLOGY, AND HUMANISM

by *D. Bryce-Smith*

My purpose is, first, to discuss the character of the increasingly serious state of disequilibrium which now manifestly exists in the relationship between *Homo sapiens* as a species and the rest of nature—the so-called environmental crisis. Second, I would like to discuss both the fundamental and more immediate causes of this ecological disequilibrium and their origins in certain human attitudes and actions which stem from, or are encouraged by, various forms of conventional religious and humanistic belief. Third, I shall try to suggest some constructive conclusions arising from this analysis, with particular reference to the essential (as distinct from optional) ecological role of moral laws in the conduct of human affairs. I believe that these conclusions can provide signposts to a healthier, that is, more harmonious, future relationship between man and God's natural world of which he is a part.

I should like to start with the subject of economics. I am not myself a professional economist. But as the professional practice and theory of the subject are so clearly in almost total disarray, perhaps the outsider may be justified in trying to discover whether he can see more of the game than the players in this case. We are all much concerned with economics these days, for it is the economic pressures on individual pockets that belatedly are stimulating most people to recognize that something is seriously wrong with the management of human affairs. The self-indulgent complacency of the "affluent society" is beginning to wear thin under the influence of rising prices, rising unemployment, and the falling value of money. Whom can we blame? people ask.

Well, of course, we ourselves are basically to blame for listening so long to false prophets. But many of the most influential of these false prophets have been economists whose absurd doctrine of the never-

D. Bryce-Smith, professor of organic chemistry, University of Reading, England, presented this paper at a meeting on "Man's Responsibility for Nature" of the Science and Religion Forum, Windsor, England, April 7-9, 1976.

[*Zygon*, vol. 12, no. 3 (September 1977).]

© 1978 by The University of Chicago. 0044-5614/77/1203-0002\$01.65

ending growth economy has provided the sandy foundation on which the grandiose edifices of modern industrial society have been built.

I believe it was E. F. Schumacher, among others, who drew attention to the important general principle that there are no "free dinners." This principle has little place in conventional economics but is deeply enshrined in folk wisdom. Thus in Spain it appears in the form of the old proverb, "Take what you want, says God; and pay for it." Or in Yorkshire they would say, "Tha can't get owt for nowt."

On the other hand, many economists have continued to assert that operation of market forces—the laws of supply and demand—can be relied on to solve all problems of material scarcity. As a commodity becomes scarce, it is claimed that its price will rise and the development and use of substitutes will become "economic." Much of this modern economic thinking seems to rest on the tacit assumption that the world is an Aladdin's cave of infinite dimensions and that the job of economists is merely to organize the extraction, processing, and distribution of its supposedly unlimited store of riches. Another assumption is that science and technology will solve all problems by the provision of an infinite supply of substitutes and "technical fixes." Once the childish fallacy of these underlying assumptions of economics is perceived, the causes of such phenomena as inflation become clear.

Thus the general introduction of paper money started off as a convenience and as a stratagem to stimulate the production and consumption of material goods. People were induced to trust it by the promise that it could be exchanged for a fixed amount of gold or silver—the traditional monetary symbols whose virtues of permanence and scarcity were becoming an impediment to the concept of a material growth economy. Although the promise has long been revoked and replaced by the almost meaningless rubric which now appears on bank notes, the paper money system appeared to work fairly well for as long as basic material supply comfortably exceeded human demand. At least, it worked for those countries whose technological strength enabled them to control the supply and distribution of money. But now that human demand is beginning to exceed the supply of natural resources, those countries having the greatest natural resources are acquiring greater real power, and the balance is beginning to tip. In these new conditions paper money and credit have come to be used as a sophisticated confidence trick which enables governments to create notional wealth (i.e., the temporary illusion of greater purchasing power) through the printing press without any corresponding increase in real material assets—a form of legalized forgery which it is hoped will deceive the public into an illusion of

greater prosperity, at least until the next elections. The resulting excess of purchasing power over material supply is maintained by printing more and more money without material asset backing, and inflation is a wholly inevitable consequence.

We must realize, however, that inflation is a symptom of disease, not the disease itself. The disease is malignant growth—a cancer which could destroy human society—and human greed is its dynamic. Thus it is clear that the phenomenon of inflation is a problem which stems from faulty human morality.

But the principle of matching demand to stable and sustainable supply is in practice still widely disregarded by politicians, their economic advisers, industrialists, and most others concerned with directing the short-term course of human affairs; and it is in fact a principle even more fundamental to the long-neglected subject of ecology, of which economics is merely an overinflated subdivision. Thus the most stable ecological systems are those in which the individual living plant and animal species are highly diverse. The ecological diversity so repugnant to the tidy minds of many bureaucrats is in fact a source of strength and stability in nature. It is also a source of stability in ecosystems that the various life forms should be in reasonable balance in their demands on one another, on their food supplies, and on their general physical environment.

In other words, if man as a species wishes to have a stable future on earth, ecologists inform us that he should be very cautious in seeking to manipulate his ecological environment for short-term objectives by reducing its diversity (e.g., by indiscriminate use of insecticides and herbicides or overselective breeding of food cereals and farm animals), by taking more out of his environment than he returns to it (e.g., through the failure to recycle nonrenewable mineral resources), or by overbreeding beyond the capacity of the food supply.

This will strike most people nowadays as simple common sense. But prior to the 1973 Arab oil crisis the few enlightened commentators such as Paul Erlich and Schumacher who warned that man as a species was embarked on an ecological Rake's Progress were largely ignored or contemptuously dismissed as "eco-nuts" or "doom-mongers." It seems astonishing that prior to 1973 no Western government had even the most rudimentary energy policy. But the Arab oil crisis of 1973 and its continuing aftermath have brought home to an increasing number of people the extent to which we are dependent on finite natural resources and the danger of depleting these. In the West, at least, many thinking people are at long last beginning to question whether the laws of supply and demand, state control, or the supposedly unfailing ability of scientists to provide a technical fix, or

whatever, will really enable economic growth to be sustained indefinitely by consumption of nonrenewable resources.

It is indeed a remarkable phenomenon that over the short space of two or three years we have moved from a situation where most people believed (if they bothered to think about it at all) that Western industrially based material societies could continue to grow indefinitely to one where it is recognized increasingly that nearly all material and energy resources, virtually except sunlight (and in theory atomic fusion power), really are finite, that many resources such as oil, natural gas, and some minerals will become in noticeably short supply within one or two generations at present rates of depletion, and that the present rate of population growth superimposes an ever-increasing pressure on the resources which remain. These problems, if unabated by man, will be abated eventually by the force of natural reactions to intolerable human pressure, probably at the cost of vast human suffering and the destruction of most human institutions—including, one may add, the churches. The growing public recognition of these ecological facts of life provides grounds for hope that we may be able to adjust our lives and attitudes to them in time. But how much time do we have? And how must we adjust?

ECOLOGICAL PROBLEMS

Let us try to take stock. As a species, man in the 1970s is faced with ecological pressure from at least three main directions.

First, there is the much-discussed problem of nonrenewable material resources (coal, oil, minerals, etc.) and the depletion or dispersion of these by human demand. This demand stems from two species characteristic of *Homo sapiens*, one morally deplorable, the other morally admirable. The deplorable characteristic is greed, that insatiable instinctive demand for more with which most of us seem to be cursed to some degree. The admirable characteristic is compassion which coupled with the working of conscience leads many good men to try to bring the material benefits of Western civilization to the poor and to the Third World. But this humane objective of bringing our version of the good life to all men is basically unattainable, however unpalatable the fact may be to one's humanistic liberal conscience.

Thus the various forms of socialism, communism, and "statism" appear to spring from the idealistic desire to create a Utopia by sharing more fairly the material resources of the world. These objectives may be politically and ethically desirable, but I see no way in which they could be ecologically possible on any sustained basis. Thus to abolish hunger for even the present world population (some thirty

million of whom are believed to die each year from causes related to malnutrition or downright starvation) and to give everybody in the world the material living standards now regarded as normal in Western industrial nations would require us to increase the present rate of consumption of petroleum, iron, copper, tin, uranium, and most other nonrenewable minerals by factors of tens or even one hundred. With those rates of depletion, even the most optimistic would be talking of exhaustion of many key minerals in terms not of decades as at present but rather of a few months or years. That is an ecological fact of life in massive conflict with much of our present political, social, and economic thinking. Thus, while it is an ecological impossibility to maintain our present Western consumer society much beyond this generation, the objective of making this way of life eventually available to all our fellow human beings must be seen as totally unreal. We must not lose sight of this morally troubling fact in our compassionate attempts to make the world a truly better place.

The depletion of available material resources therefore constitutes one of our major problems. It is a problem caused wholly by man.

The second problem is population growth. The world population has quadrupled since 1850 and is estimated to have exceeded four billion persons on March 28, 1976. At the present 1.8 percent annual rate of increase, today's world population will double by soon after the turn of the century, some time in the year 2012. Population growth obviously compounds the resources problem and is likewise caused solely by man. Man is a compulsive breeder, and his rutting season lasts for 365 days a year, come famine or feast. Many animals seem automatically to regulate their breeding rates according to the availability of the food supply but man appears to lack this important natural control, for the highest rates of human population increase tend to be found in the most densely populated and poorest parts of the world where the risk of famine is greatest, whereas in many more prosperous countries the birth rate is now tending to fall. From an evolutionary viewpoint this is a breeding characteristic of positive feedback type which is disadvantageous to the survival of a species. It remains to be seen to what extent its effects will be counteracted by birth-control measures.

It is also uncomfortable to reflect that penicillin and many other lifesaving and life-prolonging developments in modern medicine have contributed to population growth by their use to frustrate—for the most humane reasons—the existing natural processes of population control. Medical science can be a two-edged sword. In my view it should be directed more toward improving the quality of life than the quantity.

Man, of course, does control his numbers to some extent by wars, genocide, and the like. Our species has slaughtered something approaching one hundred millions of its own kind over the past sixty years or so, often under terrible conditions of cruelty and degradation. We properly condemn the Nazis for their concept of a "Master race" justified in exploiting or exterminating its supposed racial inferiors. Yet we have accepted unquestioningly the equally arbitrary concept of *Homo sapiens* as a "master species." Thus, as a scientist, I feel very troubled by a great many of the experiments on animals now coldly carried out in the name of scientific or medical research. It does not flatter God to say that man is made in his image.

The third major ecological problem is environmental pollution. This is a consequence of the first two problems of resources depletion and population growth and is greatly exacerbated by human ignorance and immorality. There is indeed no lack of industrialists, politicians, and their friends only too ready to justify or excuse pollution on economic grounds. There are many who know that I hold strong views on the subject of chemical pollution and its harmful effects on our physical and mental health. But this is not a subject which I shall consider in detail here except to make the point that environmental pollution is, like resources depletion and population growth, almost wholly a problem which man has created by his own activities.

We must face the fact that these problems are coming together to produce a gravely critical situation in man's relation with his earthly environment—an ecological crunch, as it were. They result from human errors. These errors in turn have arisen from human ignorance and old-fashioned sin, especially greed, folly, and self-admiration. We are not faced with those natural phenomena such as earthquakes, floods, plagues, Ice Ages, and the like, which must in the past have challenged the survival of many other species through no conscious faults of their own. Our key problems of resources depletion, population growth, and pollution are produced by deliberate human behavior. And they could be controlled by human behavior if we were to exercise the free will in which we take such pride. Yet, while no other known species in the long history of earth has been given such combined natural physical advantages in brainpower, imagination, language ability, and manual dexterity as man, no other species can have so willfully abused these advantages as to imperil its own continued evolutionary survival. If you think I exaggerate, consider the vast arsenals of nuclear weapons which now provide the explosive equivalent of tens of tons of TNT for each man, woman, and child on earth and the chemical and biological warfare weapons which have been forged by equally grotesque perversions of science.

Does the past violent history of man offer much promise that weapons once made will not eventually be used?

Moreover, we must expect reasonably that pressures on society from population growth and the scramble for the shrinking store of natural resources will increase the risk of war.

The debate about nuclear power stations well illustrates the way in which man is stacking the cards against his own prospects for survival. As we all know, nuclear energy is being widely canvassed as a technological fix which supposedly will overcome the present energy shortages from fossil fuels and thereby permit us to resume our economic growth into the indefinite future—a prospect pleasing to most shades of political thought from the far Left to the far Right. But, as Walter Patterson has described in his excellent recent book, *Nuclear Power*, quite serious accidents have arisen in the past—for example, at Windscale in England and the Chalk River in Canada—and there is still no general agreement among nuclear power engineers on the best and safest design of nuclear fission reactors for the future.¹ Pending the successful development of possibly safer power reactors based on nuclear fusion rather than fission (a remote prospect at present), it seems likely that we shall continue to use nuclear power reactors which produce plutonium as a by-product. Quite apart from its bomb-making potential (which India has demonstrated), this plutonium is one of the most toxic materials known to man and, with other radioactive by-products, will have to be stored and guarded for tens of thousands of years before its radioactivity falls to safer levels. How can we possibly assume that society will be stable over that sort of time period? A lump of plutonium about the size of a grapefruit could be brought together by terrorists, criminals, or other mentally deranged persons to make a crude but effective atomic bomb. Further, an increasing number of politically immature or unstable countries are now acquiring the nuclear power stations which will enable them to construct atomic bombs. It is reported that Israel has built thirteen atomic bombs from plutonium and actually prepared them for use in the 1973 war. So the consequence of keeping this generation comfortable with nuclear energy will be that we bequeath a problem to imperil the well-being and survival of countless future generations.

To bring the picture into sharper focus, consider the situation which might exist now if Newton had discovered atomic fission and a nuclear power technology with its associated radioactive waste and bomb-making potential had been proliferating, not for two or three decades, but for two or three centuries. Might we now be cursing the

willfully blind selfishness of our forefathers for this legacy? Possibly we should not be here to curse at all.

Of course, no less immoral is the burning up by one or two generations of petroleum which took some one billion years to accumulate. What a legacy to our children! What will they think of us for bequeathing them a world exhausted of petroleum and other key minerals but brimming over with plutonium and other dangerous by-products of our consumer society? What respect will they have for those guardians of morality, the churches, if they speak out on this problem as little in the future as they have in the past?

On such matters I have heard it said, "Let future generations look after themselves." Or there is the cynical jest, "What has posterity done for me?" Yet consider the evolutionary aspects. We have, to an extent unapproached by any previously known species, now acquired the power to produce an environment hostile to our own survival. So the degree of responsibility to our unborn descendants with which we exercise that power may measure quite simply our fitness in the evolutionary sense to survive as a species.

MORAL ATTITUDES AS AN EVOLUTIONARY NECESSITY

This line of reasoning leads to the interesting conclusion that morally based attitudes on such matters as the development of nuclear energy, consumption of resources, pollution, etc., may not be just a luxury for cranks and unpractical idealists but an evolutionary necessity for man as a species.

So, to sum up the arguments so far, I believe we have strong evidence that *Homo sapiens* now faces an essentially Darwinian evolutionary challenge from nature. But this is of novel type in that it arises as a natural reaction to the greed, narcissism, and other classically immoral behavior which have led man to attempt to subdue nature and organize the whole world according to his own selfish desires. If this analysis is correct, it follows that the evolutionary challenge which we have provoked requires a moral adaptive response. If we as a species can make the necessary moral adaptation, I believe that we shall demonstrate our fitness for a better life. But if we fail to adapt, it may prove that *Homo sapiens* comes to exemplify one of evolution's many blind-alley species—and will deserve to do so.

This conclusion—man's ecological crisis results essentially from man's immoral behavior—has a number of interesting philosophical and theological implications. First, Mother Nature appears to be confirming the teachings of moralists and religious writers throughout the ages that morally based attitudes and behavior are essential

ZYGON

for healthy spiritual and physical development. This conclusion contradicts the widely held view that moral behavior is irrelevant to the problems which face practical men of the world. It contradicts the pragmatic approach to politics which has now been elevated in Britain almost to the status of genuine political philosophy—and which has so clearly failed. A man, or a nation, without the guidance of a moral sense is like a ship without a compass. We do not see so much these days of the sad-faced chaps who used to parade in sandwich boards bearing “the wages of sin is death,” but they seem to have had the truth of the matter.

Another conclusion of special interest to ecologists is that the old moral imperatives to love our neighbors, cultivate humility, and avoid selfishness appear to have the force of a law of nature which we ignore at our peril. Solzhenitsyn recently has drawn our attention to the historical fact that immorality in nations, as in men, usually brings eventual defeat and decay whereas morality brings success and strength; but it is our tragedy that we seem unable to learn from experience that this is so. Now in the ecological crisis we face the consequences not so much of individual or national immorality as of species immorality—the immorality of the arrogant belief that nature was constructed to serve man and that man, supposing himself the highest form of creation, was justified in exploiting the rest of the natural world for his own selfish ends. I am surprised that theologians do not appear to have perceived the inconsistency of teaching on the one hand that individual selfishness and pride are wicked and on the other that man is innately superior to the rest of creation. Or to put it another way, I fail to understand how that which is evil in men can be good in man.

I would like now to explore some of the ways in which man has acquired the potentially fatal notion of his own absolute natural supremacy. I fear that the theologian and humanist must stand together in the dock to face the charges on this matter. First, the theologian, although I think he is the less blameworthy. Let us remind ourselves of Genesis, chapter 1, verses 26–28:

And God said, Let us make man in our image, after our likeness: and let them have dominion over the fish of the sea, and over the fowl of the air, and over the cattle, and over all the earth, and over every creeping thing that creepeth upon the earth. So God created man in his own image, in the image of God created he him: male and female created he them. And God blessed them, and God said unto them, Be fruitful and multiply, and replenish the Earth, and subdue it: and have dominion over the fish of the sea, and over the fowl of the air, and over every living thing that moveth upon the earth.

While great honor is due to the writer of Genesis for the enlightened (if largely ignored) injunction to “replenish the earth,” the ecological force of these words is deflected by the rather imperialistic references to subduing the earth and having dominion over all other forms of life. The unqualified instruction to be fruitful and multiply still finds religious support, especially among Roman Catholics, and cannot escape its share of blame for the consequences of what we now term “population explosion.” (Of course, if God really intended the population explosion and its eventual Apocalyptic consequences, there the matter rests.) However, these beautiful verses of Genesis undoubtedly have encouraged the narcissistic belief that man is set apart from all other animals in a qualitative sense as a sort of steward administering and ruling the estate for an unseen landlord. And with the passage of time and the growth of knowledge of the estate the steward has found it increasingly attractive and “rational” to doubt the existence of the landlord and to appoint himself to the honor, as in the ultimate absurdity of Humanism where man the usurper worships himself as a quasi God. Humanists have sought to transmute “man in the image of God” into “God in the image of man.” I shall have some more to say about Humanism a little later. Meanwhile, it is true that elsewhere in the Bible (Luke 12: v 6–7) Jesus says that not a sparrow is forgotten before God, but he assures his audience that they are of more value than many sparrows. And I have always felt he was a bit too hard on the poor fig tree for its inability to bear fruit out of season (Mark 11: 12–21). Jesus may have been the first ecologist in his teaching of the power of love, but I wish that he had placed more emphasis on the need to love and respect all the earthly creations of God, including even fig trees, as well as our fellowmen and God himself. Saint Francis of course spread his love more widely, and he is perhaps an even stronger candidate for the title of the first ecologist. And we should remember that some religions, such as that of the Jains in India, teach a greater reverence for life than do others, for example, Christianity and Judaism.

So the record of religious teaching on man’s relation to, and responsibility toward, the natural world is at best like the curate’s egg—good in parts. What then of the Humanists? I think you already will have gathered that I regard the anthropocentric doctrines of Humanism with special disfavor for their role in the human Rake’s Progress that I have been describing. Humanists regard themselves as supremely rational beings and describe all religious belief as wishful thinking and the worship of fairy tales. On the other hand, they worship human reason and intelligence and try to derive an ethic

based on human need and interest as a substitute for superhuman morality. We can see in the environmental crisis where the doctrine of "man first" has led the supremely rational and intelligent human race. Was there ever a god with such feet of clay as man?

Some of the early origins of modern Humanism can be found in the verses of Genesis I have just quoted; ancient China, especially in the teachings of Confucius; the beliefs of the early Greek Sophists such as Protagoras ("man is the measure of all things"); and in the philosophy of Aristotle, as distinct from that of Plato, with its emphasis on relating "good" to human good, human happiness, and the exercise of human rationality. Saint Augustine recognized man's state of tension between the superhuman moral values of God and the natural ethical values of a God-created nature, and Saint Thomas Aquinas sought to reconcile the Aristotelian virtues of proper living with the theological virtues of faith and love which come from God by divine grace; but both held a firm grasp on the duality of man as body and spirit and possessed in some measure of the Godlike attribute of free will.

This astonishingly penetrating concept of man as a duality of interpenetrating body and spirit finds a modern parallel in the scientific duality of matter and energy: I believe it to be close to the truth. But it began to be shaken seriously following the abuses of the medieval Roman church which provoked the Reformation.

The success of Luther's courageous challenge to the previously all-powerful Roman church had the side effect of encouraging Humanistic thinkers such as Erasmus to speak out ever more boldly in favor of the preeminence of human rationality and even to challenge Luther himself for his resolute theistic beliefs and for asserting that man possesses free will only in relation to temporal matters. Although many early scientists such as Newton and John Dalton were deeply religious men, the increased knowledge of the laws, order, and structure of the material world which came with the growth of scientific discovery was casting growing doubt on the truth of religious belief since this apparently could not be tested by man in the laboratory, and its acceptance appeared to require the suspension of human rationality. Indeed, every schoolboy is told of the scandalous attitude of the Roman church toward Galileo, by which religious bigotry sought to preserve archaic falsehoods and suppress an honest scientist's demonstrated truth. (In fact, the reverence for truth is that which the good scientist and theologian should have most in common.) Darwin's classic studies on the origin of species have been widely assumed to provide a materialistic basis for understanding of the living world. Some of the most recent developments in cosmology and molecular biology

are believed by many Humanists to provide the coup de grâce to the whole concept of God or any superhuman power or purpose in the universe. Life, according to them, is to be viewed as an interesting mechanistic phenomenon, fully described by the laws of physics and chemistry, which we must suppose to have emerged with the rest of the universe purely by accident from the debris following a "big bang" of some almost infinitely small and dense object some ten billion years ago at time zero. God and intelligent superhuman purpose being declared unnecessary, as in the doctrine of the "death of God," following Nietzsche and others, Humanistic man steps into the vacant place as the best-qualified candidate. Scientists are the new priesthood, laboratories the new temples, and science and the technological fix, coupled with Marxist, social democratic, or capitalistic visions of an earthly Utopia, the new theology. But the crown is hollow, the ramshackle kingdom is manifestly falling to bits, and many good people are, like Bertrand Russell, gritting their teeth to build "only on the firm foundation of unyielding despair." Other less sturdy spirits are following Camus, Sartre, and other disappointed rationalists into the terrible intellectual and spiritual desert of existentialism or vainly seeking refuge in the shallow hedonism and self-indulgence of the "permissive society." After all, what barrier to despair is there if man is, following the Humanistic beliefs, nothing but a glorified clockwork mouse assembled and wound up purely by chance—chance, the very antithesis of intelligent purpose? If that were true, why indeed should the clockwork mouse not grab whatever pleasure is available before decaying into endless oblivion?

Or, to change the metaphor, are we, as A. J. Ayer suggests, only performers in a play which had no author? No doubt he has in mind one of those famous plays which we are told would be written eventually by a monkey flailing randomly at the keys of a typewriter, both monkey and typewriter likewise being assembled by chance.

We may laugh at such an apparently preposterous notion, but we must also consider it very seriously. For the idea that everything, including ourselves, evolved by chance is one which has penetrated human consciousness strongly and has perplexed many theologians and contemporary philosophers. If it were true, and if man were merely the most complex structure yet produced by the blind workings of chance—a sort of prizewinning three-lemons combination in a molecular slot machine—I agree that life would have no meaning other than that we choose to put into it, the highest values would be the human values imposed by the master species man on other species he chooses to regard as lower than himself (as the strong can impose on the weak), and the human senses would be the highest arbiters of

reality. These are the essential assumptions of Humanism and existentialism, although existentialists in a rather despairing way do recognize the limitations of human senses.

The supposed primacy of human values underlies the doctrines of both Marxism and the modern materialistic consumer society, and by placing man on a pedestal (even a pedestal floating in the infinite sea of chance) these doctrines undoubtedly encourage the anthropocentric attitudes which have provoked the present ecological crisis. Moreover, by replacing the concept of a purposeful superhuman God with the doctrine of blind chance, they remove the ultimate basis of that morality which I hold to be an ecological necessity if human society is to survive. They leave only a residual Humanistic ethic based arbitrarily on human need as perceived by the emotions and intellect. And in so doing they help to create that essentially purposeless zeitgeist of our modern times which we can see to be so damaging to the human spirit. It is true that Humanistic philosophers such as Ayer have had the insight to perceive the need for morality, but it is sad to see them tying themselves in knots trying to work out how one can have morality without God—which is really the philosophical equivalent of attempting to square the circle.

So can one logically refute the doctrine of chance and the Humanistic definition of reality in terms of human sense perceptions? I believe that both in fact can be decisively refuted by exercise of the human rationality so worshipped by Humanists. It is not, in my view, sufficient in this day and age merely to assert the primacy of faith and belief over demonstrable knowledge, any more than it was in Galileo's time.

Consider first the doctrine advanced by Jacques Monod in *Chance and Necessity* that all life, including man, evolved by way of a chance succession of physicochemical events at the molecular level.² Let me say right away that superficially at least there is considerable support for such ideas from the discoveries of modern molecular biology. The biochemical structures of mice and men have fundamental similarities and differ only in numerous points of detail. To my best knowledge, the biochemical life processes in mice and men obey the same laws of physics and chemistry as the non-life processes which occur in our test tubes and chemical factories. And these processes certainly involve random molecular encounters subject to the laws of chance. It is perfectly possible to conceive that the phenomenon of life arose from the primordial cosmic soup, just as orderly crystals may appear on cooling a chemical solution. But neither life nor crystals will be expected to appear unless certain necessary preconditions are satisfied, that is, unless the potentiality for them to appear already exists in the

system. For example, life as we know it could not have appeared if the element carbon had been as rare as the closely related element germanium or if the magnesium required for chlorophyll in plants and for animal nutrition had been as rare as the toxic but closely related element beryllium. Chance can produce only events which are inherently possible. To illustrate this truth, consider a box in which I have placed 999,999 black balls and one white ball. The laws of chance tell us that there is only a one in a million chance of selecting the white ball but that if we continue trying for long enough we shall obtain it eventually. But if I had not originally added the white ball, no amount of chance selection would ever produce it. Thus even the rarest of chance events, as the evolution of life may well be, requires certain preconditions before it can occur at all. We cannot logically avoid the need for original causes by invoking chance.

Let us now consider whether the anthropocentric beliefs of Humanism are really "rational." According to these, man is the highest order of creation (although, unlike the writer of Genesis, Humanists deny the existence of a creator). Human needs are paramount, and reality is defined by the ability of man to perceive it. The logical fallacy in this doctrine is apparent from the following considerations.

All living things perceive their environment; even flowers will turn toward the sun. The nature and extent of the perceptions vary from case to case and depend on the "senses" of the organism. These in turn depend on the physical structures of the sense organs. Man becomes aware of his physical environment through his brain coupled to his physical senses of sight, touch, etc. Now from any purely materialistic view the human perception of objective reality must depend on and be limited by the physical structure of the brain—the number and arrangement of cells, neurons, etc. Since the structure of the brain is finite, the reality which it perceives must also be finite. Humanism is therefore in effect defining the supposedly absolute limits of reality in the arbitrary terms of a finite physical structure—the brain. And since the physical brain is only part of reality, it is not rational to attempt to define and limit the whole of reality in terms of a limited part of the whole. That would be to make the part greater than the whole.

The belief that reality is to be defined in terms of the ability of man to perceive it is a characteristic example of human arrogance. The doctrine of Humanism is of course no less arbitrary than, say, Cat-ism or Dog-ism would be. It would have a special absolute truth above other "-isms" only if one could show that in man consciousness, intel-

ZYGON

lect, and wisdom have developed to an ultimate peak of perfection. And who, contemplating the ravages wrought in the world by human ignorance and folly, would claim that?

I therefore see Humanism as a hollow doctrine devoid of real scientific, rational, or philosophical justification. But its influence on the political, educational, and social attitudes of our time has been catastrophic. It has encouraged selfish anthropocentric attitudes, eroded belief in absolute moral standards of behavior, and undermined the simple religious faith which is a necessary psychological support for many people in this complex and stressful world. The effects are clearly recognizable: for example, the often well-intentioned attempts to build materialistic Utopias based on scientific technology or politico-economic theories, or both; the widespread cynicism concerning the motivation and corruption of politicians and other leaders of society; the self-absorbed emphasis on human rights as applied to oneself or one's class, race, or sex rather than on one's duties and moral responsibility to others; and the ugly and decadent "permissive society" in which the concept of personal freedom has degenerated into a shallow and hedonistic self-indulgence.

But the most serious effect of all, with which all these other effects are associated, is the environmental or ecological crisis. We have multiplied human populations, pillaged the world's resources, and polluted our environment at rates which our descendants, if we have any, surely will regard as grossly immoral. This is indeed a moral crisis. It therefore requires an adaptive evolutionary response which is moral in character. That is the central conclusion from this analysis.

DEVELOPING A MORAL SENSE

It is of course easy enough to make analyses and state general conclusions from them; but there is also a responsibility to suggest how such conclusions might be implemented in practice. How does one instigate a moral revolution at this late hour when the churches have largely failed to get the message across after nearly two millennia at the task? Perhaps there are grounds for hope in Dr. Johnson's celebrated dictum about the wonderful concentration of mind which results when a man knows he is to be hanged on the morrow.

However, I shall try now to suggest an approach to that concentration of mind whereby the hanging may be avoided. This approach concerns greater recognition of the aspect of mental functioning known as moral sense, by which I mean that faculty through which we perceive superhuman moral truth. It is a matter of common human experience that this faculty is very unequally developed among human beings and is in some cases highly attenuated. One person's

life may be regulated by his well-developed, innate moral sense through which he may develop an acute awareness of the superhuman distinctions between good and evil, morality and immorality, while another, perhaps as intelligent or more so, may perceive little or nothing of superhuman moral laws and live a pattern of life largely based on the more conventional physical senses operating in conjunction with the intellect and emotions. The former may try to live a moral life whereas the latter may succeed only in developing a set of ethical principles based on human need modified to a greater or lesser extent by intellectual reasoning or emotionality. (I am here touching again on the inadequacy of humanistic ethics for true human physical and spiritual progress.)

Before I proceed further, I would like to clarify an important semantic point concerning ethics and morality. Modern philosophers and theologians often tend to use the words "ethical" and "moral" interchangeably almost as if the words imply a distinction without a difference. But I feel it extremely important to preserve the difference that ethics is based essentially on humanistic value judgements and humane intellectual rationality whereas morality stems from human perception of superhuman reality and superhuman laws. (I prefer the term "superhuman" to the more common "supernatural" because no scientist worth his salt would claim to be able to define the boundaries of nature.) Defined thus, conventional terms such as "Christian ethics" take on a markedly clearer meaning.

Yet how are we to distinguish in practice between morality and ethics? I suggest that we may recognize an action as moral, rather than ethical, by the extent to which it is directed outward from the self or from a group. I share the view of those who hold that the morality of an action is determined more by the intention than by the action as such. Ethical standards appear to arise largely from the interaction within society of human bodily senses, intellect, and emotionality. The differing ethics of killing during wartime and peacetime exemplify the nonabsolute character of ethical standards, whereas to love one's neighbor is always moral.

Now there is ample evidence that human intellect, memory, and emotionality involve complex but distinct physiological/ physicochemical functions of the human brain. Thus they can be profoundly modified (1) by physiological structural damage to the brain, as by meningitis or a "blunt instrument" and (2) by the action of chemical toxins such as alcohol, mercury, lead, and carbon monoxide, and the tranquilizers and other mood-altering drugs which so many people seem to need these days.

So with intellect, memory, and emotionality very much functions of

brain structure and brain chemistry, what can we say about the faculty of moral perception on which I have set such store? Is this another distinct type of brain function, another requirement for that truly healthy body on which the healthy mind depends? Is the concept of a "moral sense," as developed philosophically by Francis Hutcheson and Hume, linked with any human perception mechanism of recognizably physical type?

There is much evidence that the moral sense does indeed involve aspects of brain function. (Incidentally, this does not imply that perceived morality originates in the brain, any more than hearing a symphony on the radio is good evidence for an orchestra in the set.) Common experience tells us that just as intelligence, memory, and emotionality vary from person to person, so does the faculty of moral perception, as I mentioned previously. Moreover, these can be largely independent variables. Thus persons of powerful intellect may be of high or low emotionality and highly moral or amoral. On the other hand, I have known persons of very modest intellect who were possessed of a powerful moral sense.

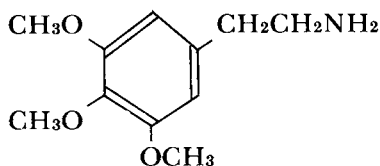
Those who have concerned themselves with the care of mentally subnormal persons recognize that, in addition to persons who are mentally defective in the intellectual and/or emotional spheres, there is a category of *moral defectives*. Some of these moral defectives may be also mentally defective in the intellectual sense, but others are quite intelligent and even highly cunning and pass themselves off as normal for long periods. Alfred Tredgold in his celebrated textbook *Mental Deficiency* records many fascinating details of such cases.³

It is significant that moral deficiency can result also from certain diseases which physically affect the brain. Thus, following the epidemic of sleeping sickness (*encephalitis lethargica*) which appeared in Britain for about ten years following the First World War, a number of those infected who previously had been of good moral character lost their moral sense and committed crimes for which they were convicted and imprisoned. These victims of organic brain damage caused by the disease were recognized eventually as such, and a special amendment to the Mental Health Act was introduced to save them from prison. It is however very rare for moral deficiency to be regarded as a form of ill health.

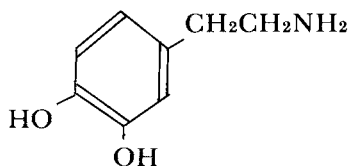
It is also known that certain chemical substances which affect the central nervous system also can cause degeneration of the moral sense. The best known examples are alcohol and addictive drugs of the heroin type. There is a well-known relationship between intake of these chemicals and the development of criminal tendencies.

It is probable that only a small minority of the most seriously affected moral defectives enter mental hospitals. A great many undoubtedly end up in prison. I feel sure that far many more of the less serious cases of moral deficiency are never recognized as such and that some of the more intelligent, plausible, and energetic of these persons find their weakness of moral scruple a positive advantage in the rat race and rise to high positions in the business and political worlds. (Some may even become university professors!) I am sure I do not need to belabor the serious implications of this adverse selection factor for the moral progress of human society.

But there is another and more encouraging side to the coin. Moral sensibility would appear to be related to one's ability to perceive the numinous. And there is considerable evidence that the latter may be greatly enhanced (1) by prayer and meditation, (2) by Yoga and other ritual repetitive activities, and (3) rather more controversially by the action of certain chemical substances which modify the chemistry of brain processes. The widespread abuses of psychoactive drugs such as alcohol, LSD, and heroin properly provoke the condemnation of all right-thinking people. But there are certain chemical substances which by participating in brain chemistry appear to enhance the ability to perceive the numinous. Mescaline, for example, is obtained from the peyote cactus and, as shown below, has a molecular structure which even nonchemists will see as related to that of dopamine, an important natural neurotransmitter in the brain. Peyote root is used by thousands of American Indians in the Native Church of North America to promote states of religious insight and contemplation and



mescaline (in peyote cactus)



dopamine (in the brain)

as an integral part of a modified Christian service. This use is condoned by U.S. federal authorities and appears to be harmless. I do not suggest that the administration of mescaline necessarily would make one a more morally aware person, but I do consider it possible that the perceptions of moral defectives might be rendered more clear and intense by a carefully controlled pharmacological approach as an aid to medi-

ZYGON

tation and prayer. The idea of an “antisin” pill is not entirely fanciful in the light of modern knowledge of brain biochemistry and merits the careful attention of research workers in psychopharmacology. Even those persons who find the concept repulsive scarcely would deny that such a pill is badly needed at this time of widespread mental and moral ill health.

Such considerations lead one to the philosophically interesting conclusion that the human sense faculty by which we perceive with varying degrees of clarity the superhuman realities of moral truth and the beauty of God’s love may well be a faculty in essentially the same class as intellectual, memory, and emotional functions and the five sense faculties of sight, hearing, touch, taste, and smell. So a person who cannot perceive the overriding reality of superhuman moral values is, I consider, analogous to the unfortunate tone-deaf person for whom Mozart’s music is just a meaningless sound or the color-blind person who can see no beauty in a rainbow. Of course, some people with perfect hearing and sight may have chosen a debased set of values in which the beauties of Mozart or rainbows count for little; and some persons with the potential for good moral perception may choose to behave immorally. That is where spiritual free will enters the picture.

The point to which I am leading up is that the superhuman moral reality of God’s wider creation should be regarded not as unreal, and still less as remote and supernatural, but as a form of objective reality which is accessible in some measure to perception by the physical human senses if only we are prepared to use and develop them. Thus perhaps in our educational system we should learn to value intelligence, memory, and mere cleverness a little less and wisdom and moral sense very much more. Perhaps we should attempt even to assess the quality of mental functioning not just by the IQ (intelligence quotient) as at present but also by the capacity for selfless love, responsibility, wisdom, and moral awareness, which might be measured by some sort of MQ test—a moral quotient—if such could be devised. The latter, in conjunction with tests of intelligence and memory, would provide a more realistic and holistic assessment of people as complete human beings and a measure of their suitability for appointment to high political and administrative posts where they are required to make decisions on behalf of their fellowmen.

This line of thought also leads up to the point which I made earlier concerning the fundamental moral character of our present environmental crisis. The worlds of God and man interpenetrate. The laws of God or superhuman reality, call them what you will, which we can perceive as moral laws are clearly also fundamental laws of human ecology which we break at our worldly peril.

While I do not believe that we can now wholly escape the consequences of our past mistakes, I do believe that if we are willing to recognize and learn from these mistakes we may have the adaptive capacity as a species to survive the upheavals which lie ahead and evolve into a truly better worldly life governed according to the complementary laws of superhuman morality and terrestrial ecology.

So as we seek to survive, we must seek most to deserve to survive.

NOTES

1. Walter Patterson, *Nuclear Power* (New York: Penguin Books, 1976).
2. Jacques Monod, *Chance and Necessity: An Essay on the Natural Philosophy of Modern Biology*, trans. Austryn Wainhouse (New York: Alfred A. Knopf, Inc., 1971).
3. Alfred Tredgold, *Mental Deficiency*, 7th ed. (London: Balliere, Tindal & Cos, 1947).