

PURPOSE IN THE UNIVERSE: A SEARCH FOR WHOLENESS

by Charles Birch

Of course, it may be said that the impulsion to “make sense of existence” is just the beginning of wish fantasy, a desperate subterfuge to conceal the unbearable truth that existence is indeed absurd. This may be the case. But at least let us give the matter a hearing before we make up our minds to dismiss it.¹

There is a formlessness or yawning in much of modern life that has four obvious aspects:

1. Our inner chaos: the inability to live in harmony with oneself, to accept oneself, to discover one's identity, and to let body, feelings, and thought dwell together in friendship.
2. Our social chaos: the lack of relatedness to others, the inability to live in harmony with others, the generation gap, the problems of the old, polarization within society, and failure to find common national and international goals.
3. Our environmental chaos: the green and varied landscape in which man evolved is swiftly being replaced by a polluted wilderness of concrete and steel; not only has this man-created environment produced physical ills but it seems also to be accentuating psychological disease and lack of rapport with our surroundings. Man himself has become the chief earth pest.
4. Our metaphysical chaos: the sense of separation from the “whole scheme of things” because we have no conviction that there is any scheme of things or value in the universe. Sartre contends that

Charles Birch is Challis Professor of Biology, University of Sydney.

man must give himself meaning in a universe itself devoid of value, but, as Hartshorne² affirms, "if we have no value for the cosmos, we have no value—period." The question then arises, if we have no value for the cosmos, can there be any value or meaning within human life, in human relationships, and in our relationship to our environment?

ESTRANGEMENT AND INTEGRITY

Our lack of a sense of oneness with self, with others, with the world, and with the whole scheme of things has many names: disintegration, separation, alienation, disengagement, noninvolvement, apathy, and, perhaps most descriptive of all, estrangement. Increasingly, the vocabulary of social commentary is dominated by these terms.

But there is a happier state of man that some men know some of the time, and perhaps some know all the time. It is an opening of the heart for the beauty of the world and humanity. It is the state of being at one with self, with others, with the world, and with the "whole scheme of things." This is a dynamic, not a static, state, for contentedness in this sense can never really endure for a period without swinging to a discontentedness with all that is incomplete and unfinished. To be sensitive is to be aware of much that is potentially possible but which is not yet concretely real in this world. A state of hippie bliss may endure for a season, but it will leave the world unchanged if it is not balanced by a deep sense of discontentedness which is a spring of action for change. The same could be said of what Northrop³ calls "the satisfied Left Bank Parisian boredom, which the Existentialists call *Sorge*" and which leaves the world unchanged.

There are words that give a name to this state of contentedness and discontentedness; integrity, which comes from integer, meaning undivided, at-one-ment, wholeness, health, and holiness—they all mean the one thing and the opposite of estrangement.

Secular man is said to accept provisional answers to limited questions. Yet there is a groping in modern man for an all-inclusive coherence and integrity. Man wants to know if what he does has a value extending beyond his own experience and that of others to some sort of ultimate worthwhileness. We set our sights on lesser goals which let us down. There is a sense in which the passion of our involvement depends upon the extent to which we feel a value more ultimate than ourselves or even the human race, and it is this aspect of purpose and value that finds us more at sea than any other. The old metaphysical structures have broken down, and many know of nothing to replace them. There are many who will be content to live without an overall

ZYGON

view. Life is enjoyed as it is lived in relation to near goals and immediate purposes. I wonder, however, if this is not in part an adaptation to survive psychologically against the fear of ultimate meaninglessness. If there is an overall view that makes sense and has some validity, are we not missing out on life by not seeking it more deliberately and passionately? There must be a difference in life lived for its moments and life lived as a part of a greater whole in which what is achieved is achieved not just for one person or one species, but is more enduring than either. Is it perhaps the difference between listening to a symphony bar by bar or in the way suggested in Mozart's supposed letter to a friend: "The whole composition, though it be long, arrives in my head almost complete, so that I can survey it, like a lovely picture or a beautiful person, at a glance. In my imagination I do not hear the parts successively, but I hear them, as it were, all at once. . . . And to hear them thus, all together, is much the best way!"⁴

Man's groping for an integrity in modern life is indicated by worldwide movements in each of the four main areas of man's relatedness. Sensitivity and encounter groups speak to man's inner chaos and need of interior oneness. Activist movements have, for many, brought a sense of relatedness to others. The ecology movement, which began in the United States, has spread to most of the rest of the world, finding eager support from youth. The relation of man's future to science and technology and its effects has produced an array of concerned groups. The groping for a metaphysic finds its expression in mysticism, Zen, and a renewed interest in process philosophy.

In each of the areas where man needs to find integrity there are at least three conditions for achieving it. The goal or purpose must be clearly seen. It must be evaluated as being of great worth and embraced with passionate involvement. The means for achieving the initial steps must be known. A vision, its evaluation, and knowledge of the way seem to characterize those people who stand out as committed to a purpose and its achievement. But this is all stated too baldly. Those persons who have discovered an integrity that is all-inclusive and transforming feel not that they have invented something but that they are claimed by something. They feel called forward from the present state of things to much greater possibilities often only vaguely perceived. In Matthew Arnold's phrase, we sense "a power beyond ourselves that makes for righteousness."⁵ Cobb speaks of "that which calls" or even "one who calls" as a distinct aspect of experience; that human behavior is explained not just in terms of antecedent conditions but by confrontation with possibilities of the future.⁶ Overreaching all our commitments and discoveries of integrity is the question of whether we are

responding to some actuality in the universe that is itself one. Parallel to this is the question of whether there is any ultimate significance in what we do and what happens. That is the metaphysical aspect of purpose; man "seeking," says Whitehead, "amid the dim recesses of his ape-like consciousness and beyond the reach of dictionary language, for the premises implicit in all reasoning."⁷ He suggests that the zest for human adventure presupposes for its material a scheme of things with a worth beyond any single occasion, a deep feeling of an aim in the universe. For Teilhard de Chardin it was based on "that aspect of life which most stirs my soul, . . . the ability to share in an undertaking, in a reality, more enduring than myself."⁸ And for John B. Cobb, "What happens really matters only if it matters ultimately, and it matters ultimately only if it matters everlastingly."⁹ In what follows I suggest some propositions which I find persuasive to this view. Much of it is speculative, but, as Charles Hartshorne said to me on one occasion, "You have to be imaginative to see the issues." It is the sort of imagination of the tapestry worker who works behind the design he creates.

INNER CHAOS VERSUS INNER INTEGRITY

My starting point for a sense of purpose and integrity is man's need for a sense of oneness within his own life. I may not feel at one with myself at all, like the adolescent who knows he behaves differently toward his parents, his peer group, and his teachers, and who asks in all seriousness, "Who is the real me?" He feels he is not one person but many. His own behavior baffles him. Erikson expresses this experience in his concept of "identity confusion" with its opposite, the discovery of one's identity.¹⁰ He argues for the psychological need a man has to discover his identity and with it a sense of self-fulfillment. Man then discovers an integrating influence in his emotional and intellectual life. He has discovered something, someone, particular values to identify himself with and which he feels are worthwhile. A moving account of such a discovery is given by Keniston's analysis of what happened to a group of young radicals in their commitment to a cause in the "Vietnam summer" of 1967.¹¹ The biblical story of the Gadarene demoniac is a dramatic symbol of identity confusion being replaced by discovery of an identity that was integrating. Rejected by society as a disintegrated personality, he was bound to a tombstone in a graveyard. When asked by Jesus to speak for himself, he made his own diagnosis: "My name is legion for we are many." In the final scene he is at the feet of his newfound friend, "clothed, and in his right mind." I take "clothed" to mean clothed in a new integrity and a new value commitment, just as Kenneth Keniston's radicals found themselves becoming

ZYGON

committed to a set of values—"justice, decency, equality, responsibility, non-violence and fairness." The operational factor for both was commitment to a cause beyond themselves which had a transforming influence. They had discovered a purpose, and it became an effective cause of change. I find myself much more sympathetic toward this idealistic approach to human behavior than to the popular-front thinking of Ardrey¹² and Lorenz,¹³ who seem to have invented a biological basis of original sin in equipping man with "territorial" and "aggressive" "instincts" because they find these in nonhuman animals. There is a lot we can learn about our animal nature from biology. But it is a one-sided view which has little place for the transforming effect of ideals.

Pascal had man more in balance when he wrote, "It is dangerous to show man too clearly, how much he resembles the animal, unless we show him his greatness at the same time. But it is also dangerous to show him his greatness, without showing him his baseness. The greatest danger is to leave him in ignorance about one and the other. However, it is most useful to show him both."¹⁴

SOCIAL CHAOS VERSUS SOCIAL INTEGRITY

My alienation or estrangement may be from other people, and that can be deeply disintegrating. I have both a need for some degree of acceptance by others and a need to accept them into my world of experience. We worry, at least when we are young, about what others may think of us. A student said to me that he felt other people were looking at him all the time as he traveled to the university by train. He said he felt sure that they were thinking odd things about him, and perhaps they were right. This was just one symptom of a more general sense of separation from humanity that included his parents. His parents had certainly eaten sour grapes, and the son's teeth were set on edge. He longed to feel unembarrassed in the company of others. Human loneliness is a traumatic experience which is common in our urban civilization. A lad has come down to the city from military camp on weekend leave. Sunday night finds him glued to that electronic companion—television. It bores him, so he wanders out into the empty street. He keeps on wandering until he reaches the city, hopefully catching any glimpse of a group folk singing or otherwise getting together. He gets to Kings Cross in the heart of Sydney. It is late Sunday night. Most places are closed, but there is noise coming from a little place called the Wayside Chapel. It is not a religious noise, so he goes in. It is what they call "question time." The questions people there are asking have to do with drugs, promiscuity, war, and the sort of society youth would like to see in place of what is here. He finds he is not alone in his thoughts. He

is accepted and at a level that matters. He says he wants to come back. Or there is the student who, instead of going to bed at that late hour, goes out from his college room into the darkness and wanders, he knows not where, until he comes to a part of Sydney Harbour down by the docks. He looks in the water and sees his face reflected back at him. He could end it all there by jumping in, but then he remembers that he did not go out to do that at all—he went out in search of someone, anyone who would talk with him, talk with him about that private diary he had been writing in such detail and with such urgency all these last months. I do not know how it all started, but, importantly, along the way was the trauma of rejection by his schoolfellows in a boarding school. They found him in the basement secretly painting when the rest of them were bashing each other at football. That was enough to cast him out. When I last saw him, he was discovering an acceptance in a college community which was prepared to ignore some oddities of behavior for the sake of the person he really was. The story of Zacchaeus, the tax collector, is a classic one of such an estrangement from others which becomes replaced by an integrity which was completely transforming. He found a purpose in a new relationship to people. It is my experience that people who reject people and are unwilling to be accepted have themselves been rejected. The totally alienated youth cannot accept love as easily as that. He suspects altruistic behavior in others because he has been hurt too many times by exploiters in the past. What do you expect to get out of me this time? is his response to loving concern. The breakthrough sometimes occurs with the persistent and selfless concern of another, but the road may be long and rough. The big cities of our day are singularly lacking in centers where lost souls can find companionship and where the lonely urban dweller can find others to relate to at more than superficial levels. The “family of man” is no longer a family in the urbanized mobile Western world, and this is a loss which has profound psychological effects.

ENVIRONMENTAL CHAOS VERSUS ENVIRONMENTAL INTEGRITY

Man needs rapport not only with himself and his fellows, but with the physical and biological world around him. The urban environment is now vastly different from the world of green landscapes in which man evolved. It is possible that man is genetically conditioned to need a responsiveness to the world of nature and that his own constructions can become alien to him. Perhaps we have a psychological need for grass and trees and varied patterns of landscape. To regard plants and nonhuman animals as being there primarily for man to use is not only inimical to conserving a natural world but is a devaluation of the

ZYGON

natural world. "Behold the lilies of the field" expresses another valuation of nature altogether. It does not mean "Look at those lilies," but, as Sittler points out, "The word 'behold' lies upon that which is beheld with a kind of tenderness which suggests that things in themselves leave their own wondrous authenticity and integrity. . . . 'To behold' means to stand among things with a kind of reverence for life which does not walk through the world of the nonself with one's arrogant hat on."¹⁵ Some primitive societies have been far more sensitive to nature in this way than is our Western culture. Dorothy Lee gives some impressive accounts of this: "They do not set out to control, or master, or exploit. Their ceremonials are often periods of intensified communion, even social affairs, in a broad sense. In their relationships with nature, the people may see themselves as the offspring of a cherished mother, or the guests of a generous hostess. . . . So, when the Baiga in India were urged to change over to the use of an iron plow, they replied with horror that they could not tear the flesh of their mother with knives."¹⁶ Dorothy Lee gives examples of American Indians who used every portion of the carcass of a hunted animal, not for economic thrift, but through courtesy and respect; of others who lived on land so heavily timbered that it was difficult to find sites for houses, but who nevertheless used dead wood only for fuel "out of respect for nature." These people do not so much seek communion with nature as find themselves in communion with it. For them there is no dichotomy between man and nature; man is in nature.

People in the "developed world" have lost this valuation of nature. We are in the world but not of the world. Because of our prevailing values we are prepared to stand by and destroy the earth for a mess of pottage. "Show me a man-oriented society," writes landscape architect McHarg, "in which it is believed that reality exists only because man can perceive it, that the cosmos is a structure erected to support man on its pinnacle, that man exclusively is divine and given dominion over all things, indeed that God is made in the image of man, and I will predict the nature of its cities and their landscapes. I need not look far for we have seen them—the hot-dog stands, the neon shill, the ticky-tacky houses, dysgenic city and mined landscapes. This is the image of the anthropomorphic, anthropocentric man; he seeks not unity with nature but conquest."¹⁷

Lynn White, jr.,¹⁸ blames our Western attitude of exploitation and rape of the earth on that part of the Judeo-Christian tradition that conceives man as superior to all the rest of creation, which exists merely for his use and exploitation. That there is such a strong tradition within Christendom cannot be denied. Furthermore, the traditional Chris-

tian churches have feared an evaluation of nature for its own sake because of a peculiar antipathy to anything that is suggestive of pantheism. It is true, as White says, that "human ecology is deeply conditioned by beliefs about our nature and destiny—that is, by religion."¹⁹ However, Moncrief²⁰ is nearer the mark when he says that to argue that religion is the primary conditioner of human behavior toward the environment is much more than the data that White cites will bear. No culture, he claims, has been able to screen out completely the ego-centric tendencies of human beings. Technology has multiplied the productive capacity of every worker many times what it was prior to the technological revolution. With increased wealth came the increased demand for goods and services. And in the process the environment has taken a terrible beating. The Western world is without any dominant ethic of the environment. It has little moral direction in the use of the world's nonrenewable resources, and it tends to have an undying faith in the capacity of technology to produce a technological rabbit of salvation from the hat when the environment can no longer give of its riches. Six percent of the world's population (in the United States) is consuming 40 percent of the world's nonrenewable resources. If the United States and the rest of the Western world continue their present human growth and industrial development, the world faces, sooner or later, ecological disaster. The only responsible attitude is to reduce economic growth and work for a stable human population and stable ecological system for the world. Only then can man say that he has avoided environmental chaos and found an integrity with his environment. In this connection my own country, Australia, is on the same path of exploitation of the environment and massive urbanization as the rest of the Western world. There is, however, a small group who are working toward a model for Australia in which population and development might be brought into balance with conservation of the quality of the environment. Man cannot save himself without saving his world at the same time. That means establishing right relations with the world. Never before in history has the possibility existed that man could destroy his world. The possibility also exists that man can save the world. Lake Michigan, with the whole of creation, "groans in travail, waiting to be set free from its bondage of decay," as Paul says in the eighth chapter of the book of Romans.

There is now a growing number of groups throughout the world seeking a new integrity of man with that part of his environment we call science and technology. A major cause of man's bewilderment is his inability to cope with the overwhelming nemesis of technology and the new possibilities for the future opened up by science. Man's future is

ZYGON

threatened by the demonic perverseness of science and technology that could destroy all that has ever been achieved. This same science and technology beckon us with hope to a future where poverty and physical suffering can be eliminated in all nations forever. In the meantime, we tread an uncertain path in which increasing urbanization and industrialization squeeze the meaning out of life and where manipulation of man to chosen ends makes us less, not more, free. In its program "The Future of Man in a Science-Based Technology," the World Council of Churches is planning to mobilize the resources of concerned people in the professions and in humanistic disciplines to come to grips with all these urgent issues. The goal is a new understanding of integrity where science and technology will not primarily be a threat but will be part of the creative advance of the twentieth century.²¹

METAPHYSICAL CHAOS VERSUS METAPHYSICAL INTEGRITY

Professor Joseph Sittler reported that a student interrupted one of his lectures to say, "But look, how can *anything* mean if *everything* doesn't?"²² How can human life have meaning if there is no meaning to the cosmos? There is an estrangement which a man can experience which is the worst kind of alienation, and that is a sense of separation from the whole scheme of things, not just ourselves or our fellows, not just from the world of nature, but from the total environment of our life. We ask, "Is there any point in existence?"

A sense of separation from the whole scheme of things may be a temporary, though nonetheless poignant, experience after a great grief. Or it may be more permanent as a way of life; for example, the group of students whom Keniston calls the uncommitted or alienated: "These young men find the universe and their own lives lacking in meaning and direction; they live in a 'dead' universe filled with self-seeking men who hide their motives from themselves."²³ Or it may follow the shattering of our childhood and cosy views of the universe by a more mature understanding of the complexity of things. The Sunday school version of God who created the universe and left it except for occasional interventions is about the only image that many people have ever known. They rightly reject it. It is, of course, a miserable concept of God who would have to destroy his creation in order to act. When simplistic pictures are shown to be inadequate, the next easy step is to conclude that there is no satisfactory picture to be had, that the universe and existence are inscrutable. We may opt, as an alternative, for another simplistic picture which is the besetting sin of both science and philosophy, for example, the notion of the universe

as a self-made, self-propelling contrivance, with ourselves as cogs in the works. And that is all. The sense of unity we derive from a simplistic view is readily shattered in the modern world. It may require a great intellectual and emotional struggle to replace it with a newfound harmony in diversity. The eminent Victorian biologist Thomas Henry Huxley asked, "Is the universe friendly?" His question implied the possibility, nay the probability, that it was not; contrivance it is, complex to be sure, but nevertheless contrivance—period—contrivance as unresponsive to man's yearnings as any other machine. Camus expresses much the same thought when he speaks of "the unreasonable silence of the world."²⁴ By contrast, Teilhard de Chardin proclaims this to be a personalizing universe. A universe in which personality is possible requires a different sort of explanation from one in which personality was not possible.²⁵ A few thousand million years ago there was primeval chaos. And now here we are! I believe that a universe which produced life and consciousness requires an explanation different from the kind that would be demanded from a universe which did not do so and could not do so.

Huxley was overcome by the seeming impersonality of the universe; Teilhard de Chardin can write a "Hymn of the Universe" which bespeaks a meaning to existence that makes sense of his most profound experiences. Without some such meaning, though not necessarily the one that Teilhard found, there is a vacuum in our culture that quickly gets filled with astrology, numerology, and all sorts of prescientific magic. What follows are a series of propositions about the universe that are the basis of my understanding of integrity and purpose in the universe and that I believe are consistent with a scientific understanding of the world.

THE COSMOS AS UNIVERSE, NOT MULTIVERSE

The facts of science and human experience cry aloud for an overall view of the unity of creation. "It could be claimed," says White, "that our thinking has got spread over so vast a range of things that it is suffering excess intellectual entropy. Wistfully we yearn for new Aristotles and Leonardos, well knowing that if they could return they would be as appalled as we at the new chaos of what once seemed the mind's cosmos."²⁶ However, he goes on to say, "The full view of the facts justifies not gloom but exhilaration. . . . The explosion of knowledge and the trend toward specialization have provided a compensatory swing toward intellectual generality."²⁷ From physics we accept the physical unity of the universe. At least for the cosmos we know the physical building blocks of the outer nebulae appear to be the same

ZYGON

as those that make up a human brain. What the poet Francis Thompson wrote is true in physics.

All things by immortal power
Near and far
Hiddenly
To each other linked are,
That thou canst not stir a flower
Without troubling a star.²⁸

Every entity “feels” every other entity physically. That was the discovery that Newton made and whereby it was possible for him to explain the movements of the planets and the fall of the apple in one principle. It told us something about the unity of the universe. From biochemistry, we have the unifying concept that life arose out of nonliving matter without the addition of any new entities and that all life is constituted of the same molecules. Biology tells us that all living things evolved over countless ages through the operation of natural selection of random variation. This is the Darwinian principle that ties all living things together in common descent. No new entities were added to the brew to produce the wealth of life through the ages; no vitalist principles were needed. What was there in the beginning was enough for all creation. But what was there? That is the question! It becomes the critical question when we contemplate what evolution flowered into—the human mind that experiences the universe and seeks to interpret that experience. Evolution has produced sentient creatures who know in some sense the universe. George Wald said, “It would be a poor thing to be an atom in a universe without physicists. And physicists are made of atoms. A physicist is the atom’s way of knowing about atoms.”²⁹ But there are other sentient creatures besides man. And who is to say where we should draw the line between sentience and nonsentience as we go down the evolutionary tree? There seem to be three possibilities: either we deny the reality of sensation, or we regard it as something added or emerging at some stage in the evolutionary pathway, or we see it as something present in principle in the building blocks of the creation. What we know so clearly by experience we may imply is an aspect of all that exists. I take this to be a central tenet of the process thinking of A. N. Whitehead, Charles Hartshorne, and others. In this idea I find the unity of the universe taken more seriously than in any other concept. We interpret the “lower” in terms of the higher. What we see more fully developed in man gives us a clue to the nature of all the building blocks of the universe. The grandeur and nature of the river of life are revealed not at its source but at its estuary.

A UNITARY ACTUALITY

A unitary actuality in the universe embraces all that is and is worthy of total devotion—this is the proposition that the integrity man experiences within his own life, with that of his fellows, with the non-human creation of plants and animals and sunsets and rocks, bespeaks a relationship with something at the heart of all that exists and which has its own oneness. Science describes the outer aspect of things. The inner aspect may elude the laboratory analysis but not my feelings of it. The most complete description of reality would include all that scientific analysis can reveal and all that we feel intuitively, even though vaguely.

The nonrational animals have some sort of unity of response to the world around them. They have their integrity. But their own species is practically all that has value; the rest is largely unknown to them. Man can raise his sense of integrity and wholeness to the conscious level; he makes a conscious unitary response to the universe around him. "Not completeness, but all-inclusiveness, is what is required," says Hartshorne.³⁰ This conscious unitary response is what the word "worship" means. "It lifts to the level of explicit awareness the integrity of an individual responding-to reality." Hartshorne further points out that there are two possible theories of such worship. In the theistic theory, the conscious wholeness of the individual is correlative to an inclusive wholeness in the world of which the individual is aware. This wholeness he calls "deity." According to the nontheistic view, whether there is no inclusive wholeness, or even if there is, it is not what religions have meant by deity. Three great religions agree with this conception of worship: Judaism, Christianity, and Islam. In Christianity, God is that inclusive wholeness to which a person responds with "all his heart, with all his mind and with all his soul and with all his strength." This idea that worship is love with all one's being is in the great religions correlated with the idea that what we wholly love is itself also in the nature of love. In his book *A Natural Theology for Our Time* as well as in many of his earlier writings, Hartshorne has emphasized the logic of this step. How can one love with all one's being an unloving being? "Only supreme love can be supremely lovable," he answers.³¹ To worship is to attribute worth to. The view being put forth here is that there is a unitary actuality that includes all and which is worthy of one's total devotion. All-inclusiveness is the integrating aspect. Yet many go for less. Humanism as devotion to that which fulfills human potentiality is a lesser object of devotion, though it is included within the complete object of devotion. Humanism leaves a vast world aside. Further-

ZYGON

more, it has no answer to the question-answer-question sequence: Q. What am I here for? A. To help others. Q. But what are the others here for? Living only for the partly foreseeable but limited human future has something irrational about it. A burning zeal for humanity is one source of integrity. It is not the only one. The discovery of what a man is and is most worthy of becoming leads to the further question of the purpose of existence, not just man's existence. While humanism may cast a bright light on the foreground of morality, it leaves what Whitehead calls "its background" wholly obscure. John B. Cobb³² has expressed much the same view of the difference between commitment to a humanistic ideal and commitment to the unitary actuality that includes all and to which we can respond with all. He argues that the one who dedicates himself to ideals does so out of the correct judgment that these have objectivity to him, that they lay a claim upon him. Yet he can hardly provide an intelligible explanation of how this is so. The reasons for concern about one's motives and responsibilities for them become obscure. The claim of a neighbor upon me becomes arbitrary and without foundation. But when I discover that my neighbor is part of that total actuality that calls me forward in loving my neighbor (and myself), I am experiencing an at-one-ness with that which is altogether lovable.

If you say that this is all very fine theory, but ask what conceivable reason can a man have for entertaining seriously such ideas, I would reply:

a) An individual must have integrity in order to exist as an individual, and if the conscious form of integration is commitment to that which matters most in self and others and the rest of creation, then it is illogical for a person to choose deliberately not to be so committed. There is something irrational in choosing not to believe in the integration of the universe.³³

b) The reason cannot be one of verification in the empirical sense that all conceivable alternatives have been falsified. Materialism is in the same boat. It, too, is untestable in the empirical sense. So why assert it? Science itself is based not on a series of irrefutable facts, but on faith. Whitehead³⁴ was correct when he described the scientific revolution as a revolution away from faith based on reason (i.e., the world view developed from Saint Thomas Aquinas) to reason based on faith. It was a faith in the worthwhileness of a passionate concern with stubborn facts and a faith that these were part of what was called the order of nature. Science rested on a faith in the orderliness of nature, that there was a scheme to fit facts into, a jigsaw puzzle to be solved, that it was a real jigsaw puzzle and not just a game of ideas.

This is what was new. Of course, people knew that the sun rises regularly. But there were a lot of things that did not occur with any regularity, a lot that was capricious, like the comets that did not seem to belong to any order. The faith of science was that all things, great and small, could in principle be put into an order of nature. If you had asked Galileo or Copernicus or Darwin to prove their faith, they would have been hard pressed to say anything more than that this was their conviction and so far it had not let them down. Each creative advance in science is, in Kuhn's terms, a "revolution"³⁵ involving the veritable "overthrow" of one order by another in which observable facts take on a new aspect and totally new problems begin to dominate inquiry. In this respect, Kuhn's interpretation of science is the same as Medawar's³⁶ in that the most important element is the imaginative leap that produces ideas that are fruitful. To trust, even tentatively, in the worthwhileness of an imaginative leap is faith. It is an essential ingredient in science. It cannot be an argument against having broad (and tentative) commitments any more than it is an argument against science. All commitments should have an element of tentativeness about them. What, then, fires the imagination? An essential ingredient is the urge to understand and to relate. But it is more than that. It is an urge akin to that of Eros of Greek mythology, which Rollo May describes as "a desiring, longing, a forever reaching out, seeking to expand, . . . the power in us yearning for wholeness."³⁷ May quotes that remarkable philosopher of science Charles S. Peirce: "The thinker must be animated by a true Eros for the task of scientific investigation." The scientific venture at its best is a reaching outward to embrace the wholeness of things. Analysis is pointless unless wholeness is its objective. There are plenty of pitfalls in seeking wholeness. We may be guided by Whitehead's³⁸ proposition that cosmologies are never merely true or false; they are more or less adequate to the full variety of experienced facts. That is the only reasonable attitude to adopt for theories that attempt to be comprehensive. The so-called verification principle is quite inappropriate to them. Simple hypotheses may be subject to it, but broad theories are not verified; they are weighed.³⁹

AN ORDERING PRINCIPLE IN AN ORDERED UNIVERSE

How are we to think of cosmic evolution from chaos (= yawning) some ten thousand million years ago to cosmos (= order) that in one part at least took a path that led to the emergence of life, that in the course of two thousand million years led to life that can know about the universe and knows that it knows? There are some, perhaps most, evolutionists who see in the sequence of cosmic, biological, and cultural

ZYGON

evolution an increase in order or levels of organization. Or, at least, they claim that in these historical sequences one sort of order is succeeded by another sort. In a very thoughtful article, Lewontin has recently questioned these propositions.⁴⁰ He asks, How can we distinguish order from chaos? Consider a pack of cards which are shuffled a number of times. Let us suppose that on one occasion the cards are grouped by suits. We would say that an order has been created. If the suits were arranged in ascending sequence, we might well say there was even greater order in that set of cards. Yet any particular order of cards has exactly the same probability as any other order. Therefore, Lewontin argues, the appearance of order is the correspondence between the arrangements of objects and a preconception. For the cards, this is indeed the case. However, Lewontin then states, "the demand that an evolutionary process create order, or at least that there be a change from an order to a different order, shows clearly that evolution, in this sense, is neither a fact nor a theory, but a way of organizing knowledge." This is a bewildering statement coming as it does from one of the leading evolutionists of our time. I would put it alongside the proposition of another evolutionist, Sir Ronald Fisher: "It was Darwin's chief contribution not only to biology but to the whole of natural science, to have brought to light a process by which contingencies a priori impossible, are given, in the process of time, an increasing probability, until it is the non-occurrence rather than their occurrence which becomes highly improbable."⁴¹ Any particular combination of cards in a pack is highly improbable; yet all combinations are equally probable. Any particular combination of atoms in a living organism is highly improbable. Darwinian evolution shows us how the improbable is made probable; that is, it increases the probability of a particular order occurring. The shuffling of cards does not do this. Evolution is not just sequence but consequence. At each point of the historical sequence, some events become less likely for the future (e.g., six-legged mammals after the development of the pentadactyl limb) and other events become more likely. Natural selection is continually changing the possibility of the future. Some former restraints are lifted and new opportunities are revealed. This is why it can be called creative. I would therefore argue, against Lewontin, that evolution does create order and that this is a fact and not just a mental construct. Lewontin is onto a much more substantial argument when he questions whether evolution has any direction or linear order. Defining such a direction in terms of increase in complexity or increase in homeostasis is fraught with difficulties. There is nothing in the evolutionary process that puts a premium on complexity of structure and

function. There is no reason to suppose that structures and functions might not evolve to simpler states. There is certainly no straight-line arrow in evolution. What there is is change in time as opposed to stasis. Change means sequence and sequence means consequence in the sense described above. The inevitable result is that novel creatures arise in the course of evolution and will yet arise. There are real differences between nonliving matter and a bacterial cell and between a bacterial cell and man, despite the difficulty we might have in defining what they are. They may in essence be differences of degree rather than of kind. But when differences of degree become great, it is reasonable to regard the new productions as having novel characteristics. The most novel characteristics of man as compared with all other creatures are the extent of his consciousness of the world around him, his self-awareness, and his capacity to communicate (through language).⁴² Lewontin's article is a timely warning against accepting a too facile interpretation of evolution. But has he not thrown the baby out with the bath water? I believe he has and that he has not given a convincing argument for rejecting the idea that evolution involves the creation of different orders which are real and not just a matter of our way of looking at things. The order of nature is not the order of fixed and determined contrivances. Nature, including man, is a mixture of order and randomness, a point which is strongly made by Hartshorne.⁴³

The problem of order in the universe is twofold: how it is that the universe is not just a "shapeless chaos" (Jefferson's phrase) and how it is that the cosmos ever evolved beyond some past primeval state. Objects endure, yet the world changes.

The stuff of the universe is ordered and has the potentiality of being further ordered and reorganized. In modern terms it is "programmed." Materialism takes neither of these two aspects of "programming" seriously. It accepts order at the physical level but does not explain it. "Matter," says Hartshorne, "is just a label for orderly processes of nature, it is not a positive principle to explain their possibility. . . . The mere existence of atoms with definite character, maintaining themselves through time and relative to one another is a tremendous order. Materialism in principle refuses to take order as a problem."⁴⁴ Given an ordered physical universe, it is another problem to explain the different levels of order and the evolutionary novelty built historically upon these foundations, from atoms to cells to living organisms. That is in large part a scientific problem, or set of problems. Darwin showed that the principle of natural selection of chance variation explained a lot of the order of the plant and animal world. These principles are not explanations of order per se. Natural selection can produce greater

ZYGON

order than exists because it works with ordered systems which have the potentiality of being further ordered. The Darwinian explanation is an account of the outer aspects of things visible to the scientific observer. It leaves open the question of whether there is an inner aspect of things less amenable to scientific analysis but also relevant in seeking to interpret biological order. It does not leave as an open question what Raven called "the doctrine of divine carpentry," in which "the design of nature" is attributed to direct action or intervention by a designer God who is both architect and builder.⁴⁵ Darwin showed that this doctrine was contrary to facts.

The existence of an ordered universe implies an ordering principle—not a multitude of ordering principles, but one. There are two sorts of ordering principles: dictatorial and democratic. The "doctrine of divine carpentry" was a doctrine of a dictator God who ruled the universe. The democratic principle is order by persuasion of subjects with a degree of freedom for the subjects. The possibility of anarchy exists. Anarchy is prevented by persuasion or love, which are the same. I recall Professor Hartshorne making this point to an audience of students by telling them that the possibilities of disorder and anarchy in the lecture theater were very great. Such order as existed was, he trusted, the result of self-persuaded discipline. "Order," he said, "is anarchy tamed." The nature of the order in the lecture theater is an appropriate analogy of the nature of the order in the universe. There is an ordering persuasive principle of order which is God (in process thought), and there is the action of the individual entities in relation to the persuasion they "feel." It is not God alone who acts; every entity or individual does. "There is no single producer," says Hartshorne, "one producer is universally influential. Nevertheless, what happens is in no case the product of his creative act alone. Countless choices interact to make a world."⁴⁶ They do in a democracy. A dictator cannot bear disorder. Democracy can live with it. The opportunities for good and the possibility of evil are two aspects of just one thing, multiple freedoms. There are no reasons for particular evils; they just happen in a universe where good is possible but not inevitable. It is no argument that a divine creation must absolutely lack evil, be devoid of suffering and frustration. Could good mean anything in a world in which any contrary thing must be totally excluded? I think not.

Hartshorne says, "The order of the world requires a divine orderer, not because the order is perfect, or because there is nothing chaotic or unfortunate in the series of events, but because apart from God there is no way to understand how there could be any limit to the confusion and anarchy implied by the notion of a multiplicity of creative agents,

none universally influential or wise. And that there are such limits to anarchy is no mere fact; for there would have to be limits in any genuinely conceivable state of reality. But to understand this necessity is to see it as one with the necessary existence of God as cosmic orderer."⁴⁷ Without overall coordination there would be chaos in the universe. Peters⁴⁸ uses the analogy that, just as it is unlikely that a committee could have produced a Mona Lisa, so too is it unlikely that a multiplicity of events could alone have produced cosmic order. God on these terms provides the limits of freedom such that there is a favorable relation between risks and opportunity. The world is neither a tame and harmless order nor a wild and dangerous disorder.

But, you object, why one orderer of the universe only, why not an orderer of the orderer? To assign two or more cooperating individuals the role of universal interactions is to imply a distinction where there is none. Each cosmic orderer would have to interact with the other to maintain the integrity of the universe, and this seems to me to say that they act as one. "Order is in principle the rule of one."⁴⁹ But God as that one is not to be identified with absolute law and nonchance.

MATTER AND MIND AS TWO ASPECTS OF ONE REALITY

Dualism carves the universe up into two sorts of entities: matter and mind. Once separated, like Humpty Dumpty who fell off the wall, they can never be put together again; or at any rate, no one has yet succeeded in completing that operation. Materialism reduces all to terms of classical physics and leaves no place for the "nonphysical." Yet between what mind experiences and science describes there is a great gulf. The classical formulas of physics and chemistry give a monocular or one eyed view of things, reliable as far as it goes, but deficient in depth. These disciplines were never intended to provide an explanation of mind and consciousness; yet they are used by materialistic reductionists to this end. To be sure, there is a physical and a chemical component of all experience. That is not the question at issue. The question is whether all experience can be understood in principle in terms of classical physics and chemistry. Materialism answers yes, in principle. The nonmaterialist may still be a reductionist. But he seeks a new physics that allows room for something other than the classical notions of physics in his models of the building blocks of the universe.⁵⁰

The experience of consciousness points, for the nonmaterialist, to a sentient aspect of reality. The immediate facts of experience disclose nothing of a dead, feelingless world. How then shall we account for what we know through experience? If matter and mind are two aspects of one thing, then one major philosophical problem of evolution dis-

ZYGON

appears. We get rid of the necessity of introducing mind into a previously mindless world and the arguments as to when mind first "emerged." There is no direct evidence for asserting or denying the proposition that mind is an aspect of all matter. But if a more consistent and satisfying picture of the universe and its evolution can be gained from the assumption that the primary particles are like ourselves sentient in some sense, then physics can have nothing to say against it. There is a place for models that go beyond those of classical physics (metaphysics). Physics itself admits that its concepts of the ultimate particles are models in any case. To go beyond these is to construct imaginative models that may be able to cope with interpreting a wider range of our experiential world. There have been numerous transformations of the physical models of the ultimate particles. Who is to say that we have arrived at any final picture? Certainly, the physicists are not claiming that they have. When an electron is "attracted" to a proton, there is nothing but an emotional reason to refrain from saying that the electron "likes" the proton or that it has particular feelings about a proton. Physics has no argument against that.

In the Whiteheadian view reality is process, the process of experience. This is a feeling universe. There is an outer and an inner aspect to the creatures we know ourselves to be. The proposition of process philosophy is that this model applies all the way down the line to the ultimate particles. As Hartshorne says, "The insentient, dead and mechanical is secondary to or even a mere appearance of a special case of the sentient, living or social. We need an interpretation of experience that will apply up and down the line."⁵¹

We tend to neglect too readily the seminal concept of the possibilities or potentialities of the universe from the foundations of the cosmos; matter, life, and consciousness were potential or possible, though what became concretely real was a matter of evolutionary history. Possibilities are unseen realities. As far as our human lives are concerned, they are potent causes in guiding and transforming our lives. In the Whiteheadian view, any occasion or event in the universe, be it an electronic event or an event in a higher organism, is an occasion of experience which is in touch with possibilities from which it selects a goal (which is its freedom) regarding its "self-fulfillment." There is an order of relevance to creative advance in the world. Each occasion of experience is partly self-determining and it is part-determined by the possibilities that confront it. The possibilities or potentialities are an aspect of the unitary actuality which Whitehead called God.

The universe has always been and is now in the process of being made. It is incomplete. It is lured to further completion. The order of the universe is well established at the level of electrons and atoms, less so at the level of living cells and organisms, least so at the level of human societies. This last level is where man's conscious groping may meet the persuasive lure of unrealized possibilities that could make a more complete world and more ordered lives. Here is where mankind is challenged to participate consciously in the ongoing creative process. This is a doctrine (panentheism) that recognizes the operation of "efficient causation" or mechanical causes and "final causation" or the effective causation of potentialities, goals, and purposes. Attempts to work out these ideas in detail have been made by Whitehead, Hartshorne, and other process thinkers. Their particular application to biological evolution has been developed by a number of authors, such as, for example, Wright,⁵² Overman,⁵³ and Birch,⁵⁴ and by Burgers⁵⁵ to physics.

IMMORTALITY AND THE UNITARY ACTUALITY OF THE UNIVERSE
AS RESPONSIVE

If the unitary actuality of the universe is characterized by a quality that is best described as love that is inclusive of all that exists, and if the source of this love is worthy of unqualified love, then what is loved must respond to that love. The proposition is that at the heart of the universe there is integrating love that gives and that responds to the response of the creatures. The image is persuasive love transforming the creation and, in the process, itself being transformed or enriched by the creation. "Not a sparrow falls to the ground without your father knowing" is a saying attributed to Jesus and which puts in simple metaphor the concept of a responding love. Certainly for him it was not only man but all living creatures who had this impact on the being of God. If this is a valid image, who is to say that it is not applicable to all entities of existence? As for our own experience, it leaves out most of what is happening in the universe. Is there one who responds to all that exists, who feels the movement of creative evolution, and who saves this experience forever? Perhaps there could be no more daring and all-embracing proposition about our universe than that there is. In some form or another, this concept has appeared in the higher religions. Why? It is a judgment of value about what seems to make sense when we take value experiences seriously. We ask if the contribution each one of us may make is in any way lasting. To some extent, our influence may live beyond the grave in the memory of

ZYGON

others. That contribution fades and is very incomplete. As far as our planet and all its works are concerned, its day will end, either in a freeze-up or in a fiery inferno. All will be frozen cold or reduced to ashes.

What then of man and all his works? Has he ultimately no significance in the vastness of the universe? Traditional theology has sought for survival of man beyond the grave. Immortality has meant post-mortem rewards and punishments. That has led to the unethical notion that we do good for the sake of some future benefit for us.⁵⁶ But there is only one valid reason for doing good, and that is that it is good—period. The pearl of great price is sought for its value now. But is that which has been achieved of value saved in any way in the ongoing saga of the universe? It could be if the unitary actuality, God, that includes all responds to all. Created value would then be saved in his experience. That the world experiences God and that God also experiences the world and is enriched by it is a familiar image to students of A. N. Whitehead.

What matters can matter ultimately only if it matters to that which is itself ultimate and everlasting. What are everlasting in this view are the value experiences of God. What has been achieved is saved in his experience. "One personality and one immortality suffice to save the meaning of existence," says Hartshorne.⁵⁷ Ours can be the satisfaction of knowing that we participate in that. There is no need for anything else. We, as participants to some degree in the creative processes of the world, are too inclined to see ourselves as owners of this and that, albeit temporary owners. But for the world of the future, this concept of ownership will be a great obstacle to advance. What matters is not what we as a people or nation seek to own but what we contribute to the whole. Garrett Hardin has argued very persuasively that in the modern world the concept of ownership of children is no longer tenable, if ever it was: "My child's germ plasma is not mine, it is really only part of the community's store. I was merely the temporary custodian of part of it."⁵⁸ And so it is with the resources of the planet and all that we tend to regard as ours. We are arrogant because our sights are low. Humanism helps to lift them higher, but not high enough. Hartshorne suggests that perhaps our culture will find its way back after a long detour to the original Jewish insight that only two things matter, creaturely life between birth and death and the unborn and undying life of God. "The sole bargain or covenant to make is that we do our best and trust God to salvage what can be salvaged from our failures, and to make the most of what can be made of our successes. We write our book of life," he says, "either for extremely inadequate

and ultimately according to all rational probability, non-existent readers, or for the one adequate Reader.”⁵⁹

All human forms identified, even tree, metal,
earth, and stone; all
Human forms identified, living, going forth, and
returning wearied
Into the planetary lives of years, months, days,
and hours; reposing,
And then awakening into his bosom in the life of
immortality.
And I heard the name of their emanations: they are
named Jerusalem.

[WILLIAM BLAKE, “They Are Named Jerusalem”]

NOTES

1. John Macquarie, *Principles of Christian Theology* (New York: Charles Scribner's Sons, 1966), p. 59.
2. Charles Hartshorne, *Creative Synthesis and Philosophic Method* (London: S.C.M. Press, 1970), p. 317.
3. F. S. C. Northrop, *Man, Nature and God: A Quest for Life's Meaning* (New York: Pocket Books, 1962), p. 20.
4. As quoted in Lynn White, jr., *Machina ex Deo: Essays in the Dynamism of Western Culture* (Cambridge, Mass.: M.I.T. Press, 1968), p. 39.
5. Matthew Arnold, *Culture and Anarchy: An Essay in Political and Social Criticism* (London: Smith & Elder, 1889).
6. John B. Cobb, *God and the World* (Philadelphia: Westminster Press, 1969), p. 50.
7. Alfred North Whitehead, *Adventures of Ideas* (New York: Macmillan Co., 1933), p. 380.
8. Pierre Teilhard de Chardin, *Hymn of the Universe* (London: Collins Sons & Co., 1961), p. 113.
9. Cobb (n. 6 above), p. 84.
10. Erik H. Erikson, *Identity: Youth and Crisis* (New York: W. W. Norton & Co., 1968), p. 142.
11. Kenneth Keniston, *Young Radicals: Notes on Committed Youth* (New York: Harcourt, Brace & World, 1968).
12. Robert Ardrey, *The Territorial Imperative: A Personal Inquiry into the Animal Origins of Property and Nations* (New York: Atheneum Publishers, 1966).
13. Konrad Lorenz, *On Aggression* (New York: Harcourt, Brace & World, 1966).
14. Jacques Chevalier, *Pascal* (Paris: E. Flammarion, 1936), p. 71.
15. Joseph Sittler, “Ecological Commitment as Theological Responsibility,” *Zygon* 5 (1970): 175.
16. Dorothy Lee, “The Religious Dimension in Human Experience,” in *Personality and Religion*, ed. W. A. Sadler (London: S.C.M. Press, 1970), p. 35.
17. I. L. McHarg, “The Plight,” in *The Environmental Crisis: Man's Struggle to Live with Himself*, ed. H. W. Helfrich (New Haven, Conn.: Yale University Press, 1970), p. 21.
18. White (n. 4 above), p. 75.
19. *Ibid.*, p. 84.
20. Lewis W. Moncrief, “The Cultural Basis for Our Environmental Crisis,” *Science* 170 (1970): 508-12.

ZYGON

21. David M. Gill, *From Here to Where? Technology, Faith and the Future of Man* (Geneva: World Council of Churches, 1970).
22. Sittler (n. 15 above), p. 173.
23. Kenneth Keniston, *The Uncommitted: Alienated Youth in American Society* (New York: Dell Publishing Co., 1960), p. 67.
24. Albert Camus, *La Peste* (London: Penguin Books, 1947), p. 36.
25. Pierre Teilhard de Chardin, *The Phenomenon of Man* (London: Collins, 1960), p. 172.
26. White (n. 4 above), p. 134.
27. *Ibid.*, p. 136.
28. Francis Thompson, "The Mistress of Vision XXII."
29. George Wald's introduction to L. J. Henderson's *The Fitness of the Environment* (Boston: Beacon Press, 1958), p. 3.
30. Charles Hartshorne, *A Natural Theology for Our Time* (La Salle, Ill.: Open Court Publishing Co., 1967), p. 16.
31. *Ibid.*, p. 13.
32. Cobb (n. 6 above), p. 62.
33. Hartshorne (n. 2 above), p. 45.
34. Alfred North Whitehead, *Science and the Modern World* (Cambridge: Cambridge University Press, 1926), chap. 1.
35. Thomas S. Kuhn, *The Structure of Scientific Revolutions*, *International Encyclopedia of Unified Science* (Chicago: University of Chicago Press, 1962).
36. P. B. Medawar, *The Art of the Soluble* (London: Methuen & Co., 1967), p. 138.
37. Rollo May, *Love and Will* (New York: W. W. Norton & Co., 1969), p. 73.
38. Whitehead (n. 7 above), p. 172.
39. Frederick Ferré, "Science and the Death of 'God,'" in *Science and Religion: New Perspectives on the Dialogue*, ed. Ian G. Barbour (New York: Harper Forum Books, 1968), pp. 134-56.
40. R. C. Lewontin, "Evolution: The Concept of Evolution," *International Encyclopedia of the Social Sciences*, ed. by David L. Sills, 17 vols. (New York: Free Press, 1968), 5 : 202-10.
41. R. A. Fisher, "Retrospect of the Criticisms of the Theory of Natural Selection," in *Evolution as a Process*, ed. J. Huxley, A. C. Hardy, and E. B. Ford (London: Allen & Unwin, 1954), p. 91.
42. Theodosius Dobzhansky, *The Biology of Ultimate Concern* (New York: New American Library, 1967), p. 68.
43. Hartshorne (n. 2 above), p. 318.
44. Hartshorne (n. 30 above), p. 57.
45. Charles E. Raven, *Natural Religion and Christian Theology*, Gifford Lectures 1951, First Series: Science and Religion (Cambridge: Cambridge University Press, 1953).
46. Hartshorne (n. 30 above), p. 59.
47. *Ibid.*
48. E. Peters, *The Creative Advance* (Saint Louis: Bethany Press, 1966), p. 70.
49. Hartshorne (n. 30 above), p. 61.
50. See C. F. von Weizsacker, *The Relevance of Science*, Gifford Lectures, 1959-60 (London: Collins Sons & Co., 1964); and W. Heisenberg, *Physics and Philosophy* (New York: Harper Torchbooks, 1962).
51. Hartshorne (n. 30 above), p. 61.
52. Sewall Wright, "Biology and the Philosophy of Science," in *Process and Divinity—the Hartshorne Festschrift*, ed. William L. Reese and Eugene Freeman (La Salle, Ill.: Open Court Publishing Co., 1964).
53. R. H. Overman, *Evolution and the Christian Doctrine of Creation: A Whiteheadian Interpretation* (Philadelphia: Westminster Press, 1967).

Charles Birch

54. L. C. Birch, *Nature and God* (London: S.C.M. Press, 1965).
55. Johannes M. Burgers, *Experience and Conceptual Activity: A Philosophical Essay Based upon the Writings of A. N. Whitehead* (Cambridge, Mass.: M.I.T. Press, 1965).
56. Hartshorne (n. 30 above), p. 108.
57. *Ibid.*, p. 109.
58. Garrett Hardin, "Parenthood: Right or Privilege?" *Science* 169 (1970): 427.
59. Hartshorne (n. 30 above), p. 110.