# THE INTERPLAY BETWEEN SCIENCE AND THEOLOGY IN UNCOVERING THE MATRIX OF HUMAN MORALITY

*by Hans Schwarz*

*Abstract.* Theology and the life sciences are mutually dependent on one another in the task of understanding the origin and function of moral behavior. The life sciences investigate morality from the perspective of the historical and communal dimension of humanity and point to survival as the primary function of human behavior. A Christian ethic of self-sacrifice advances the preservation of the entire human and nonhuman creation and should not, therefore, be objected to by the life sciences. Religion, however, is more than a survival mechanism. It points to a preserving agency beyond humanity and prevents the life sciences from reducing life to its strictly biological side.

*Keywords:* altruism; behaviorism; free will; genetic determinism; morality; order(s) of preservation; sociobiology; survival.

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Does humanity have free will, so that humans can decide on one action as opposed to another, or is human behavior severely limited by its innate nature? This issue was hotly debated between Augustine and Pelagius within the early church, and it came to the fore again in the debate between Luther and Erasmus at the end of the Middle Ages. Whether there are innate human ideas, or everything is simply learned, an issue vigorously debated during the Enlightenment period, is only a variation of this theme. Today, the question is again posed by scientists and ethicists alike: What forces shape humanity's moral choice? When Konrad Lorenz published his book *On Aggression* (1963), claiming that there are aggressive drives in humanity, some readers were repulsed, thinking that this claim would mean that

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humans are no longer accountable for their own actions (Eibl-Eibesfeldt 1976, 112ff.). Yet Lorenz did not intend to make this claim. He merely wished to demonstrate that no person is an island. We all live in certain environments with which we interact. Since we are not our own procreators, we are always connected with preceding, and quite often succeeding, generations. To what extent are these influences that extend to us from the past and from our present environment cumulative, and when could the behavior resulting from them be called morally good or evil? The first part of this question seems to address the domain of science, while the second part calls for evaluations that go beyond it. An answer to this question could show us how theology and science, especially the life sciences, could meet to discover the arena in which human morality is shaped.

## Scientific Facets of Human Morality

The life sciences take the historical and the communal dimension of humanity as their point of departure and investigate the makeup and transmission of morally relevant behavior. The classical approach to human morality is the investigation of the human psyche. Sigmund Freud (1856–1939) stands out as its most prominent representative. In the second half of this century, behavioral psychology, especially through the work of Burrhus Frederic Skinner (1904–1990), asked to what extent human behavior can be modified. Then ethology came into prominence, mainly through the work of Konrad Lorenz (1903–1989), asking about the relationship between nature (instinctive behavior) and culture. Finally came the work of Edward O. Wilson (1929– ) and others, called sociobiology, in which the issue of altruism, albeit on a genetic basis, gained prominence. So the present interest in behavioral genetics, attempting to map out the interface between genetics and the behavioral sciences, is only a logical next step. The ultimate cause(s) of (human) behavior are traced more and more to the internal (almost invisible) sphere within humanity; without disregarding, however, the external, visible side of the human environment.

We turn first to psychology, where we are confronted with two nearly opposing perceptions of the human condition. There is the earlier psychoanalytic approach of Sigmund Freud, whose thought anticipates that of Konrad Lorenz a generation later. And there is the behavioral approach of B. F. Skinner, which moves in an entirely different direction. Freud is convinced that the inclination toward aggression is an originally independent instinct in humanity which finds its strongest barrier in human civilization (Freud [1930] 1961,

119–22). This aggressive drive is derived from a death instinct, which exists within us next to an erotic instinct, with which it shares the supremacy for governing the world. This means that Freud sees a struggle between eros and death, between an instinct for life and an instinct for destruction. This is an essential content of life and also the essence of cultural development. Freud admits that, at first, he was hesitant to accept the existence of such a destruction instinct, since it does not sound plausible that we have an innate inclination toward evil, aggression, and destruction, and therefore toward barbarism (Freud [1930] 1961, 120).

After long hesitation and doubting, Freud decided to assume two fundamental instincts in humanity: eros and the destruction instinct (Freud [1938] 1964, 148f.). The goal of the first consists in forming larger entities and sustaining them. This means a binding together of things. The aim of the second runs contrary to the first. It works to dissolve connections and to destroy things. This destruction instinct seeks to bring everything living into an inorganic condition. Therefore, Freud called it a "death instinct." While Freud portrays a dualistic view of life, he is convinced that both instincts are usually connected with each other and intertwined. When they are more or less completely separated, phenomena such as sadism occur, which is a perversion of disassociation between both drives—but one that has not yet reached its ultimate limit (Freud [1923] 1961, 41f.).

Through cultural development one attempts to eradicate evil inclinations and supplant them with good ones. Yet evil always vigorously reemerges. "In reality, there is no such thing as 'irradicating' evil tendencies" (Freud [1915] 1939, 7). There are elementary drives in humanity which, as Freud claims, "in themselves are neither good nor evil." To classify the character of a human being as good or evil is quite insufficient according to Freud, since a person is rarely totally good or evil, but usually good in one respect and evil in another. Even the early existence of evil inclinations in children is often, so to speak, the condition for an especially clear development of the adult toward the good. Our civilized society demands good actions. It wants humanity to be obedient to culture and not to follow its own nature. The natural drives are suppressed but often break through to achieve their own satisfaction. Good actions ensue when egotism is changed to altruism, and egotistic drives are changed to the acceptance of culture through the transformation of egotistic inclinations to social ones. While Freud portrays an ambivalent picture of humanity and points to competing drives within human nature, he is not convinced that humanity is intrinsically evil. But humanity exhibits instincts that tend toward evil for the sake of

self-preservation. This view of the dark side of humanity is also shared by Carl Gustav Jung and Erich Fromm. Yet there is another school of thought in psychology that analyzes the human condition quite differently.

According to behavioral psychology, there is a certain genetic endowment in each human being. B.F. Skinner mentions that only a few behaviorists "have minimized if not denied a genetic contribution . . . but few would contend that behavior is 'endlessly malleable' " (Skinner 1974, 221). Yet characteristic of human nature is its changeability and flexibility. Behavioral theory assumes that this process of change is universal, and consequently, it seeks to investigate what kind of experiences induce change (Schwartz and Lacey 1982, 12). While the Russian physiologist Ivan Pavlov assumed that an organism is conditioned when a reinforcer accompanies another stimulus, the American behaviorist B.F. Skinner argues that an organism is conditioned when a reinforcer follows upon the organism's own behavior (Skinner 1953, 65). While the first can be called the stimulus response action, the other is an operant reinforcement. B.F. Skinner declares: "The environment that has produced the genetic endowment of the species through natural selection now shapes and maintains the repertoire of the individual through another selective process called operant conditioning" (Skinner 1978, 85). Skinner contends that the origin and transmission of cultural practice can be explained as the joint product of natural selection and operant conditioning. Culture, in this sense, is a set of practices characteristic of a group of people that contributes to the survival of this group (Skinner 1989, 117).

Skinner assures us that it is an oversimplification to claim "that behavior is nothing but a response to stimuli" (Skinner 1974, 230). But he is also convinced that people behave in a certain way because of the consequences that have followed similar behavior in the past (Skinner 1953, 87). This means that there is no reason to talk about an incentive or a purpose which focuses on a certain goal. We can simply analyze the past and will obtain a fairly good picture of what will happen in the present. Yet Skinner does not want to do away completely with teleology. He claims: "There is no time, then, to abandon notions of progress, improvement, or, indeed, human perfectibility. The simple fact is that man is able, and now as never before, to lift himself by his own bootstraps. In achieving control of the world of which he is part, he may learn at last to control himself" (Skinner [1955/56] 1972, 4). This does not imply, however, an appeal for a new heroism.

In his book *Beyond Freedom and Dignity,* Skinner made it clear that

the abolition of the notion of autonomous humanity "has long been overdue" (Skinner 1971, 200). Scientific analysis of behavior tells us that autonomous humanity does not exist. We are controlled by the world around us and, in large part, by other people. Since Skinner maintains that some kind of external control of human behavior is inevitable, the question is whether this control in effective cultural design should be left to accidents, to tyrants, or to ourselves (Skinner [1955/56] 1972, 10f.). Skinner is realistic enough to know that the danger of a misuse of power looms greater than ever. As outlined in his utopian novel *Walden Two* (1948), Skinner is convinced that humans should be deliberately conditioned to certain behavior instead of leaving the behavioral results to mere chance. "Automatic goodness" is for him a desirable state of affairs (Skinner [1955/56] 1972, 14). Skinner is aware that such egalitarianism of the good does away with heroic deeds. In the long run, Skinner is convinced these will no longer be necessary. Gradually, we will no longer need to submit to punishing environments or engage in exhausting labor. We will move more and more toward making food, shelter, clothing, and labor-saving devices readily available. Skinner concludes that "we may mourn that passing of heroes but not the conditions which make for heroism" (Skinner [1955/56] 1972, 16).

Skinner is aware that his proposal raises a lot of questions. But he does not think these questions are insurmountable problems. The question of who will control the controllers is countered with the observation that the issue is not *who* but *what* (Skinner 1978, 14f.). People always act to improve cultural practices when their social environments induce them to do so. "Cultures which have this effect and which support the relevant sciences are more likely to solve their problems and survive. It is an evolving culture, then, which is most likely to control the controller" (Skinner 1978, 14f.). This means that Skinner equates the value judgment *better* with *survival* and *evolution.* Yet he is also aware that his approach is not value-free, since "no value-free science can properly deal with man *qua* man" (Skinner 1978, 52f.). Again, Skinner moves away from the inner initiating agent that judges something as good or bad. He refers again to environmental contingencies. "The things people call good are positive reinforcers, and they reinforce because of the contingencies of survival under which the species has evolved" (Skinner 1978, 52f.). The term *good* does not arise from feeling or inclination, but from the necessity of survival. Skinner is especially reluctant to attribute to human feelings an important role in selecting values, because they have often played destructive roles (Skinner 1978, 92f.). It is not so important how things feel or taste but whether they

strengthen the behavior upon which they are contingent. If attitudes or things contribute to survival, then they can be termed good. Even when we consider freedom, we should not concentrate on feelings, but on survival, through which we can, if successful, be freer than before.

Skinner's proposal reminds us of the Kantian ethics of duty, which also eliminated any inclination by volition and asked instead whether a certain action could be universalized. Kant demonstrated that values which can be universalized are always positive, because if they were negative, we would never want to apply them to ourselves. When we remember that Skinner talked about a combination of both genetic endowment and behavioral modification, we should look first to see whether there is a genetic basis for ethics.

We now turn to ethology, where the phenomenon of aggression has received the most attention as morally analogous behavior. In his classic work *On Aggression,* Konrad Lorenz postulates that, among many animals, aggression directed against members of one's own species serves as a necessary instinct for the preservation of the species and is not a detrimental trait (Lorenz 1963, 69). Among animals, intraspecific aggression fosters even distribution of a given species in a certain area or allows the stronger of two rivals to secure a mate. Among humans, this drive led to war among neighboring tribes as a means of selection. In the prehistory of humanity, no special mechanisms were necessary to prevent the sudden killing of other people, since a victim could only be attacked through scratching, biting, and strangling. The victim had sufficient opportunity to appeal to the attacker through gestures of submission and shouts of fear. Yet the situation drastically changed once humanity developed artificial weapons and discovered new ways of killing (Lorenz 1963, 323). In this new situation, a responsible morality had to be acquired through which the equilibrium between weapons and the inborn inhibition toward killing could be regained. Therefore, Lorenz concludes, humanity is not so evil from its youth; it is just not quite good enough for the demands of modern society (Lorenz 1963, 333).

Eibl-Eibesfeldt, who largely follows the analysis of Konrad Lorenz, sees aggressive behavior among humans prevalent in the following situations: competition for food; defense of the young; struggle for supremacy between two rivals of approximately equal rank; handing on of suffered aggression to those lower in rank; perception of differing behavior among members of one's own group; change in rank; coupling; appearance of a foreigner in one's group; and stealing of objects, especially among small children

(Eibl-Eibesfeldt 1976a, 98). Since inhibitions against killing have developed within our own history, they are correlated with our bodily abilities. Yet the fact that propaganda is necessary for war to be effectively waged shows that inhibition against killing foreigners is also quite strong.

Eibl-Eibesfeldt asserts that human aggressive behavior is preprogramed, but can be increased or restrained through education (Eibl-Eibesfeldt 1976a, 116, 102). Even in peaceful cultures, children develop a rejection of foreigners and an aggression against them even if they have not had any bad experiences with them (Eibl-Eibesfeldt 1976b, 14). Similarly, whenever people enter a new developmental stage or become part of a new community, they tend to explore the limits of their freedom to act. In this aggressive social exploration a child, for instance, asks what is and what is not permissible (Eibl-Eibesfeldt 1988, 212–17). Aggression, therefore, cannot be termed as something altogether undesirable. Yet when the innate aggressive dispositions are enhanced and those which restrict aggression are suppressed (as happens, for instance, in war when the opponent is supposed to be annihilated), then this kind of aggression is a product of cultural evolution and needs to be evaluated as such. This means that humanity has to shoulder its responsibility for such activity and determine whether it wants to continue this trend.

Few books have created such a heated debate as did E. O. Wilson's *Sociobiology: The New Synthesis* (1975). Sociobiology is "the systematic study of the biological basis of all social behavior" (Reiss 1984, 117). Wilson was charged by some of his critics with attempting to enable us "to understand all of human behavior and even to solve the ancient philosophical questions of how we ought to live" (Singer 1984, 141). He was also accused of advocating the status quo, because he allegedly claimed that "what exists is adaptive, what is adaptive is good, therefore what exists is good" (Allen et al. 1978, 261). Yet others claimed that they have yet to meet or hear of a sociobiologist "who believed that because a human behavior has evolved, it is necessarily desirable" (Reiss 1984, 137). It is therefore a mistake to confuse what is with what ought to be.

While in *Sociobiology* Wilson paid explicit attention to humanity only in the final chapter, his later work *On Human Nature* (1978) is exclusively devoted to an investigation of human behavior. At the beginning of this book he points out that there are innate censors and motivators in the human brain "that deeply and unconsciously affect our ethical premises; from these roots, morality evolved as instinct" (Wilson 1978, 5). This means that there are inborn forms of behavior

which ensure our survival, something that traditional theology called orders of preservation.

Wilson is not convinced that the human genes specify certain traits. Rather, they prescribe the capacity to develop a certain array of traits (Wilson 1978, 56f.). In some cases the array is limited and one can hardly alter the outcome, whereas in other cases the array is so vast that the outcome can easily be influenced. This means that human behavior is specified to varying degrees. While Wilson agrees with the materialist basis for human behavior as advanced by the representatives of behaviorism, he cautions that their basic assumptions for control of behavior are too simplistic. Human behavior can be specified theoretically because genetic constraints and the restricted number of environments in which human beings can live "limit the array of possible outcomes substantially" (Wilson 1978, 73). Yet even short-term predictions about the detailed behavior of an individual human being might be beyond the capacity of any conceivable intelligence. There are too many variables to consider, and minute degrees of imprecision might easily be magnified so that they alter predictions considerably.

Wilson is convinced that human social evolution is obviously more cultural than genetic (Wilson 1978, 153). He even claims that "conscious altruism is a transcendental quality that distinguishes human beings from animals" (Wilson 1978, 150). While animals act in an altruistic way so that the survival of their species is insured, they are generally not conscious of what they are doing since they are driven by certain biological mechanisms. Humans, however, can choose their moral principles through knowledge and for reasons remote from biology. Similar to Lorenz, Wilson would claim that our instinctive drives no longer necessitate but only suggest a certain behavior. Yet the question then arises: "Can the cultural evolution of higher ethical values gain a direction and momentum of its own and completely replace genetic evolution?" (Wilson 1978, 167). Wilson responds to this question in the negative: "The genes hold culture on a leash. The leash is very long, but inevitably values will be constrained in accordance with their effects on the human gene pool" (Wilson 1978, 167). Even if our behavior is driven and guided by deep emotional responses, ultimately this behavior is a technique "by which human genetic material has been and will be kept intact" (Wilson 1978, 167).

Wilson concludes, therefore, that "morality has no other demonstrable ultimate function" than to assure our survival. While we have no choice but to concede that any other practical function of morality cannot be demonstrated, we should remember that not every species

has so far survived. While in every species there is certainly an intention to assure its own survival, such survival is not guaranteed by the evolutionary process itself or by the genetic constitution guiding and directing the process of life. Though Wilson concludes his book *On Human Nature* with a chapter on hope, he rightly speaks there of "the mythology of scientific materialism" (Wilson 1978, 209). Any guarantee for survival cannot be given by the finite material base which gave rise to life. In that respect there is as much an intertwining of the finitude of life with the finitude of matter as there is of behavior with its genetic base.

For Konrad Lorenz and his followers, morality was natural. Sociobiology, however, cautioned against such optimism and showed that altruism among members of the same species is the result of the fact that the actual carriers of biological evolution are not individuals, whether species or single members, but the genes that cooperate in order to survive (Vogel 1989, 28). This means that what looks externally altruistic is genetically egotistic. Natural selection, therefore, does not primarily further the maximizing of personal fitness, but rather inclusive fitness, which is measured in terms of individual success in reproduction plus the reproduction of genetic relatives in which those are preferred that are closer to oneself (Vogel 1988, 206). Christian Vogel phrases this kind of natural morality in these words: "Help your relatives according to their corresponding genetic relationship to you. But when in doubt help them less than yourself and your own reproduction!" (Vogel 1988, 207).

In contrast to Lorenz's assertion, behavioral geneticists disclaim that there is a natural morality. Though natural dispositions may be contained in our moral behavior, they do not constitute part of the moral quality of our actions. The reason for this hesitancy in talking about moral qualities arises from the realization that as a scientist one describes what is and does not prescribe what ought to be. Furthermore, genetic influence is embedded in the complexity of interactions among genes, physiology, and environment. "It is probabilistic, not deterministic; it puts no constraints on what could be" (Plomin 1986, 21). Yet to discover genetic interaction is important, because the more one knows about a trait genetically as well as environmentally, the more likely rational intervention and prevention strategies with regard to undesirable consequences can be devised.

Behavioral genetics is not, however, totally void of moral implications. It is still concerned with survival. Yet in contrast to Darwin, who considered the survival of individuals or of groups, behavioral geneticists have realized that individuals certainly do not survive,

and groups quite often do not survive either. In an evolutionary scheme, only genetic units last long enough to survive, and these units have evolved to survive by helping their copies reproduce wherever those copies may live (Alexander 1981, 511). This means, on the human level, that we are "selfish individualists to the extent that our behavior maximizes the survival by reproduction of those copies of our genes residing in our own bodies; and we are group altruists to the extent that this behavior maximizes the survival by reproduction of copies of our genes residing in the bodies of others" (Alexander 1981, 511). We may conclude, therefore, that behavioral genetics has not moved away from the issues of selfishness and altruism. Though it has become more differentiating and now also investigates the genetic base that leads to selfishness or altruism, behavioral genetics still focuses on the issue of survival. What can we conclude from these different scientific approaches to the human phenomenon?

## The Theological Dimension of Human Morality

When we first look at the results of ethology, we are confronted with the phenomenon of aggression, which could be termed morally analogous behavior. This behavior, though infringing on the well-being and integrity of others, plays an important role in the self-preservation and maintenance of one's own well-being. It can be enhanced or restrained in its effects through education. This means that although it may be inborn, it is not strictly determinative of one's eventual conduct.

Psychology, on the other hand, seems to indicate that there is indeed a destructive trait within humanity. Yet Freud is quick to point out that humanity is not intrinsically evil, since that which can be understood as evil often assures one's own self-preservation. At first glance, behavioral psychology seems to paint a different picture. One receives the impression here that humanity is simply a product of its environment. The reason for positive reinforcement, however, though it may initially be caused by mere chance, is based on the contingencies of survival under which humanity has evolved. Whatever contributes to survival is reinforced, and whatever impedes it is discarded. A similar tone, though coming from a very different approach, can be heard from sociobiology. While it points to a genetic basis for human behavior, it shows that only those higher values which have a positive effect on the human gene pool will survive. This means that genes are selfish and, consequently, human behavior, too, since it has no other demonstrable function than to

assure our survival. Behavioral genetics thus also concerns itself ultimately with the issue of survival of genetic traits, albeit in their interaction with the environment.

The various life sciences, though they differ considerably in approach, are amazingly unanimous when it comes to their assertions about what drives the human species. From whatever angle we view human behavior, it is ultimately shaped by the desire to propagate the survival of its own kind. This means that humanity acts in such a way as to advance its own species and therefore enhances that which furthers this process and restrains that which impedes it. We encounter, therefore, a morality of survival which, to some extent, echoes the well-known slogans of "survival of the fittest" and "the struggle for survival." Though survival as a positive value is widely accepted, we should note that it is by no means a self-evident value. It is an axiomatic concept for which there is no proof and which must be accepted on the basis of faith (Sperry 1974, 15). So many species have become extinct in the evolutionary process that one wonders why surviving should be preferred to extinction. This may be even more pronounced at present as we become increasingly aware of the precariousness of life. So why prolong the struggle? It has also been observed with ever-increasing clarity that the survival of humanity is contingent upon the survival of other living species, as well as the preservation of our ecosphere. As human history has shown, the concept of survival has been applied largely to humanity alone. Not until very recently have other living species been considered equally worthy of survival.

While the existence of a survival instinct seems to be supported on empirical grounds, the reason for turning it into a positive ethical value which ought to be enhanced rests on a valuation for which no proof can be given. Though we personally have no quarrel with this valuation, it is nevertheless good to remember its status as a conviction based on faith. We can even agree with Philip Hefner's admonition: "Theology therefore has no alternative today but to speak its truth about what is and what ought to be in terms of survival—survival of the species, of the world, of values, of human worth, of all that is cherished by the human spirit" (Hefner 1980, 393). Yet the reason theology should speak in such a way is not primarily that this is the way science speaks. If this were the case, theology would take its cues from outside its own field, surrender its integrity, and become a handmaiden of science. The reason for speaking theologically in terms of survival predates modern science and has been pointed out again in recent times by Wolfgang Wickler, who stated that the commandments of the Decalogue are demands which

are necessary for both human and animal survival (Wickler 1971, 141).

Theologically speaking, as soon as we talk about creation, we must also talk about *preservation*—a term more apt to further this intention than the terminology of survival. Preservation, in the sense of continuing creation, means preserving created diversity against its wholesale destruction and advancing it toward its future. The term *survival,* however, can easily bring to mind connotations of a nineteenth-century Social Darwinism representative of a survival mentality whose success took place at the expense of other species or groups less equipped for survival. It also seems to indicate that we are threatened by outside forces. Yet the opposite is true. We are our own worst enemy and proceed on a dangerously self-destructive course. The term *preservation,* however, implies that we are preserved from something (e.g., self-destruction), for something (e.g., enjoyment of the present life or the prospect of life eternal), and by something or someone (e.g., nature's laws or God's divine will). The term *preservation* is therefore more inclusive and more discerning than the term *survival,* which often denotes a narrow, self-interested perspective.

From the perspective of a scientist, Wickler gives a plausible reason for the legitimacy of comparing the Decalogue with the natural, biologically given laws and even, to a large extent, equating the two. In Mosaic times, the distinction between divine laws and laws of nature had not yet been made. All of them were considered an expression of the divine will (Wickler 1971, 57). Even in the Reformation period, Martin Luther could still claim without hesitation that the Ten Commandments are inscribed in every heart and are part of our natural knowledge of God (Luther [1538] 1883–, 39/I:540). This means that the emerging consensus in the human sciences on the prevalence and even desirability of survival as a basic value can be interpreted by theology as nothing other than a fundamental tenet of natural theology, or of natural morality. Theology, therefore, has no problems agreeing with the findings of science in this regard.

Natural theology, or natural morality, however, are not identical to Christian theology. At most, they are a prelude to theology proper or part of its prolegomena. If Christian ethics took a cue from survival or from enlightened self-interest, its motivation would run counter to that of Jesus, who laid down his life for others and asked his disciples to conduct their lives in like fashion. Christian ethics is an ethics of response to God's preceding activity, even if Christians, as well as other people, reflecting their sinful selves, usually act

contrary to it. Christian ethics involves a conscious altruism with prime concern for the consequences of our actions for others and not for the self. Its motivation is radically different from that of a biologically deterministic altruism necessary to assure the survival of the self, and usually, thereby, that of others as well.

The ensuing results, however, may not be that different. As Martin Luther observed: "Nature teaches as does love that I should do what I want others to do to me" (Luther [1523] 1883–, 11:279). This means that others do by necessity (i.e., through the teaching of nature) what Christians do voluntarily, following the commandment of love (Matt. 22:37ff.). Both nature (survival) and the commandment of love—which is closely related to the Golden Rule—are, theologically speaking, an expression of the divine order of preservation through which we, as well as other species, are prevented from deliberate self-destruction.[1] Since we are no longer controlled by our instinctive drives, obedience to such natural or voluntary "restrainers" is necessary in order to enhance the survival of the individual, the species, and of our planet itself. Christians and people of other religious or nonreligious persuasions could therefore work together to promote that which furthers the preservation of humanity and of our planet. Yet where is science left in this process?

## Parameters of the Interplay between Science and Theology

Given the universality of God's order of preservation, which science attempts to elucidate with ever-greater precision apart from any specific mention of God, there should be no cause for science to reject any specifically Christian morality, nor would it be fitting for theology to reject science's insistence on a conduct conducive to survival. The life sciences should point to the preponderant issue of survival within the evolutionary process, while Christian theology should take note of this and ask itself how it can fill the dynamics of survival with positive content. The life sciences could then scrutinize theological proposals as to their appropriateness to that function. Theologians worthy of the name will not remain aloof in the face of justified criticism of their analysis of the human predicament and their attempts to address it. This means that theology must be attentive to the sciences and creative in its own response, outlining avenues through which survival could be furthered and perhaps assured. In so doing, theology must also be attentive to those who cannot speak with a human voice or whose voice remains unheard because of their minority status. The life sciences would then be

asked to analyze these proposals, pointing out their weaknesses and alerting us to areas in which survival is still endangered due to inadequate ethical reflection.

Conflict would arise if through scientific ignorance theology took no heed of this basic tendency toward the preservation of life. Conversely, misunderstanding and conflict would also arise if science denied that theology has anything specifically to contribute and considered it mistakenly as its own "chief competitor, as a wholly material phenomenon" (Wilson 1978, 192).

Religion or theology did not simply evolve as a survival mechanism which is no longer necessary at the present state of our development. Reminding us of an order of preservation, they point to an agency beyond ourselves and reject the notion that preservation is simply due to an innate mechanism or simple chance. Since many species vanished from this earth before humanity ever interfered with life's processes, we should remember that there is no automatic mechanism that carries life irresistibly into the future. Life is ultimately a gift to be cherished and preserved. Over against a disinterested, and largely mechanistic view of life, theology would point to the character of both the emergence and the preservation of life as unmerited gift. This would introduce a dimension of thankfulness into the evolutionary process. Without religion, the life sciences would assume the status of a materialistic mythology, forgetting their own finitude and historicity. They would reduce life to its strictly biological side, devoid of deeper human values such as compassion, love, and hope. These are not only life-enriching factors, but strong motivators for shaping a sustainable future. Cooperation, therefore, between theology and science is essential to the advancement and quality of survival on this planet.

## NOTES

1. "Order(s) of preservation" should not be misunderstood as "orders of creation." While the latter lead to a static view of creation, usually advocating a conservative status quo ethic, the order(s) of preservation are goal-oriented, indicating a dynamic thrust.

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