SOCIOBIOLOGY, ETHICS, AND THEOLOGY

by Philip Hefner

Abstract. The topic of sociobiology and ethics opens up a range of questions that have to do with important relationships: between the history of nature and human being, between biological evolution and psychosocial evolution, between *is* and *ought*, between language usages in one domain and another. The task of ethics is properly to discern what sociobiology has to tell us about the fundamentals of life and persuasively to direct our actions in accord with those fundamentals, in a manner that is consistent with our essential humanity. From the theological perspective all of this transpires within the creative will of God.

The purpose of this essay is to illumine some central issues that arise when we consider the theme "sociobiology and ethics," particularly from a theological point of view. I do not provide answers to the questions that face us when we reflect on this topic so much as I raise them and attempt to throw light upon them. The issues that receive attention are these: first, the theme compels us to reflect on the relationship between the essentially human and our evolutionary past; second, Christian theology approaches this relationship from a definite perspective with a set of traditional assumptions; third, we cannot reflect on this theme without noting that our language is stretched to the utmost in its attempt to express what we think; fourth, from the vantage point of this theme, altruism inevitably assumes a central position for ethical reflection; fifth, the relationship between biological and psychosocial (cultural) evolution unavoidably enters for consideration and sets a large agenda for ethics; and sixth, the question of the relation between description and prescription (*is* and *ought*) must be clarified if we are to deal adequately with this theme, and the dichotomy between them must be overcome.

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Evolution and the Humanum

"We are everday seeing a little more clearly the ways in which the history of humanity interlocks with and reflects the continued presence of patterns apparent in the history of nature." Stephen Toulmin (1977, 3) wrote these words several years back, but they are a fitting preface to our theme now. Whatever it is that we consider essential and most valuable about the human being is intimately related to the evolutionary past from which that human being has emerged. This evolutionary past is one of physical processes, it is what we have for generations called *nature* and *matter*, and it is precisely nature/matter that we have to relate meaningfully to our humanity.[1]

R. G. Collingwood (1960) has underscored that our concept of matter itself has a history. He traces the meaning of the concept through three basic stages: as analogous to an organism (the ancient period), analogous to the lifeless machine (Renaissance and Enlightenment), and analogous to historical process (present period). The contemporary concepts of nature/matter stretch the historical continuum to its utmost. From the cosmic singularity ("Big Bang") that may have been the originating event of our universe, through the developments that gave rise to the present configuration of cosmic reality, and on to the evolution of life on the planet earth, the emergence of Homo sapiens, including the particular evolution of the human brain, and the developments of human culture and the global human community—this "evolutionary epic" (to use E. O. Wilson's phrase) expresses what the concept of nature/matter can include (of course, we also must give attention to the dynamic of its ongoing reach into the future). This epic is eighteen billion years long (we can use this figure for heuristic purposes). Depending upon which early human form one starts dating from, about seventeen billion years of that epic is prehuman.

When we speak of the evolutionary past which is to be brought into some conjunction with the essentially human, it is this seventeen billion years that we have in mind. We may say, keeping in mind the significance of the human brain and the formation of a global human society, that the human being is plainly a configuration of what nature/matter can become. The human is a most luminous example of what the process of the evolution of nature/matter is and, if scientists like Eric Chaisson (1981) are correct, the example that gives us the surest clue to what the evolution of nature is up to.

The distinguishing characteristics of Homo sapiens are found in those capacities that are associated with the brain, including its cultural as well as its genetic heritages; we might even term these characteristics the *proprium* or essential nature of the human. They focus upon the greatly expanded capabilities of humans (because of their cultures and

brains) to perceive self-consciously the situation in which we live, form a judgment about that situation, come to a decision, act deliberately upon that decision, entertain numerous and complex feedbacks, alter the action, and take responsibility for the entire transaction. This comes as close as we are able to describing the essential human being, the *Humanum*. From this *Humanum* flow personhood, love, care and cooperation with others, freedom, self-transcendence, and responsible living, including the sense of oneself as a creature whose life proceeds from a creative source.

There is some evidence that morality and ethics are rooted in this proprium of the human being. H. Kummer argues that there is no analog to morality in animals, even at the higher primate level. He identifies morality operationally as the "absence of selfish opportunism," the presence of sanction and the use of post hoc rewards (1980, 33-42). The reason for the absence of analogs is that the behavior even of higher primates is not complex enough to require morality. Selfish opportunism, surviving according to the processes of natural selection, serves animal life up to, but not including, the human.

According to Kummer's argument, it is the evolution of human cognitive abilities that makes morality both possible and necessary. His concept of "cognitive abilities" is close to what I described above as the proprium of the human being. The emergence of the human proprium (for example, self-consciousness, decision, action) bespeaks a "shrewd flexibility" in the human that does not exist in the primates. When compared to the primates, humans exhibit a shrewdness that breaks through the restraints to selfish opportunism that biological evolution provides. The biological function of human morality is thus clarified as that of protecting against the "shrewd versatility that threatened the benefits of social life" (Kummer 1980, 45). The picture that is developed is of an evolutionary process that pressed toward shrewd versatility until that versatility threatened the process itself because it rendered each individual so unpredictable to the companions that they might be endangered by versatile selfish opportunism. Morality is a cultural development that deals with this danger. The purpose of morality in this process is to enhance cooperation by redressing the potentially dangerous consequences of ingenious strategies of competition. Morality accomplishes this by, first, increasing the help and reducing the damage done to social companions and, second, increasing predictability in both the helper and the competitor (Kummer 1980, 44).

N. Bischoff discusses the emergence of morality in a manner that is directly linked with what I have called the proprium of the human

being in his thesis: "the evolutionary step decisive for man [in developing morality], achieved only halfway by chimpanzees, consists in 'time-representation'" (1980, 56-57). Time-representation is the capacity to imagine situations other than the present one and to act so as to realize the maximally beneficial situation independently of or even in contradiction to the current state of need. Higher primates can imagine situations better than the current one and act accordingly, but only humans can decide to permit "higher" needs to dictate their actions in contrast to current needs. "This behavior strategy goes far beyond the reaches of animal intelligence. Anticipatory imaging based on the current state of need remains fixed in the present. With the representation of future needs, the temporal fixation becomes movable. The set of situations with which the organism can cope, and now also *must* cope, is thus extended by one dimension—from the present space to the represented space-time continuum" (Bischoff 1980, 57).

This capability for time-representation is the cause of three drastic emotional consequences, which affect and shape human morality. Bischoff terms them "existential anxiety," "motivational instability," and "simultaneous identification" (1980, 57-59). The anxiety is caused by the uncertainty that is inherent in placing such great weight on situations that are rooted chiefly in imagination or anticipation. The instability is located in the necessity to allow future needs to compete with the present ones; this is accomplished by reducing actual needs from determinative status to that of motivating appeal. Simultaneous identification refers to the amazing ability that humans have simultaneously to image themselves in their present form and also in a future form, or to identify themselves with an "other." This identification enables humans to direct social motives toward themselves and selfish feelings toward others. For example, I may direct the energy of love (which is outward intended) toward myself, or I may act out my own hatred of being exploited by identifying with an exploited group in society.

In Bischoff's argument, moral ideas depend upon corresponding pleasant affects for their selection and survival (1980, 63-65). Although pleasantness of affects is finally correlated to reproductive payoff and physical survival, the individual who is deciding and acting does not know this connection. For that individual, moral ideas are selected because they are pleasant, and only when they appear to carry pleasant affects do they win an enduring place.

Peter Singer defines ethics as "a mode of human reasoning which develops in a group context, building on more limited, biologically based forms of altruism . . ." (1981, 149). His entire ethical program then becomes an argument for his own thesis that the essential and distinctively human element is the extension through reason of kin

altruism, reciprocal altruism, and group altruism to include all human beings and "all beings with interests, of whatever species" (1981, 23-53, 170). The biological basis of altruism is given prior to the emergence of Homo sapiens, while the capacity of reason has itself evolved until it has reached the human level. Reason accomplished "the transformation of our evolved, genetically-based social practices into a system of rules and precepts guiding our conduct toward on another" (Singer 1981, 92). Singer subscribes to the theories of Jean Piaget (1932) and Lawrence Kohlberg (1969) that moral reasoning also develops or evolves within the individual. Singer's thesis is, in other words, the same as ours, that ethics emerges in the appearance of the essential *Humanum*.

If the foregoing considerations are reliable, then it follows that the theme "sociobiology and ethics" is simply a specific instance of the larger theme, "the first seventeen billion years and the essence of being human." There is merit in recognizing the overlap between the two formulations of the theme, because the basic issues of the discussion are thereby illumined. The several discussions of sociobiology and ethics have focused upon the problems of elaborating an "evolutionary ethics," which turns out to be a discussion of the naturalistic fallacy (Ruse 1979, 199-201; Williams 1980, 281). Singer suggests three possible contributions of sociobiology to ethics all of which he rejects: contributing new knowledge about the ultimate consequences of our actions, debunking ethics, and providing new ethical premises (1981, 62-63). These topics are understood more deeply, however, if we consider them as sub-themes under the rubric of the question of the relationship between the essentially human and the evolutionary past.

Christian Theological Perspectives

What is the goal of theological reflection? What does it seek to accomplish? We follow the suggestion of Saint Thomas Aquinas in his *Summa Theologica*. Thomas argued that theology treats of many things, including both God and creatures, but of the creatures insofar as they are "referable to God as their beginning or end," or as they are considered to be God's "effects." "Some, however, looking to what is treated in this science, and not to the aspect under which it is treated, have asserted the subject matter of this science to be something other than God—that is, either things and signs, or the works of salvation, or the whole Christ, that is the head and members. *Of these things, in truth, we treat in this science, but so far as they are ordered to God*" (italics added) (Aquinas Q.2, Art.7).

Theologians have used the term *God* to denote the ultimate reality which creates the world, with its living creatures and humans. The term also denotes the reality which sustains and judges or ultimately deter-

mines what are acceptable ways for the life and continuation of all creatures.

Such early and distinguished scientists as Nicolaus Copernicus, Johannes Kepler, and Isaac Newton found their investigations into nature to be fascinating new, extra-biblical, and extra-ecclesial revelations of God's wondrous nature. But mutual misunderstandings and fears on the part of both the established religious and the scientific communities have led us rapidly since the seventeenth century to a rather complete separation of the theological from the scientific world view. Natural theology rapidly was abandoned. Perhaps the concern of sociobiology with altruism and human values in general, together with some recent new understandings (from the sciences as well as religious scholarship) concerning religion and theology, makes this a time to reconsider how scientific knowledge and revealed theology can interact, so that they may inform human life more wisely in an age of science and technology.

If traditional theology understands God to be the symbol of the source and the being of all that was, is, and is to be, then it would seem, at this level of abstraction, that perhaps the natural sciences also have to do with God. While the mutual exclusion of scientific notions of nature and theological notions of ultimate nature has been common, does it need thus to continue?

The Christian theologian comes to a consideration of the first seventeen billion years, Homo sapiens, and the entire materialist framework with a certain apparatus. We can describe this apparatus by explaining the several chief concepts that comprise it. These concepts work together to form an overarching system of meaning which conveys information about the world, our place within that world, and the values that should guide us. This information is portrayed as God's own meaning. The system of meaning that is set forth in the following pages asserts that the entire order of nature/matter transpires within the being and will of God. We now know the vast range of this order—that it reaches eighteen billion years into the past and stretches far into the future, and that it is an evolving order—indeed, it *is* an evolution—governed by complex mechanisms and laws, which are not identical in every phase of the evolution. (See below the section on "Revalorization of Language Versus Terminological Hygiene.") It is therefore our new task to discern how this vast and complex order is concretely the working of God. As we become more precise in our focus, the question of values looms larger, since it is in values that the concrete action of God manifests itself.

What is the status of the material order before God? That question can be answered in one word—*Creation*. To say that the world is crea-

tion is to utter an item of faith, not a fact of observation. It means that Christian faith (and at this point the Jewish faith is in agreement with the Christian) sees the world as the creature of God's own making, which is finally dependent upon its Maker and none other for its being, and which is in every moment dependent; further, the world is bearer in itself of a special relationship with its Maker. Let us unpack this summary statement with the resources of classical Christian doctrine and belief.

Creation out of Nothing. The fundamental building block in both the Jewish and Christian view of the world as creation is the classical *creatio ex nihilo*, creation out of nothing. If God is truly the God the Jews and Christians have believed in, that God is the source of all that is and continues to be the creative source of power and health. The nub of the creation-out-of-nothing affirmation is this: the only relationship between world and God that is consistent with what Christians and Jews believe about God is one in which the planet is totally dependent upon God for its origin and perseverence. We are most familiar with this affirmation from its Godward side, that after all God is the powerful Creator-God on whom all is dependent for its being. The other side of this affirmation is more startling for us today, namely the worldward side. From this side, we are asked to behold this planet of ours and observe that, as far as its origin is concerned, it came from God and from none other. The planet is God-conceived and made. This is an important aspect of the world's status, and this is one basic element of what it means to call it creation.

Continuing Creation. Creation is not simply protology, what happened at the beginning before time was created. Creation also refers to God's ongoing sustaining of the world. Every moment of the world's existence depends on the ongoing grace of God.

This assertion of continuing creation, when coupled with the creation out of nothing, makes a powerful statement about the nonhuman creation as a trustworthy environment for the human. It asserts that the world about us is not antithetical to our human destiny and God's will but is a fundamentally friendly home for us. It cannot be otherwise if it has proceeded originally from God's creative intention and continues to be sustained by the will of God who has expressed a fulfilling, redemptive will toward us. This statement about the reliability and benevolence of the ecosystem under God is one of the most striking faith-statements in the Christian system of belief. It takes on more vivid meaning when it is juxtaposed to what we shall say about the destiny of the planet and its processes.

Continuing creation amplifies our understanding of the world's status. It is not only dependent upon God as its source but also as the ground of its ongoing operation. Every moment, it is firmly in God's hands. This is another aspect of what it means to say that the world is creation.

Imago dei. There is a third building-block in theology's understanding of the world's status, the teaching concerning the *imago dei*, the image of God. This category is applied in the theological tradition exclusively to human beings. Although the term has a long history and is almost universally attested in the theological tradition, there is no agreement on its exact meaning. Some scholars have noted two different kinds of meaning ascribed to the *imago dei*. The one tradition of meaning equates the term with specific human characteristics that are God's image in humans—love, uprightness, the capacity for dominion over animals, to name a few. The other suggests that *imago dei* refers to the basic structure of the human being that enables communication between humans and God. Saint Augustine was one of the most important representatives of this second strand, and he put it in his famous prayer: "O God Thou hast created me for Thyself, and my heart is restless until it find its peace in Thee" (Augustine *Confessions* 1.1). In light of the variety of meanings given to this term, even among biblical exegetes, I suggest that we be content to say that *imago dei* refers to some kind of special relationship between human beings and God.

Even though the image of God concept is applied in the tradition only to human beings, it is important for our theological understanding of the world's status before God for at least two reasons. First, since the human is made up of the basic stuff of the universe, the image of God in that human being indicates that the world is itself capable of being a vessel of that special relationship to which the *imago dei* points. Second, the world, whatever else it is, is also from a theological point of view the nest of that creature who carries the image of God. *Nest* is too weak a word. The planetary ecosystem is a support system that stands in so intimate a relationship to Homo sapiens that we are fully dependent upon it. The stuff of the cosmos is bone of our bone and flesh of our flesh. Furthermore, the evolutionary processes that produced that ecosystem are the same processes that produce humans. That the special relationship to God that we call *imago dei* is intertwined with this ecosystem and the processes of evolution is an important indicator to the theologian of the world's status before God. This insight will figure rather prominently in our subsequent discussion.

The Destiny of the Planet in God's Hands—Consummation. The question of destiny is central to the assessment of the world, because destiny

suggests that there is a basic purpose or meaning inherent in the existence of the world. If this is so, then the condition of the world at any moment will be judged by comparing its trajectory with its destiny.

What is the intention of God's activity toward the world? I believe that the tradition of Christian faith and theology is clear, if not unequivocal, in its assertion that God intends to perfect or fulfill the creation. There is an inherent theological rationale for the concept of the world's consummation. The most powerfully expressed attribute of God in our tradition, including biblical traditions, is God's faithfulness. God is not a deceiver. God does not make promises or raise hopes and then betray them. Time and again this has been asserted in the Jewish and Christian interpretation of historical events. It is equally applicable to the history of nature, to cosmic history. Indeed, with our knowledge now that humans are a part of the ecosystem and its evolution and not separate from it, if God is faithful in any portion of the world, in human affairs, then God must be faithful in the whole, since the world is one seamless robe.

These are the traditional concepts by which Christian theology has attempted to relate the material order to ultimacy or God. The basic thrust of these concepts is clear: the material order carries out its career from origin to end as God's creative process. The major issue that the theme of sociobiology and ethics raises for theology in particular is a variation of our earlier question, How is the relationship between the first seventeen billion years and the quintessential *Humanum* to be illumined as God's creative activity? And, in turn, how does that relationship illumine God's creative activity? Whatever responses we provide for these questions, it appears that, theologically, the evolutionary past of the cosmos, together with the human, must be conceived as somehow part of God's process of being (or becoming) fully God.

Revalorization of Language Versus Terminological Hygiene

Gunther Stent insists that the discussion of sociobiology is hampered if we do not adhere strictly to what he calls "terminological hygiene"—that is, "avoid using terms or referring to concepts with meanings other than those under which they are commonly understood in ordinary parlance" (Stent 1980, 16-18). He cites approvingly W. Stegmueler's critique of "semantic pollution of the intellectual environment." Unfortunately, it is impossible to abide by Stent's injunctions and in some ways even foolish to attempt to do so. Words and concepts are always stretching themselves beyond what common parlance understands, and they are always crossing boundaries from one domain to another—even where they are said not to belong.

Others have spoken of the multivalency of language, particularly when it reaches out to grasp larger meanings. R. I. M. Dunbar refers to the metaphorical character of the term *gene*, and he points to the "four quite different senses" in which geneticists use the term, "none of which can be intertranslated without difficulty" (1982, 19). When words assume symbolic and mythic status, seeking to relate concrete empirical data to large and primal realities, they defy the efforts of most linguistic sanitary engineers. Since sociobiology is itself an amalgam of several scientific disciplines, its practitioners are notorious for stretching words. To relate sociobiology to ethics and to introduce theological dimensions to the discussion is to invite the murkiness that Stent and Stegmueler fear.

It is widely acknowledged that when terms do cross boundaries, meanings are transferred from the first area of usage to the new one and thereby the danger of reductionism arises. In this sense reductionism (itself by no means a univalent term) suggests that the meanings from the first realm are elevated and suppress the possible meanings from the second realm. Thus, there is considerable agitation that if *evolution* is used to describe cultural phenomena, culture will be biologicized because of the original use of the term in biology. I myself have been taken to task severely (Hesse 1981; 284-85) for suggesting the multivalent possibilities of the term *survival* when that term is considered to include a wholistic view of the surviving entity—that survival is more than a state of affairs that pertains to the biological dimension of life. May it not be said that God desires the survival of the creation without thereby meaning that God's interest is limited to physico-chemical or biological reality? Many observers have taken exception to the way in which sociobiology writers have used the terms *selfish* and *altruistic*. Even though altruism has a fairly precise definition in sociobiological research and selfish can be taken to be its opposite, the absence of conscious motivation and intention in the scientific usages of these terms raises the fear of a kind of reverse reductionism. The meanings from the realm of intentionality seem inappropriate to the biological realm because they enhance it in a confusing manner. There is no question about the confusion and the inappropriateness of the human conscious connotations being transferred to the biological realm. That is not the most important question, however. What is important is the *significance* of the similarities and differences between the "altruism" of genes and that of human beings and what this tells us about them separately and in interrelationship.

What is not so readily acknowledged, it seems, is that, when a term crosses boundaries, new meanings are contributed from the second realm. It is the interaction of all the meanings that the term can

ecompass that provides insight. Let us consider the word *evolution* as it appears in the four phrases, *cosmic evolution, biological evolution, ontogenetic evolution*, and *cultural evolution*. It is clear that the processes, as well as their mechanisms, are not the same in these four domains. Insight occurs at the point when we ask how the four uses of the term *evolution* are related and whether there is some important sense in which they constitute one wholistic process. What happens in that moment of insight is that a new valorization of the term *evolution* takes place; the term is given a new currency and usefulness that is identical with none of the four specific usages, even though it encompasses all of them (see Chaisson 1979). If *evolution* takes on theological meanings, then still another dimension of meaning is added. There is no reason why the "lower" meanings should suppress the "higher"; rather the various meanings are conjoined. The religious community has witnessed a great many such new valorizations (Hefner 1977). *Justification* from the legal realm has been transported across the boundary to the inner religious life, designating the action of God. *Guilt* is at home in law, psychology, and inner religious life. We are now so adept at interrelating the valencies of these terms that we do not charge the preachers with reductionism simply because they use these terms in a terminologically unclean way. Are we prepared yet for the day when certain scientific terms and concepts will be both enriched and enriching by the new valorizations that are bestowed upon them in the commerce between realms of life? Such new valorization is just the opposite of reductionism, since it adds meaning and usages to the term or concept, rather than restricting or reducing them. Care and precision are not to be neglected, but a theme such as sociobiology and ethics will scarcely be explored very deply unless we are prepared for new meanings and new valorization of our words.

Altruism as the Center of Ethics—or Other Values?

Singer, as I have already noted, lays down a decisive description of ethics "as a mode of reasoning which develops in a group context, building on more limited, biologically based forms of altruism" (1981, 149). This understanding of ethics, he insists, is a "new" understanding provided by sociobiology. Michael Ruse argues similarly (1979, 195-96). The Dahlem Conference of 1974, following the lead of philosopher Bernard Williams, framed this basic statement: "Morality is a system of assessing actions as being good or bad, for which the following conditions hold: Morality is opposed at some level to egoism, and necessarily involves some degree of altruism, taken in the minimum sense of a disposition to take others' interests into account. . . . Moreover, moral

behavior must have a representation at the intentional, conscious level" (Kowalski 1980, 231-32).

Williams himself argues that altruism in this statement does not refer to a motive but rather to a function. "The fact that all moralities contain conscious motives, and that they all display altruism, does not mean that they all contain the conscious motive of altruism" (Williams 1980, 276). To say that altruism is a function is to say that "there is supposed to be a feature of the institutions of morality which has the effect that other people's interests get observed in the behavior of agents, and this effect is no accident" (Williams 1980, 276).

E. O. Wilson (1975), John Maynard Smith (1982), R. L. Trivers (1971), and Richard Dawkins (1976) are simply the most prominent of the sociobiologists who have drawn attention to the significance of altruism. In his work, which was one of the first to lay out the scope of the field of sociobiology, Wilson termed altruism as the "central theoretical problem of sociobiology" (1975, 46). The 1982 King's College volume bears out the correctness of Wilson's statement. Smith defines an altruistic trait as "a trait which, in some sense, lowers the fitness of the individual displaying it, but increases the fitness of some other members of the same species" (1982, 43). He also assesses the current state of the field and asserts that "the immediate future of sociobiology" will be concerned with the study of cooperation, altruism, and related issues that are put in the category of "mutualism" (1982, 2). There are many well-documented studies of altruistic traits and behaviors in species of wide variety—social insects, birds, higher primates. Whereas the existence of altruistic behavior seemed a few years ago to be difficult to explain, better methods and more research have now produced a multiplicity of mutually reinforcing explanations of how altruism can be selected for in the evolutionary process (Bertram 1982, 265).

Simply because altruism is so significant for sociobiology, it might follow that when this science is involved in ethical discussions, the preoccupation will be shifted to altruism. Would ethical thinking otherwise be preoccupied with altruism? One can imagine that some ethicists would indeed place altruism or its equivalent at the center of their reflection, particularly those who emphasize love and responsibility as the foundations of ethics (Fletcher 1966; Nygren 1953). Patrick Nowell-Smith roots morality in the fact that humans are social animals: "The human baby cannot survive without the help of its parents," a human group requires mutuality and cooperation (1967, 150-51). A number of ethical thinkers move from altruism as such to the rules and sets of rules that follow from it. Singer, for example, moves easily from the biological concepts of kin altruism, reciprocal altruism, and group

altruism into a series of ever-widening ethical vistas that suggest altruism toward kin, friends, fellow citizens, the entire human race, and animals. He finds that the sociobiological explanations of the various types of altruism fit neatly with the reflections of the nineteenth-century English moral philosopher, Henry Sidgwick (Singer 1981, 23-53, esp. pp. 29-31).

It should be noted, however, that sociobiologists have also discussed ethical issues under the rubric of values. Wilson derives three basic values: survival of human genes in the form of a common gene pool, diversity, and universal human rights (1978, 195-209). George Edgin Pugh, in a more detailed analysis, focuses on three levels of values that are biological in origin: individual values, social values, intellectual values (1977). Pugh derives a great many values under three major rubrics, of which I list just a few: first, "individual" values: hunger, thirst, sucking urge; second, "social" values: dominance, social acceptance, altruism, talking and listening, contribution to the larger group; and third, "intellectual" values: humor, truth, esthetics (Pugh 1977, 173-340). An altruism-centered ethical thought does not, therefore, seem to be the only option that sociobiology offers us. The value-centered emphasis will receive more attention when we discuss the naturalistic fallacy.

An important issue that arises in the consideration of altruism has to do with its mode of transmission and survival. There seems to be a consensus (although not unanimous) that biological (genetic) evolution can account only for altruism that is directed toward the closest relatives (Wilson 1978, 159). What of the wider reaches of altruism? Ralph Wendell Burhoe (1976), Donald T. Campbell (1975), and F. T. Cloak, Jr. (1976) are among those who have argued strongly that human society demands altruism beyond the kin group for its survival, and further that the more complex and urban human society becomes, the more essential such altruism is. Since genetic evolutionary processes alone cannot produce this altruism, we must look for the vehicle that can. Burhoe in particular suggests that psychosocial (or cultural) evolution in conjunction with genetic evolution is the bearer of nonkin altruism and thus of the essential requirement for human society. How cultural evolution interacts with genetic evolution thus becomes an important problem for understanding altruism and other human values. We shall turn our attention to this issue in a later section.

Theologically, the sociobiological argument about altruism is of extraordinary interest, since altruistic symbols figure so prominently in the religions of the world. The fact that Christianity elevates the sacrificial action of Jesus on the cross to a central position, in symbol, in faith, and in ethics is of striking significance against the sociobiological back-

ground. When the religious symbol and its elaboration in faith and ethics are placed in the large evolutionary context, a number of vistas open up. Is the religious insight a sort of transcendent packet of information whose congruence with evolutionary patterns is just now becoming clear? Are the religious symbols bearers of essential information for the human being that arose before Homo sapiens was able to attain intellectual sophistication about the essence of the human? (see Jaynes 1977). Does this reflection illumine the traditional association of the religious figure and symbol with the pre-existent Logos or ratio of the cosmos? Does this line of reasoning illumine Paul Ricoeur's insistence that the more primal stage of symbol flows (or evolves?) into the stage of thinking not in a way that is illicit but rather in a way that deepens both symbol and thought? (1967, 347-57). We cannot even raise such questions without recognizing what we observed earlier about language and the ways in which it is called to revitalize and stretch itself in order to be a fit vehicle for new reflections.

Biological and Psychosocial Evolution

We have suggested that "sociobiology and ethics" involves at bottom the same concern that we speak of when we say, "the first seventeen billion years and the essential *Humanum*." We could say just as well that the same concern surfaces in the formulation "the relation between biological and cultural (or psychosocial) evolution." To link sociobiology and ethics in any fashion, we must link biological and cultural evolution. There is widespread consensus that such a linking cannot take place unless a surmounting or transcending takes place. We must transcend our genes, so this argument goes, particularly our selfish genes. Dawkins speaks vividly, if ambiguously, about "rebelling" and "turning against" our "creator genes" (Dawkins 1976, 215). We must do so, because otherwise the love and altruism that we count as essentially human will not come into being. Singer speaks of reason evolving biologically and then taking off on its trajectory, quite apart from biology. As reason progresses, we can "truly claim that we are no longer the slaves of our genes" (Singer 1981, 173).

What could it mean to transcend our genes, turn against them, or be freed from slavery to them—particularly since the organism that turns against is thoroughly dependent on genetic evolution? Stent and Burhoe point out the biological absurdity of the notion that such a turning against could come into being and survive. The basis for the notion lies in the fact already noted that biological evolution can account for kin altruism and reciprocal altruism but cannot account for the care and love for those beyond our kinship group. Such care is

essential to our human being, as well as for the maintenance of our complex society. The religious thinker adds to this naturalistic view the claim that such love is the will of God for the world.

We still await a theory of the interrelationship of biological and cultural evolution that will command a consensus, but some efforts have been made that ought to be noted. Dawkins speaks of *memes*, obviously comparable to genes. Memes are cultural contents that can be replicated, transmitted, and selected for. Wilson and Charles Lumsden carry such thinking farther, with much more detail and theoretical imaginativeness, coining the term *culturgen* (Wilson and Lumsden 1981). L. L. Cavalli-Sforza and M. W. Feldman have worked on the same area (1981). These attempts point to a kind of *coevolution*, that is, an interaction over time between biological and cultural factors. Solomon Katz has put it this way, under the rubric of *biocultural evolution*: "Biocultural evolution consists of a series of interactions among: the biological information resident within individuals and populations in the form of the genetic constitution (i.e., the DNA); the cultural information which is the sum of the knowledge and experience which a particular society has accumulated and is available for exchange among its members; and thirdly, a human central nervous system, which is of course a biologically based system, whose principal evolved function with respect to this model is to facilitate the communication or storage of individually and socially developed knowledge and awareness" (Bowker 1983, 356).

The problem of course is that we do not as yet know enough about the actual process leading from genes to culturgens. Cavalli-Sforza and Feldman state the problem thus: "It may often be most difficult to decide experimentally where on the continuum between completely preprogrammed and completely learned a cultural trait lies, and which of natural or cultural selection is more important in determining the state of this trait in a population. In some of our models, both cultural transmission and Darwinian fitness enter the evolution formulation; in some there is a potential conflict between the two, while in others two types of selection may converge" (1981, 16).

A great deal depends on the resolution of such a problem. For the theme of sociobiology and ethics (or the first seventeen billion years and the essential *Humanum*), this problem of genes and culture determines our understanding of the source and ground of our values. Is our concern for altruis, for example, rooted in our prehuman past? Or is it a culturally constructed value? Or both? Are there values rooted in our biological past that simply cannot be gainsaid? If so, are they the bedrock of our ethics? And how are they transmitted from nature to the human "spirit"? Is it in fact possible to manipulate or give a higher

form of expression to our genetic imperatives, and if so, how and to what end?

For the theologian who is attempting to relate the things of worldly existence to God, this complex system of the coevolution of genetic and cultural information, mediated by the brain and selected by the system of forces that selects all things, can be said to be the means that God has chosen to unfold the divine intention and to bring nature/matter to a new stage of fulfillment. We wonder at the preprogrammed dimensions that are the very foundation of our human existence. At the same time, we are aware that the preprogramming has taken form in our brains, which also are confronted with novelties which we must discern and on which we must decide and act. This self-conscious responsible discernment and action is as primal as the preprogrammed, for it is the continuation at a new level of the search for and discovery of the behavior that the ultimate system of reality requires for life. If there are both genetically and culturally preprogrammed imperatives for Homo sapiens, we must discern them, judge what is the best way to obey them, and—given our new capacities for learning—act accordingly. Where do we find the information packets that will guide discernment and action? That is certainly the religious question, just as it is the ethical question.

Burhoe has propounded a theory of coadapted genetic and cultural information, which attempts to throw light on the relationship of biological and psychosocial evolution. He suggests that the human being is in fact a "supraorganism" (a concept suggested by Alfred E. Emerson [1971]) constituted by a symbiotic relationship of two information packets programming a common phenotype. One of the symbionts is programmed by DNA while the other is programmed by cultural information. The behavior we recognize as the human sociocultural organism relies on a package of information that is not merely a genotype but also a coadapted culturetype (Burhoe 1979, 143). We live within the sociocultural organism, and it lives within us. Burhoe describes his theory:

> In humans we probably have the first such symbiotic system, constituting an apparently unitary living creature, in which one of the symbionts is not programmed by DNA but by cultural information, independently transmitted and selected. What is new in the ecosystem that constitutes a human society is not that one of the symbionts utilizes for its own phenotype the phenotypic substance or patterns generated by the programs of the DNA of the other symbiont, for that relation is common and is the relation between our prokaryotic and eukaryotic cells. What is new is that the separate and "species-specific" package of information generating the symbiont we call the sociocultural organism is not a genotype but a culturetype. If individual ape-men are bonded by the coadaptation of their genes in a symbiotic service to a sociocultural organism that is also an evolving system of living substance independent of any

particular human genotypes and yet that binds its anthropoid population to serve it in exchange for reciprocal benefits provided by the species-specific behaviors selected in the coadaptation, then our paradox disappears. The paradox here, as in the sciences generally, is resolved by revising our model or presuppositions until we have found a better fit between our conceptual system and the actual events it models (1979, 143).

This theory builds upon the work of various kinds of pre-1975 sociobiologists, including Campbell, Emerson and George D. Williams, as well as Wilson. If valid, it illumines how very necessary it is for the cultural system of Homo sapiens to conform to the requirements of natural selection that come to bear upon the joint product of its relationship with its biological symbiont, while at the same time the symbiotic genetic information must be stretched by selection into conformity with the information of the cultural symbiont, since it is that cultural symbiont that makes the supraorganism genuinely human. Ethics is thus the enterprise which has the task of consciously discerning correctly what newly learned expressions of the accumulated genetic and cultural information may be more viable under new conditions of human evolution. Ethics must discern what requirements from the genetic symbiont must be observed, what challenges from the cultural symbiont must serve as the human end, and how the two can be synthesized in action. This constructive discernment is by far the most important task that ethics must discharge for the human community. It is concerned with long-term viability under the most probable operations of the ultimate system of forces that will do the selecting. The sometimes confusing battles between ethical thinkers and scientists should be put aside in the interest of meeting this fundamental challenge.

Within the purview of this coadaptation theory, religion plays a significant role, since it is one of the chief value-generating institutions and since it also provides an overarching system of meaning to support its values. We have described this system of meaning earlier in the section "Christian Theological Perpsectives." The religions of the world reenforce altruism perhaps more powerfully than any other institution in our world society, even when the hostilities of religion are taken into account. Burhoe's theory suggests that the survival of altruism beyond close kin that is necessary for human life is explained by the symbiotic or coadapted relationship that the reality system has selected between genotype and culturetype in the supraorganism that we call Homo sapiens. Religion plays a key role in this symbiosis (Burhoe 1976; 1982). Is it the case that religious practice and reflection through the ages have implicitly resolved the biological problem of fostering nonkin altruism, thereby providing by cultural means what the realities of nature (or natural selection?) requires? The sciences

emphasize the grand context of the human enterprise and ethics. All of us recognize that the larger reality system of which we are a part supplies and selects for our ethical options. Theologians have traditionally defined the ultimate reality system as God who provides the options and exercises selection forces upon the decisions we make and the actions we undertake.

Is and *Ought* Once Again

The relation of sociobiology to ethics is intimately bound up with the long-disputed question of the relation of *is* to *ought*, description to prescription. "The bridge between *is* and *ought* consists in the fact that the *oughts* are values that arise in response to the needs which occur objectively in human nature. The needs are the descriptive, the *oughts* the evaluative elements" (Hefner 1981, 63). Mary Midgley makes the same point: "If we say that something is good or bad for human beings, we must take our species's actual needs and wants as facts, as something given. . . . It is hard to see what would be meant by calling good something that is not in any way wanted or needed by any living creature. . . . We have no option but to reason from the facts about human wants and needs" (1978, 182, 189).

The important consideration is that sociobiology and related sciences provide or promise to provide objectively verifiable descriptions of the wants and needs of living species and human beings. These descriptions thus provide the statement of values that shape human life. This consideration must be unpacked in order to discern its significance.

To paraphrase Martin Heidegger, Homo sapiens is the future of the seventeen billion year past that is the universe—at least one of the futures. This seventeen billion year substrate constitutes both *is* and *ought* for human beings. It *is*, it can be described as such, and it is one of the foundational constituents of our being. In this sense our evolutionary past is indicative for us. It is also *ought* for us, an imperative, in that it sets parameters that must be satisfied if we are to exist. These imperatives are in some sense the *oughts* of previous eras, evolutionary decisions from the past. Pugh reminds us that the humans are "value-driven decision systems" in that primary values have been built into the system by the designer (1977, 6-7). These values are essential to the design; they are innate, and they must be taken into account by the system's behavior. Viewed from a scientific perspective, the designer of the system is the evolutionary process itself. The theologian will add that the evolutionary process is the instrument of the Creator God. The Homo sapiens phase of evolution provides an overlay of its own *is* and *ought*. From the higher primates, for example, we have received the

built-in values of social acceptance and of contributing to the kin group. In human societies, social acceptance and contributing both are placed in new contexts, which are themselves evolving. The human overlay furnishes new possibilities for both acceptance and contribution and also new kinds of sanctions and norms for both. The new possibilities pertain to the *is*, while the new sanctions and norms pertain to the *ought*. This *ought* stems from the distinctiveness of the *Humanum*—the capacities for being self-conscious, deciding, acting, accepting feedback, revising action, and taking responsibility for the entire process. Higher primates and humans share, for example, the value of extending the race through procreation and engaging in pleasurable sexual intercourse. It is only humans who have so vastly extended the context in which all this takes place: "natural" sexual relations and procreation is always a possibility, but the context is widened with the addition of contraceptive technology and all the forms of procreation, whether through artificial insemination, in vitro fertilization, adoption, embryo implants, or surrogate mothers. With this extended context the human must *decide* for itself, but always subject to final judgment by God through selection, how the intercourse/procreation value is to be implemented and whether some behaviors in this area are better than others.

It should be clear then that *is* and *ought* are not to be separated, but they are not to be rendered identical either. Much of the previous philosophical discussion has insisted on a separation of *is* and *ought* because it appeared that evolutionary ethics wished to support certain preconceived ethical values with the authority of nature, as in the case of the Social Darwinists. This line of defense really misses the point today, however. The point is not that sociobiology is bringing its scientific conclusions to bear in order to support certain current values that have been arrived at beforehand by cultural means (Toulmin 1982, 53-71). Rather, the sciences are uncovering basic needs that are constitutive of the human being from its evolutionary past, and they are suggesting that these needs comprise a system of values that is necessary for human life and for the life of the planetary ecosystem in the future.

The contribution of sociobiology and cognate sciences at this point is particularly important in a pluralistic society like our own. Whose basic set of values will we accept? That which is presented by the local Catholic priest? Or Jewish rabbi? Or Protestant minister? To whom will the local school boards listen when they are designing educational systems? To whom will the large governmental and other public organizations turn for advice on value questions? They will turn to a public consensus, and science may indeed be a very helpful component in fashioning this consensus (Sperry 1983; Pugh 1977).

The seventeen billion years that is our past has provided what we might call formal channels of the *is* which also define our *oughts*. Being formal (e.g., social acceptance, contribution), they allow for several material options by which they may be satisfied. Upon these options our distinctively human powers of self-consciousness, decision, and action are brought to bear in order to choose what is better or worse. *Is* plus *ought* equals survival, but *survival* here is revalorized so as clearly to include the intention to be faithful to the process that has created and continually judges us.

We are, finally, the deciders, but we did not decide to be the deciders—our seventeen billion year past decided for us. We are the seventeen billion years in the act of deciding. (Evolution become aware of itself, Pierre Teilhard de Chardin said.) On the other hand, we are also the ones who perceive the *is* as well as the *ought*. Even our scientific investigations are comprised of our own decisions and definitions. The reality of the cosmos is expressing itself in our perceptions and understandings, and since we are able to distort and to fantasize so well, we may err, at our peril, in perceiving the *is*. No less than the *ought*, a reasonably viable perception of the *is* is also rooted in the essential *Humanum*.

In one important sense it is preeminently in the ethical enterprise that the human exercises discernment and judgment as to just what the *is* is. In terms of our theme it is the task of ethics properly to discern what sociobiology is telling us about the *is* so as to direct our actions properly.

The theologian finds several important implications in this whole discussion. For one, the fact that the prehuman past supplies basic values reminds the theologian that this prehuman evolutionary process is indeed the work of God, and that God is telling us something about who we are when new insights are gained into the structures which that past has bequeathed to us. When viewing this legacy from the prehuman past, the question arises, if this legacy provides basic values that are necessary for human life, to what extent does it participate in the image of God? Would we not have to conclude that the prehuman process is itself *imago-faehig*, that is, capable of the image of God? If it is the source of essential constituents of the human who is called image of God, is it not also a participant in that image?

Second, the theologian is aware that the role of the basic symbols of the religious traditions is related to the *is* and the *ought*. The symbol claims to describe the way things are, and it engenders action that is congruent with (that is, viable in the context of) the way things are. The religious symbol in a way unifies *is* and *ought* (Hefner 1981, 66-67). An example is the Hebrew symbol of the covenant: it speaks of the

belonging-together of God, land, people, and individual one with another. On the one hand, the symbol stands as the *is*, portraying covenant interrelatedness and mutual responsibility as the very nature and structure of reality, whether that reality focuses on the divine, on the human interpersonal, or on the physical environment. On the other hand, since reality *is* of a covenant nature, humans stand also under the imperative so to act as to be in harmony with that covenant—the symbol also portrays this *ought*. Other symbols, in all religions, function in a similar manner. The life and death of Jesus Christ portray the cruciform character of reality, and it follows from this symbol of reality that "whoever would be my disciple must take up the cross and follow me" (see Mark 9:34). In this sense, *is* and *ought* are linked in the symbol.

Concluding Questions

The essence of being human is self-consciously to make decisions, act upon those decisions, and take responsibility for them. That is also what ethics is all about. Sociobiology and other sciences tell us that we do not exercise this essential human ethical activity in isolation but that we have emerged as ethical animals from a long evolutionary process (both genetic and cultural) that has left its mark upon us. If we understand this set of insights, we understand what the theme sociobiology and ethics is, and what its significance is. I have reflected upon some of the important considerations that arise from this theme. Let me remind us of how many large questions are awaiting more reflection before we can fully understand our theme. I will state a few: first, What is the full nature of our continuity with our past—pregenetic, genetic, cultural, or other? Second, How far are the successive levels of our roots limiting to us, and what does this suggest for our future pursuit of successive new levels of transcendence now that we seem destined to be at least in part self-consciously responsible for our future? Third, To what extent can we successfully engineer our own genetic base? Fourth, if reformation of our various cultural roots is faster and more manageable than of the genetic, what are some of the primary potentialities and limits for repairing cultural sources of our distresses? Fifth, What are our responsibilities, limits, and potentialities for determining outcomes by our own activities? Sixth, What is implied by the fact that creation has given us powers and responsibilities for at least some finite role in consciously continuing the processes of creation? Seventh, What does this role imply for our understanding of our relationship to the ultimate powers that establish the events in the universe?

The age in which we now live is surely the age in which the awareness that we are indeed "evolution become aware of itself" is pressing upon

us with new force and urgency. Urgency, because we see now that the future depends in an important way on our having a clear awareness of and on our acting properly in accord with that awareness. If sociobiology has to do with the clarity of that awareness and if ethics has to do with proper action, then our theme of sociobiology and ethics is one of the most critical themes we could possibly choose for reflection.

NOTE

1. The terms *nature* and *matter* are difficult to use with precision, partly because they are dynamic and changing in meaning, as Collingwood (1960) explains (see my following paragraph in the text). Physics today would make matter synonymous with energy or energy-event. I use the term matter/nature to indicate that the two words are linked in one concept that includes both subatomic reality as it appears to the physicist (*matter*) and also the environing world that we commonly refer to as *nature*.

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