

Téma: *Evolucionistické typologie náboženství*

Neither history nor anthropology knows of societies from which religion has been totally absent. The observation that practically all tribes, states, and cities have some form of religion has been made repeatedly, ever since Herodotus. Ancient philosophers made this "consensus of nations" proof for the existence of the gods. The question is not whether ethnographers may still find a few exceptions to that consensus; it is the universality of the consensus that has to be explained. To be sure, differences in belief and practice are dramatic; indeed, religion can be a most serious obstacle for communication between different groups, producing "pseudo-species" which exclude and may try to exterminate each other; but even this divisive tendency is a common feature.

The ubiquity of religion is matched by its persistence through the millennia. It evidently has survived most drastic social and economic changes: the neolithic revolution, the urban revolution, and even the industrial revolution. If religion ever was invented, it has managed to infiltrate practically all varieties of human cultures; in the course of history, however, religion has never been demonstrably reinvented but has always been there, carried on from generation to generation since time immemorial. As for the founders of new religions, such as Zarathustra, Jesus, or Mohammed, their creative achievement consisted in transforming, reversing, or rearranging existing patterns and elements, which continue to carry an undeniable family resemblance to older forms.

The civilizations that will come into closer view in this book, mainly the Mesopotamian, Jewish, Greek, and Roman, are contiguous and were in contact for a long time. While they developed under comparable climatic, economic, and social conditions, they also present glaring contrasts and revolutionary changes, from monarchy to democracy, from temple economy to monetary systems, from illiteracy to writing. Yet there are impressive similarities in their understanding and practice of religion, their myths and their rituals, temples and offerings. Diverse cultures have proved hospitable to many of the same elements of religion.

Culture has been defined as a "realized signifying system," a social system characterized by standard forms of communication. Anthropologists see not just one system of this kind but an apparently boundless variety of them, although this variety seems to merge into a yet undefined conglomerate today. Hence the principle held by the leading schools of contemporary social sciences: each culture must be studied in its diversity and relative autonomy. In consequence, the very concept of human nature has come under attack. In what has been termed "new dualism," nature is excluded from cultural studies. Humans are defined by culture far beyond their natural makeup: "there is no human nature apart from culture." Likewise, "humanity is as various in its essence as it is in its expression."

This exclusively cultural approach would make any investigation into the natural elements or foundations of a phenomenon such as religion worse than heresy from the Start. It is now common to integrate religion into culture, to view it in relation to specific groups and epochs. Religion is thus posed in contrast to nature and cannot be treated as a general phenomenon deriving from human nature.

Some of the most important and influential anthropological studies of civilizations and religions in our century exemplify this view, exploring the Nuer or the Azande, the Andaman islanders or the Argonauts of the Western Pacific. "Religion as a Cultural System" is the title of a famous paper by Clifford Geertz. In the wake of Emile Durkheim religion has been seen, first of all, as a social phenomenon; Durkheim replaced the concept of religious ideas

by that of "collective representations." More recent decades have brought into ever sharper focus the forms and functions of communication within social groups. This line has been followed in the successful development of semiology, structuralism, and poststructuralism.

Important studies along these lines have been carried out in the field of Greek religion, especially by the Paris school of Jean Pierre Vernant. In these works, Greek religion emerges in the context of the Greek city state, the *polis* as it has evolved beginning in the 8th century B.C. The details of myth and ritual, and especially of sacrifice, are seen as objective agents in their respective contexts marking distinctions and correlations, normality and deviation, within the structure of a particular ancient society. The impulse provided by this approach has been effective far beyond the specialized circles of classical philology.

Yet if cultures remain enclosed each in its own signifying system, what about the interactions of cultures, influences, and traditions that link the present to the past? What about our own chances of transcultural understanding of other civilizations whether past or present? And how do we account for the ubiquity and persistence of a phenomenon such as religion?

An alternative thesis may provide a basis for dealing with such questions. It proposes that there are phenomena common to all human civilizations, *universalia* of anthropology; they may be but need not be called characteristics of human nature. Religion belongs with them. Cultures interact; there are exchanges and conflicts, breaks but also continuities even within historical change. Above all there are basic similarities in all forms of human culture, inasmuch as everywhere people eat, drink, and defecate, work and sleep, enjoy sex and procreate, get sick and die. There is no denying either the general or the biological character of these processes. Cultural anthropologists will claim they are trivial; it is only the cultural elaborations and differences that make these phenomena at all interesting. But they are there.

What is startling is the ubiquity of certain less trivial phenomena, which are culturally determined in every case and yet not generated nor explicable in isolation. They always appear integrated into specific cultures and take various shapes accordingly, but their unmistakable similarity makes them a general class transcending single cultural systems. They must be presumed to fulfill basic functions for human social life in all its forms, even if it is easy to imagine alternatives. These universals include such disparate phenomena as the nuclear family with a marked role of the father and the special father-son relationship; the use of technology, especially of fire; interactions that include economic exchange but also warfare; and above all language, art, and religion. The last two mentioned may come as a surprise: what are in fact the functions of art and religion? They seem to be much less necessary for human life than the other items mentioned, yet they have been with us for all the time *homo sapiens sapiens* has been in existence.

The worldwide similarity of religious phenomena is easy to point out: they include formalized ritual behavior appropriate for veneration; the practice of offerings, sacrifices, vows and prayers with reference to superior beings; and songs, tales, teachings, and explanations about these beings and the worship they demand. Normally, religion is emphatically accepted. If voices of skepticism arise, it is deemed wise to silence them. "The fool says in his heart: there is no god"-but most are not so foolish as to speak out. Even rhetoricians know that "one has to worship the divine: nobody opposes this exhortation unless he has gone mad."

Nevertheless it is notoriously difficult to define religion in a general, transcultural way. Most attempts work at the level of ideas or symbols. Jan van Baal, for example, defines religion as "all explicit and implicit notions and ideas, accepted as true, which relate to a reality which cannot be verified empirically."

This comes close to the older concept of religion as belief in the supernatural, while disregarding the practice of religion which is not necessarily based on so-called true belief. More circumspect is the definition of religion by Clifford Geertz: "(1) a system of symbols which act to (2) establish powerful, persuasive, and long-lasting moods and motivations in men by (3) formulating conceptions of a general order of existence and (4) clothing these conceptions with such an aura of factuality that (5) the moods and motivations seem uniquely realistic." (Note the characteristic paradox that the symbolic should seem "uniquely realistic.") The

realistic, that is, practical, aspects of religion may still be underestimated in Geertz's formula: it is not the symbols alone that create this seeming reality; it is the ongoing activity of living people interacting with each other through symbols, exchanging signs and reacting to them while working on their own "reality," which constitutes religion.

Numerous other proposed definitions and pertinent methodological reflections have been offered on the subject of religion. Here, as Benson Saler has recommended, it will suffice to assemble some elements that characterize religion in almost every instance. This attempt to grasp the distinctive features of religion remains at the level of observable behavior; the claims of factual truth or real existence of the gods are not of primary concern in the study of past religions.

The first principal characteristic of religion is negative: that is, religion deals with the nonobvious, the unseen, that "which cannot be verified empirically." Protagoras the sophist spoke of the *adel6tes*, the "unclearness" or "nonevidence" of the gods. Religion is manifest in actions and attitudes that do not fulfill immediate practical functions. What is intended and dealt with cannot be seen, or touched, or worked upon in the usual fashion of everyday life. This is why strangers are usually puzzled by religious practice. Conversely, we are tempted to suppose that anything puzzling and not immediately apparent may be religiousa problem often met in prehistoric archaeology; drastic misunderstandings may of course occur. It is difficult to "get" what is meant in religious behavior, but some common basis for empathy, interpretation, and translation evidently does exist. The criterion of *adel6tes* is insufficient, yet it remains basic.

It is true that this unclearness is often emphatically denied by the insiders. "The knowability of god is clear among men," St. Paul wrote in Romans, "for god has made it clear for them. For the invisible (characteristics) of him are seen by the mind in his works, from the creation of the world " In both these arguments, from the mind and from the world (*kosmtos*), Paul was following Greek popular philosophy. The very emphasis, circumstantial argument, and special pleading of his claims acknowledge the difficulties of access. Even St. Paul's most optimistic formulation retains the "invisible." *Adelfes* can neither be abolished nor denied; it can be given a positive twist, however, by proclaiming it a secret.

To get beyond the barrier of unclearness, special forms of experience-meditation, vision, and ecstasy-are commonly invoked; thus the paranormal range of feelings is called upon to establish direct encounter with the supernatural. Yet the remarkable fact is not the existence of ecstasy and other forms of altered consciousness; it is their acceptance and interpretation by the majority of normal people. The ecstatic phenomena are integrated into religion and confirm existing belief, and these manifestations are themselves shaped by cultural training and practice insofar as they become communicable and accessible to others. In fact, they are judged and selected by an existing religion's own categories: "test the spirits."

The second principal characteristic of religion stands in antithesis to the ineffable: religion manifests itself through interaction and communication. It is thus a relevant factor in the systems of civilization. Even the lonely ascetic communicates, as he becomes the object of admiration, propaganda, and pilgrimage. In fact, religious communication always focuses in two directions, toward the unseen and toward the contemporary social situation. Through attitudes, acts, and language certain nonobvious entities or partners with special characteristics and interests are introduced, recognized, and tended. Distinct from humans and still analogous in many respects, they are deemed superior specifically because of their invisibility, the supernatural as such. People give them various names, class them as .spirits, demons, gods, or equate them with long-dead ancestors. Religion thus becomes a "culturally patterned interaction with culturally postulated superhuman beings." Communication with these entities interferes with normal relations within society and thus often turns out to be a special form of indirect communication, using the supernatural to strengthen the effect of intended conventional communication. In this sense one might even say the divine is a social tool to manipulate communication. At any rate, it is the practice of interaction, together with its consequences, that makes religion "uniquely realistic."

Implicit in the first two is the third characteristic of religion: its claim for priority and seriousness, for which Paul Tillich used the term "ultimate concern." Religion is thus set apart from other forms of symbolic communication, from play and from art. Although in plays and in ritual there is an element that transcends reality, an "as if" structure which creates unseen partners with whom to interact, these playmates can be dismissed at will. In religion there is a postulate of priority and necessity, of certainty that given thoughts and actions are essential and unavoidable. All other plans, projects, predilections, or desires are downgraded, foregone, or at least postponed. Spartans stopped warfare to celebrate their festivals even at crucial moments; Jews decided to die rather than defend themselves on the Sabbath. Even the Roman senate, relentlessly repressing the infamous *Bacchalia* in Italy, respected the "necessity" some people felt to carry on their ritual according to tradition. Religion is serious; hence it is vulnerable to laughter and derision. But the unseen, in the form of personal partners, calls for submission and veneration, and the ego has to take second rank. As supernatural power spreads to objects, these acquire limits of access or use, whether as taboo or just sacredness. Religion can be deadly serious in the most direct way, sanctioning violence in a terrifying spectrum, ranging from human sacrifice to internecine wars, from witch-burning to an Ayatollah's *fatwa*-and no less shocking acts of self-sacrifice, down to mass suicide. This absolute seriousness, derived from dealing with unseen superiors, is the prerogative of the sacred that characterizes religion.

Religions, both past and present, appear in special cultural, social, and historical settings; they can be elaborated as symbolic systems and interpreted in fascinating ways. Yet this universal and prehistoric phenomenon cannot be explained by or derived from any single cultural system. The search for the source of religion calls for a more general perspective, beyond individual civilizations, which must take account of the vast process of human evolution within the more general evolutionary process of life. This process was once hypostasized as Nature; we may still use it as a metaphor. In this sense the history of religions implies the problem of "natural" religion. Cultural studies must merge with general anthropology, which is ultimately integrated into biology.

Sociobiology?

To introduce biology into cultural studies is to enter a battlefield. For a long time many philosophers, historians, and sociologists, confronted with the success of natural sciences, have been building up defenses against biologism, or biologicistic reductionism, as it is called. The other side has been making use of the tremendous progress in molecular biology and genetics. Ethology, the study of animal behavior, was brilliantly developed in midcentury by Konrad Lorenz and has been popularized even in its application to humans. At the same time the study of primates, especially chimpanzees, has expanded greatly and established beyond expectation how close they are to humans. With the refinement of evolution theory, sociobiology was proclaimed as "the new synthesis" by E. O. Wilson. This has not silenced criticism at all; controversies are bound to continue.

Darwin's theory of evolution made a lasting impression on theories of culture in the nineteenth century. Social Darwinism applied the Darwinian principle of survival of the fittest to group selection. Certain social groups would prove to be more successful than others and oust their rivals in the end; morality and religion could be made factors in the process, strengthening or weakening the group's fitness. These theories conceived interaction as a struggle or battle, neglecting the role of cooperation. This school of thought appears unattractive and naive in retrospect.

A new and more specific approach was inaugurated by Konrad Lorenz's book *On Aggression*, first published with the less aggressive title *Das sogenannte Böse* in 1963, a work distinguished by the author's special skill in understanding animals. In establishing homologies in behavior of different species and deciphering the function of their signals, Lorenz insisted on the positive role of so-called evil behavior, or intraspecific aggression, for the preservation of the balance of life. He showed similarities, analogies, and even continuities between animals

and humans in the field of anger, fighting, and war, but in particular he described the establishment of bonds of friendship and solidarity through common aggression, symbolized in aggressive display. By extrapolation it would seem possible to explain the success of religious solidarity on the basis of the aggressive acts of hunt and sacrifice.

Lorenz's claim that zoology could throw light on the *condition humaine* immediately provoked critical reactions from sociologists and social anthropologists; the thesis of aggression was met by counteraggression. Critics judged it was dangerous to derive human values from animal nature, to see biological inheritance as determining human practice, and, in particular, to make aggression an inherited and hence immutable trait of the human race. Humanization and the very progress of civilization seemed to be at stake. The conflict was restarted in a new key through E. O. Wilson's concept of sociobiology proposed in 1975. Its opponents protested again that any thesis about genetic determination of cultural behavior, norms, or values would destroy the hope for progress in humanization. Self-determination, free will, free choice among various possibilities—these seemed the marks of culture. The advocate of what looked like biological automatism was marked as reactionary. Cultural autonomy was the banner raised against biologism.

The basic hypothesis of sociobiology is the "coevolution of genes and culture," with constant feedback between the two. From its Darwinian inheritance sociobiology takes the concept of survival fitness, related to the chances of procreation, and tries to correlate certain institutions or ideas with such fitness. "Cultural success consists in accomplishing those things which make biological success (that is, a high inclusive fitness) probable." Misfits will diminish in number and gradually disappear. Cultural progress and modification of genes go together.

Sociobiology could be called the computerized version of social Darwinism. Whereas Lorenz had still largely relied on observation and empathy, evolution theory now moves along the lines of game theory, models of which can be tested by computer programs. In this context one basic idea of social Darwinism, the principle of group selection, was exploded immediately, by disproving the claim that group solidarity would naturally win in the struggle for survival. It is the genes, not the individuals, that get passed on; hence it is the cheater within a group who enjoys the greatest advantage and by this very fitness will multiply his genes. "The selfish gene" has become a catchword of the new approach. It remains true, however, that certain strategies of behavior within a group will prove to be more successful than others and thus make a difference even in gene selection.

The technical problems of evolution theory and sociobiology cannot be discussed here in any depth. They include the very formulation of the definition of "fitness" in a way that is not circular, and the alternative of continuous evolution amenable to statistics versus sudden and unforeseeable catastrophes or "fulgurations."

The most complicated issue is still how to verify the connection between cultural phenomena and biological preconditions. Even primitive functions of life and simple processes of growth depend upon the interaction of many genes and numerous intermediate stages and agents that make up the phenotype. Behavior is hopelessly complex already at the level of primates. In response to ever changing situations, behavior will always present a mixture of innate responses and learned programs. Even in the realm of animals it is very difficult to isolate one from the other by experiments; at the human level experimentation is not possible.

In addition, in human social life quite different levels and criteria of success come to the fore; these cannot be represented by a single set of numbers in computer games. There is always variety, and seldom extinction. No doubt dominant members of a society have more chances to raise their children successfully; but it appears that again and again special elites rose to power who produced fewer children but, through an elaborate culture, kept control over their inferiors who produced more children. Should this be called a lack of fitness of the ruling class? Sociobiology has had some success in interpreting rules of marriage and sexual taboos in relation to the probabilities of genetic relationship and hence to the spread of selfish genes. Such studies focus on cultural institutions or patterns directly linked to physical procreation. An alarming study shows that male aggressiveness is deliberately cultivated in a primitive tribal society, so that killers have more chances to beget children than their more peaceful

kinsmen. However, it is not possible to run experiments that use neutral test groups to test the validity of these conclusions. And how can we know whether some rule or institution has been in effect long enough, through a sufficient sequence of generations, to produce a marked change in the frequency of the respective genes? How many generations are needed to make a sizable difference?

"Religion constitutes the greatest challenge to human sociobiology," E. O. Wilson wrote, "No doubt religion has appeared as a new phenomenon in the course of evolution. Chimpanzees, for all their genetic closeness to man, have neither art nor religion. All the same, the practice of religion must be extremely old. It is certain that the basic religious structures had evolved before humans reached America, for despite thousands of years of isolation, the religions of American aborigines remained comparable and similar to their Old World counterparts in many respects. In fact, there are clear traces of religious practice since the Upper Paleolithic that can be brought into line with attested religious phenomena. Still earlier, Neanderthals practiced ceremonial burial of the dead; many think that religious ideas must have accompanied such activities about 100,000 years ago.

In a naive way, an explanation of religion as expression of cultural fitness had already been advanced, on the basis of social Darwinism. Otto Gruppe wrote in 1921: "Individuals who make themselves appear to possess supernatural powers get a great advantage out of this, which is easily seen because they exercise some power on the society in which they live; but they also give some advantage, less easily recognizable but nevertheless quite real, to their own group in the struggle for existence, through their purported powers and by facilitating the growth of a common societal will." Can this be rephrased to mean that religion, once entrenched as a cultural phenomenon, brought definite advantage to certain individuals and thus was likely to multiply their and their adherents' chances of offspring and hence their genes, to the detriment of the nonreligious?

The fitness of religion in the sense of procreation and survival value is not at all agreed upon. Many religions call for renunciation of worldly goods and retreat from competitive struggle, as Buddhism and Christianity notably do. Christianity has extolled martyrs and altruistic self-sacrifice. Drastic examples of self destroying religious behavior include saints starving themselves to death and sectarian groups committing collective suicide. Still-the very propaganda effect of martyrdom proves that, on balance, even these may be strategies of success. The loss is matched by an increase in acceptance. Propaganda, by its very name, is a form of procreation. "The blood of the martyrs is the seed of the church"-a striking metaphor of biological growth. Self-denial is to result in multiplication; the grain of wheat dies to bring forth a rich harvest. Cases of self-sacrifice occur even lower on the evolutionary scale: some male spiders lose their life at copulation, bees work to exhaustion to feed the queen's offspring. In fact, the individual's sacrifice for the benefit of his or her genetic relatives can be seen as a strategy to multiply the genes shared by the family. This is "inclusive fitness," a concept develops by William Hamilton. In an analogous way, even religions that proclaim self-sacrifice may be basically adaptive. Because on the whole the history of religions has been a story of success, a good strategy for survival in the long run must have been at work. In other words, a certain survival fitness of religion has to be granted.

In contrast to the foregoing, another school of thought imputes to religion the very opposite of survival fitness; we may call it the opium thesis. Religious ideas and practices are accused of fulfilling human wishes in a fantastic, unrealistic, and possibly detrimental way, just as drugs do when they provide the illusion of happiness while misusing and overriding the normal cerebral functions.⁵¹ Not that this would make religion exempt from biology: even the spread of malfunctions is a biological fact. But is illusion dysfunctional? The discovery of endorphins, natural pain relievers in the brain, rather points to the positive biological function of illusive happiness to overcome dramatic crises of stress and pain. A case could be made even for the sociobiological advantage of religious illusions.

Ancient religions normally gravitate to the dominating classes and the representatives of power. After the triumph of Christianity, for many centuries of European history that has also

been the situation of the Christian churches. Islam expressly claims to direct law, social order, and political authority. Successful religions tend to use power and even violence to suppress dissident groups or rival religions, both within and beyond their territory. Christianity as well as Islam has become world religions by ousting the more ancient forms of religious polytheism, and they remain adamant in fighting atheism. The same militancy occurs on the individual level: within strictly religious societies a nonreligious child, rebellious in feeling and behavior, will hardly have a chance of survival. Yet if the dominant majorities are stabilized by religion, there are also minorities that persist through their religion, some of them retaining special influence just by remaining a religious minority. Some disadvantaged minorities survive in a kind of niche existence for millennia, held together by their religion. The dominant religions of course present advantages to their adherents and disadvantages to their opponents, so they are bound to have momentous effects on selection. Nonetheless, minority groups still survived centuries of Christian and Islamic rule.

It is notable that many religions urgently advocate procreation within the group. Isolation and procreation became the Jewish strategies for surviving the historical catastrophe of the Babylonian exile; in reinforcement, Mosaic Law forbade the use of established forms of birth control such as homosexuality, prostitution, abortion, and exposure of children. In effect, a Jewish population explosion occurred in Hellenistic times. A similar sexual morality caused Christian groups to grow beyond proportion within the Roman Empire. Until the present day Catholicism and Islam both passionately oppose birth control. Is it a biological instinct, the thrust of selfish genes that works behind the laws of Moses or Allah?

It is true that different attitudes of competing religions toward birth control can dramatically change majority-minority relations-witness the case of Lebanon, where Moslems came to outnumber Christians; but even the catastrophe of Lebanon did not lead to annihilation. And even if the premise of social Darwinism should materialize in extreme cases, and some religious groups do get exterminated, historical catastrophes, short-lived and exceptional as they are, will not have much effect on the genetic pool within a heterogeneous world society.

Another hypothesis traces religion's success to ecology. One example is Roy Rappaport's study of pig festivals in New Guinea, in which he explained the festal cycle in such terms. The pig population is left to multiply and would grow out of hand, but they are sacrificed and consumed when they are about to become too numerous. Thus the ritual slaughter functions as a homeostat to prevent overexploitation of the environment. In this way the stability of the social system within the environmental balance is maintained through regulation motivated by religious restraint. Should we assume that, in the long run, only the religious individuals, sensitive to the control imposed by otherworldly regulatory systems, managed to survive in stable human societies? Alas, ecological caution is anything but universal in religions. In the island of Malta, the proliferation of gigantic temples admired by modern tourists seems to have gone together with an ecological collapse and the final decay of the Early Bronze Age civilization.

It is tempting to assume that the very advantage secured by religion is stability and thus continuity of culture. As the "software" of civilization became too precious and too complicated to leave its preservation to individual choice or chance, new institutions had to arise to guarantee social cohesion across long spans of time. Incipient forms of culture observed in other primates, such as washing grain in water or transporting stones to crush nuts can be lost again without endangering the species. For *Homo sapiens*, the technique to preserve fire did need continuous care. But this may be just an instance of the necessity of culture: it cannot be lost without catastrophe; it cannot be put at stake by experiments. The permanent authority of ancestors or immortal gods provides the needed stability.

Yet as provider of continuity, religion remains paradoxical from the sociobiological perspective. Survival fitness, in the long run, means adaptability to changing conditions; in the cultural systems the key to success is the ability to learn fast and to keep learning in a changing world. Religion, however, strives to teach the unchanging "eternal truths," and to make sure that beliefs and attitudes remain unchanged. What kind of fitness is it that renders people unfit for change, and how can we say that it has been successful?

A final surmise is that the success of religion may be attributed to its providing a heightened endurance in the face of catastrophe, encouraging procreation even in desperate circumstances. This comes close to the "endorphin" hypothesis. We humans are capable of experiencing states described as "loss of reality" chimpanzees are apparently immune to this—in such diverse manifestations as extreme patriotism, the fascination of games and sports, the scientist's or artist's proverbial distraction or rather concentration, and, not least, the fervor of religious behavior. In such cases the mental system overrides reality, and the invisible gets the better of the obvious. Although religious obsession could be called a form of paranoia, it does offer a chance of survival in extreme and hopeless situations, when others, possibly the nonreligious individuals, would break down and give up. Mankind, in its long past, will have gone through many a desperate situation, with an ensuing breakthrough of *homines religiosi*.

These positive or self-stabilizing functions of religion seem more or less plausible and are not mutually exclusive; it is difficult, however, to find concrete evidence for them, especially since the ubiquity of religion means that neutral test groups are not available. But even if accepted, these functions do not in fact prove any correlation between religion and gene selection. Religions are established by learning, they are propagated both through imitation and through explicit verbal teaching. Traditions developed in this way can evidence a kind of cultural fitness for survival without any genetic basis. The Roman Catholic Church has been working successfully for about sixty generations, led by an elite that explicitly renounces physical procreation. Jews have been living in relative isolation with special marital rules for about 100 generations, yet there are no Jewish genes. The success of particular forms of religion appears to be due to organization, propaganda, power, or fashion, with many different motives determining individual choices or attitudes, rather than to physical procreation.

One religious institution does focus on sexuality; it is circumcision. While this ritual has been strictly practiced for thousands of years, it has no more bearing on procreation than eating or not eating pigs; neither practice will provide a genetic basis for the eventual success of either Judaism, Christianity, or Islam. Circumcision functions as *character indelebilis* of a certain community and possibly as a traumatic, unforgettable individual experience; that is to say, it functions at the social and psychological not the genetic level.

In contrast to the practice of circumcision, human sexuality as such has a clear biological function and pedigree. During adolescence humans everywhere and at all times will spontaneously discover sexuality along with new feelings and behavior, while cultural and educational efforts to repress them normally fail. Postmoderns have pointed out that sexuality too takes different forms in different civilizations and hence should be considered a cultural construct or even an "invention." But such variations and deviances are slight in the face of overwhelming uniformity. The biological program develops on its own according to pre-determined patterns, which reach back far beyond the emergence of humans and have long been inscribed in the genetic code. It has never been shown that religiosity rises spontaneously in such a way; religion depends on the formative impact of cultural learning. The prospect for discovering religious genes is dim.

What remains is an intercultural family resemblance of religious phenomena throughout the world and over the ages. Likewise, the emotional aura encircling religion cannot be easily dismissed. Biologists hold that each of our spontaneous feelings can be qualified as the reflection of some biological function. "Memoirs most easily recalled, emotions they are most likely to evoke" are invoked by Lumsden and Wilson to testify for biological foundations. Konrad Lorenz has drawn attention to the shudders of anxiety or even of elation that we still experience, shivers running down our backs and arms in appropriate situations, which are nervous reactions intended to raise the mane at the back and head, as they still do among gorillas and chimpanzees. For us, "hair-raising" survives mainly as a metaphor, but once it was part of the aggressive behavioral program. Today, when we speak of the sacred shivers of awe that characterize religion in particular, we may be forgetting that origin. Yet anxiety linked to aggression through biological inheritance manifests itself in our emotions, including patriotic and religious enthusiasm.

In this context, it may help to take into consideration more closely the most important

universal of humans: language. Language is learned in childhood in every society, together with the various special phonologies and semantics that make crosscultural understanding so difficult. Language is linked to an uninterrupted chain of historical tradition; it has never-in tens of thousands of years-been reinvented. Language is exclusively human, even if chimpanzees can be taught its rudiments to a surprising degree. But it is no less true that language has a biological foundation, most evident in the development of a vocal apparatus which is missing in chimpanzees and whose presence in Neanderthal man is doubtful. A genetic alteration was critical to its development. Language also has a clear sociobiological function. In fact it has become one of the most important conditions for survival in our social systems: an individual incapable of speech usually drops out. Thus gene selection has been associated with social functions within the evolution of culture. If language is a phenomenon of culture, culture has determined and continues to control the genes in this case, while language still remains to be taught afresh to every generation. Human language thus may be called a hybrid of culture and biology.

It is still unclear to what extent we can be precise about this chapter of evolution. There was a cultural revolution about 40,000 years ago, which manifested itself through new forms of signifying systems and representational thinking. The revolution was the birth of art amidst simpler forms of marking and making distinctions. Art is unknown to other primates; it is found in a less developed form among the remains of Neanderthal man. Art means "to make special" certain objects of perception, producing a characteristic tension between the familiar and the admirable and thus creating new aspects of a potentially common world. The striking fact is that within a few millennia of the creation of art, Neanderthal man became extinct. One may presume that this happened on account of some lack of cultural fitness. Yet there was no genetically new type of man to inaugurate the new stage; it now appears that Neanderthal man coexisted with modern man for about 50,000 years. Thus far, "biology cannot explain the cultural revolution that then ensued." But perhaps sociobiology can. It is tempting to assume that the cultural progress of the rivaling species brought the disadvantaged to extinction. Did human language take form just then? Was Neanderthal man unable to speak in an articulate way? At any rate, the survivor was *homo sapiens sapiens*, who has been *homo loquens* and *homo artifex* ever since, but also *homo religiosus*.

Parallel to language, religion too, as an effective means of most serious communication, can be hypothesized to have arisen at a certain stage in prehistory as a competitive act, a way of gaining an advantage over those who did not take part in it. Religion may well be older than the kind of language we know, insofar as it is bound to ritual, which entails fixed behavioral patterns marked by exaggeration and repetition and often characterized by obsessive seriousness-patterns which are prominent even in most modern varieties of religious communication. In principle, ritual reflects a preverbal state of communication, to be learned by imitation and to be understood by its function. It seems to be more primitive and may be more ancient than speech; it clearly has analogies in the behavior of animals. Although rituals do not attested for Neanderthal man, while his ability to speak is in doubt. We are free to imagine that a richer palette of rituals existed among hominids at an early stage, such as dances in the context of hunting, warfare, or mating display, but also veneration, even worship, of the unseen. This could be called a complex of prereligion, perpetuated to a large extent in the rituals of religions we know. But it must remain a guess.

The possibility of a sociobiological derivation of religion thus remains shrouded in prehistory. The idea is attractive. There is a vast expanse of time available for the evolutionary process, with tens of thousands, or even hundreds of thousands of generations to fill the hiatus between chimpanzee and *homo sapiens*, whereas in other cases studied by sociobiology the problem of the time span involved seemed insurmountable. Religion, stemming from time immemorial and often characterized by the principle of unchangeable continuity, might well provide a model case for the "coevolution of genes and culture." Yet there is no way of testing this hypothesis, be it through 30,000 or 300,000 or 3,000,000 years, through 1,000, 10,000, 100,000 generations; by scientific standards, the hypothesis loses its point. We can only vaguely reconstruct the decisive cultural conditions. While uncertainties multiply with time, the evidence evaporates.

Sociobiology, insisting as it does on precise parameters in mathematical models, cannot find appropriate applications in these realms. Probabilities, selective observations, and hunches will have to take its place.

We may still view religion, parallel to language and to art and mostly in close symbiosis with the two, as a long-lived hybrid between the cultural and the biological traditions. Another hybrid among anthropological *tmiversalia* might illustrate the complexity of the issue: the case of the incest taboo, a social rule that immediately concerns procreation and often assumes religious dimensions. That the incest taboo is practically universal among human societies has long been recognized, not without amazement. It has been taken to be the very mark of culture. It was attested for Neanderthal man, while his ability to speak is in doubt. We are free to imagine that a richer palette of rituals existed among hominids at an early stage, such as dances in the context of hunting, warfare, or mating display, but also veneration, even worship, of the unseen. This could be called a complex of prereligion, perpetuated to a large extent in the rituals of religions we know. But it must remain a guess.

The possibility of a sociobiological derivation of religion thus remains shrouded in prehistory. The idea is attractive. There is a vast expanse of time available for the evolutionary process, with tens of thousands, or even hundreds of thousands of generations to fill the hiatus between chimpanzee and *homo sapiens*, whereas in other cases studied by sociobiology the problem of the time span involved seemed insurmountable. Religion, stemming from time immemorial and often characterized by the principle of unchangeable continuity, might well provide a model case for the "coevolution of genes and culture." Yet there is no way of testing this hypothesis, be it through 30,000 or 300,000 or 3,000,000 years, through 1,000, 10,000, 100,000 generations; by scientific standards, the hypothesis loses its point. We can only vaguely reconstruct the decisive cultural conditions. While uncertainties multiply with time, the evidence evaporates. Sociobiology, insisting as it does on precise parameters in mathematical models, cannot find appropriate applications in these realms. Probabilities, selective observations, and hunches will have to take its place.

We may still view religion, parallel to language and to art and mostly in close symbiosis with the two, as a long-lived hybrid between the cultural and the biological traditions. Another hybrid among anthropological *tmiversalia* might illustrate the complexity of the issue: the case of the incest taboo, a social rule that immediately concerns procreation and often assumes religious dimensions. That the incest taboo is practically universal among human societies has long been recognized, not without amazement. It has been taken to be the very mark of culture. It was another surprise when proofs accumulated that forms of incest avoidance are not confined to the human species but are common among most higher animals. The biological advantage is clear in this case, since inbreeding has specific risks and dangers. But how did the biological recommendation enter human consciousness, to be transformed into spontaneous feelings as well as explicit verbalized rules of cultural institutions? This puzzling question has not been solved. Is it that random rules, adopted by chance, took root through their genetic success? But the effect only manifests itself through a long sequence of generations; it is hardly perceptible in individual experience. Norbert Bischof has devoted a painstaking study to this problem. He ends up with a metaphor: social rules, if general and persistent, must somehow "fit the landscape."

It is the landscape, formed by age-old geological events, that makes water concentrate into rivers and flow in a pre-established course and sets limits even to the chaotic turbulences of weather. How the architect perceives the landscape, or the landscape influences the architect, is still a mystery. Natural religion, that is, basic and common forms of addressing the supernatural, did not develop in a void but through adaptation to a specific "landscape," conditioned by the age-old evolution of human life. If there are certain predilections and attractions as well as fear and revulsion, feelings of needs shaped by biology, this complex may account for the stability of belief and concomitant behavior.

To use another metaphor: verbalized culture, transmitted by teaching and learning, may be called the "software" of humanity, easy to copy and to pass on regardless of its complexity. Still, the question is whether this software can be chosen and modified arbitrarily, or whether it

remains bound to certain preconditions of the original programming, to patterns and effects left by the "hardware" that generated it.

The biological organization of the brain and other cybernetic systems of living beings existed long before verbalized culture; that it continues to influence our behavior and communication cannot be denied. Aboriginal programs of action, sequences, sentiments, expectations, notions, and values are inherited from the most distant past. Some of the most obvious are the search for food, fear, flight and aggression, and of course sex. Even meanings have their prehistory. It is notoriously difficult to construe semantics from pure logic, but quite easy to recognize certain reactions that have adaptive or communicative functions: a leopard, a snake, "fight or flight"-these are meanings which antedate language by far. The chicken knows the flying hawk before it has any experience of it; the cock knows the weasel; certain monkeys have distinct signs for leopard, eagle, and snake. The process of *semeiosis*, the use of signs and symbols, operates within the whole sphere of living organisms and was evidently invented long before the advent of man.

This does not mean that genes prescribe culture-clearly, they do not. But it could be said that they give recommendations that become manifest in the repetition of like patterns, "the kinds of memories most easily recalled, the emotions they are most likely to evoke." The biological makeup forms preconditions or "attractors" to produce phenomena in a consistent fashion, even if these patterns are created and recreated afresh in each case. Scientific proof of such connections by means of statistics or experiment will remain impossible; what can be shown is the near universality and persistence of patterns through place and time, and the existence of certain analogies or even homologies in structure and function in animal behavior. This suggests that details and sequences in rituals, tales, works of art, and fantasies hark back to more original processes in the evolution of life; they become understandable not in isolation nor within their different cultural contexts, but in relation to this background.

The sociobiological question of the survival value or multiplication value of language, art, and religion remains open. It is probably important to realize that we are not dealing with a one-dimensional process, so that the answer cannot be just one formula. There is probably a cluster of factors in evolution and a cluster of functions served by new avenues of communication; functions may also be lost or altered. Nonetheless certain persistent and permanent patterns emerge and even seem to control interactions, since all these events occur within a unique landscape to which they are adapted. What we discern are the tracks of biology followed by cultural choice.

To sum up: the thesis of sociobiology in the strong sense of "coevolution of genes and culture" cannot be verified in the case of religion, as such evolution antedates observable periods and remains too complex to establish unequivocal relations between the two. The absence of evidence is still not a license to separate culture from biology or religion from substructures formed within the evolution of life. Religion's hybrid character-between biology and culture-calls for an interdisciplinary meeting of methods: derivation should go together with interpretation. In this sense, an analysis of religious worlds in view of the underlying landscape may be attempted.

A Common World: Reduction and Validation

In human history language has been the decisive phenomenon, analogous to religion and related to it. Ever since the Greeks, language, *logos*, has been judged the crucial difference between us and other species: man is the "animal endowed with language," *zoolzlogikoll*. The course of evolution has been one of growing success in obtaining and processing information, in continuous feedback between the environment and living organisms. The nervous system gave rise to the possibilities of learning, that is, of storing information and modifying programs in the course of the individual's life. "Software" of this kind, however, remains inseparable from the "hardware" and is destroyed with it. The effects of learning cannot persist; only the genes preserve information. The cycle of birth and death can be breached to some extent through sharing and passing on information. Incipient cultural tradition of this kind remained rudimentary, even if the distance from amoeba to ape was immense, until the momentous advent of

language. Through language information can not only be acquired, processed, and stored individually, but fully transferred to others, to be processed and recalled in parallel efforts. Corresponding to the neural functions of sensation and of motion are two main forms of verbal interaction: to state the facts and to command action, which means sharing the sources of information on the one hand, and partaking in the results of information processing on the other. Through copying and exchange, programs and information have become largely independent from the hardware and from the accidents of individual death. Information survival asserts itself side by side with and even instead of genetic survival.

Language development means nothing less than the advent of a common mental world, allowing not only for common actions and common feelings but for common thoughts and plans, concepts and values. All humans henceforth are linked to an uninterrupted chain of tradition, taking over the mental worlds of their elders, working on them and passing them on.

Religion, defined at the level of communication, belongs to this mental world, and by virtue of its seriousness it claims preeminence. The problem of religion, in consequence, may be restated in the form of a question. How and why, within this common mental world shaped by language tradition, have certain realms been established for which no evidence exists, and for which we claim dominion over communication and action by virtue of seriousness? Is this a by-product, a degeneration, an "opium effect," or on the contrary some kind of *a priori* condition for a common world? If we adopt the Durkheimian concept of "collective representations," we might ask, why do people accept them, and why certain ones among them?

The suspicion has been voiced repeatedly that religion is mainly trickery and make-believe produced by those who profit from it. Forms of deceit abound already at prehuman stages. All the greater is the possibility of verbal deception. Information can be withheld or distorted. The unseen in particular can be the object of manipulation. Among several species of monkeys, for example, an individual disturbed by an intruder may avoid confrontation by staring into a corner and voicing sounds of alarm, as if reporting "there is a monster in the corner." But this would be a grossly insufficient foundation for the origin of religion. Even among monkeys the trick cannot be repeated very often without being recognized and losing all of its force.

The point is that the common world of language characteristically produces contents beyond any immediate evidence. Communication works via signs, and what they refer to must be guesswork at first, to be confirmed by repetition, by context, previous knowledge, or additional information and experience. Some signs will remain opaque and yet are stored in expectation of later clarification. As learning takes precedence over experience, a personal encounter with what has been learned and known in advance may not follow "in the span of a lifetime. Language refers to objects far away as well as to the past and to the future, segments of reality inaccessible to verification. Fiction, dreaming, and the workings of imagination evidently have some function for the individual, preparing or rehearsing human activities or helping with solving problems while avoiding direct confrontations. Thoughts or plans can be expressed or manipulated collectively through speech. Worlds beyond experience, or at least some misty provinces or blind spots, thus grow out of the process of linguistic communication. They may be reshaped by misunderstanding. This even happens within religious tradition, producing strange and fascinating items. Elysium, a name for a blissful spot in the beyond, seems to have emerged in such a way. An accumulation of preformed, verbalized traditions will always transcend individual experience. Nobody has seen the phoenix, but all know about him.

Such a process of accumulated verbal tradition can be anticipated by ritual, which refers through formulaic acts to non present partners, and is strongly reinforced by art. Ever since the Upper Paleolithic people have drawn pictures of well-known objects, bison, horses, or mammoths, as well as of baffling, enigmatic icons that demand special interpretation. We are at a loss about how to understand the painting called "the sorcerer" of the Trois Freres cave, or those corpulent female idols which have been called Venus statuettes. Do they reproduce reality, or do they refer to the supernatural, to some Great Goddess? Most people today have seen pictures of angels, dragons, or the phoenix; it is by way of illustrations that we form our ideas about these creatures.

If a body of supernatural entities, communicable through language and pictures, comes to occupy a certain space in our common mental world, it is subject to the controlling functions of reduction and simplification. In the face of the constantly growing accumulation of data infiltrating personal experience, the common world must be simplified. Sheer addition of individual knowledge would soon surpass the capacity of any available system for recording it, even within a small group and within a few generations. Tradition consists of condensed, systematized information. Language continually operates in this way through two of its main functions, generalization and metaphor; these are strategies to keep the sign system finite. Logical functions too work to that end, through negation, class-inclusion, the constitution of patterns and analogies.

In *The Function of Religion* Niklas Luhmann stated that the main process of creating sense in the interactions of a system with its environment was "reduction of complexity," and he takes this to be the achievement of religion in particular. By a process of reduction, religion provides orientation within a meaningful cosmos for those who feel helpless vis-a-vis infinite complexity. Certain religious systems go further than others in this function. One way to effect a radical reduction of complexity is to devise a dualistic system, positing two containers in which to place any new phenomenon or experience. Hierarchies and links of causality also effectively reduce complexity. And there is an avowed tendency in speculative religion to reduce reality to the most simple and general concepts: the One Cause, the Sole Being, the One.

It is easy to make further suggestions about what makes religion "good to think" in a mental world. Language itself, as a signifying system, seems to be in need of an "ultimate signifier," the absolute, god. This may also serve the function of the algebraic x to solve the conflicting equations of life. Oppressive domination, for example, is easier to bear if the oppressor is dominated in turn by a god. Likewise, an insecure and unjust distribution of goods is brought into balance by a transcendent gift system.⁹⁸ Affliction is made bearable by an ultimate if non-empirical answer to the grieving one's question, "why." To introduce the unseen is to interrupt the closed functional chain of events-which also means that religion is never fully integrated into any system of society but retains some character of "otherness."

Basic categories of being, of causality, and of goodness are reflected in the traditional predicates of gods or god as immortal or timeless, creator of the world, and the ultimate end of human destination. Even these *a priori* categories have been linked to biological evolution by the evolutionary theory of knowledge. They have been developed in the measure that they proved successful in managing an increasingly comprehensive objective world. In realms beyond experience, these categories develop with uncommon ease, assisted by the mental device of self-reference to create an infinite series. The unattainable extreme, perfection, is found in the supernatural. In language, this will be expressed by the superlative: god is the first, the highest, the strongest, the absolute.

In all such reflections about the conditions and functions of religious concepts within a mental world, validation remains the crucial problem. As Richard Gordon put it, how is it possible "to validate the existence of a purely imaginary world?" The monkey trick of the monster in the corner cannot be repeated. There is disbelief as well as belief, distrust as well as trust, there is forgetfulness to match the acquisition of new information; there is manipulation and counter-manipulation, concealment and deceit. Each person will end up with a very personal selection that forms her or his mental world. Is it possible to isolate the common and authoritative elements? Or are the possibilities of fantasy infinite? Yet gods are not just another chimaera.¹⁰¹ How to substantiate the claims, postulates, and threats of religion?

Three main approaches are used to account for the uniquely realistic appearance of religious worlds. The reasons for acceptance, persistence, and preponderance of religion may be found either within the message transmitted, or in the circumstances of transmission, or in the special organization of the recipient. All these possibilities have been explored and discussed; they may well be combined.

The modern and sophisticated approach has been to look for reasons of stability within the message; this is the structuralist model. It postulates that certain correspondences, equations, and reciprocities stabilize themselves in various and repeated forms of communication and

thus give a powerful meaning to traditions which operate within a religious group. One might metaphorically speak of "resonances" accompanying the message-the way a radio or a similar electronic device sometimes creates its own piercing sounds. Reinforcement through resonance would especially apply to ritual, the concomitant means of religious communication. Should we look at religion as a form of resonance, of mental self-replications within a cultural system-replications which, functional or dysfunctional, arise and preserve themselves through their own structure to form part of culture? This would mean abandoning attempts at making sense.

Within the process of religious transmission, a strictly biological hypothesis would assume that some form of "imprinting" happens. Biological imprinting is restricted to certain conditions, to special functions, times, and situations; in other words, it is totally dependent upon the "landscape" of a well-programmed species; it has unchangeable consequences. A newborn duckling, after leaving its egg, takes for its parent whatever creature makes the first contact; later experience cannot change this.

In humans too the brain is quite pliable in the earlier phases, and certain phenomena come at least close to imprinting. 'Childhood experiences play a decisive role for the development of the personality, including sexual maturity, political attitudes, and religious propensities. Strong formative forces radiate from the mother and the father alike; "phenotypical cloning" is a catchword that has been coined in this context. No dependable automatism has been detected, however, comparable to that of the duckling. On the contrary, striking and drastic failures of pedagogic attempts to fix religious attitudes in children abound.

Finally, in examining receptivity to religious messages, it would be easy, probably too easy, to postulate that archetypal images of religious entities, of god or gods, are present in the human makeup and can be activated by appropriate stimuli with indelible results. This would be equivalent to "innate release mechanisms" as discussed in biology, another form of pre-determined programming, like that of imprinting. It means that fixed action patterns are activated through specific combinations of stimuli, without regard for individual accidents. This too resists verification.

The observable forms of religious transmission are learning processes effected through ritual and language. The most salient features in this process are repetition plus more or less harsh forms of intimidation. Repetition is a major factor in learning, and it is critical in ritual. There is no transmission of religion without ritual. A primary function of ritual is to initiate the young into the customs of their elders-the very epitome of cultural learning, which relies upon memory. In the same spirit, it is for the sake of the whole community that "collective representations" are inculcated by ceremonies repeated at regular intervals. Celebrations of festivals have become central manifestations of religion. People perform prescribed acts, learning that these have always been done in that way; in this context, they are also told their collective lore, their myths. Two sign systems, ritual and language, come together to reinforce each other, to form the mental structures that determine the categories and which repetitive rhythms and sounds combine to create the great collective experience.

A major force in this process is paternal authority. All higher animals are programmed to learn from their elders. In human society the role of the father has been especially magnified. An intense father-son relationship is the vehicle of many cultural traditions. Religions used to stress the importance of parents while presenting god or gods as superfather or mother, and parents did not fail to use that opportunity to enhance their own prestige. 'When children saw how their parents deal with gods "in supreme seriousness on behalf of themselves and their offspring," wrote Plato, how could they venture to despise religion?'"^o In such a two-way process, authority is stabilized through religion and religion through authority.

Some special forms of learning are made indelible "at a stroke," without repetition, usually in situations of utmost excitement. Every individual will have unforgettable memories of this kind, especially of a painful or humiliating character. Forms of "anxiety learning" have been studied in animals. Observers found special neuronal processing and memory for anxiety-arousing events;"¹ the resulting behavior seems close to superstition. Teaching by threat and maltreatment is customary in many civilizations without qualms. Exotic initiation ceremonies come to mind;"³ some European communities used to teach youngsters the place of boundary

stones by boxing and flogging them at the spot. One drastic way to create an unforgettable and unbreakable bond is to commit a common crime, using aggression to overcome anxiety. A special thing to do in manipulating anxiety is to handle blood, which is required in many forms of sacrifice and purification. Terror does not develop rational abilities, but it leaves its marks. Thus we approach the "seriousness" of religion from the experience of fear.

There is no denying that anxiety is often evoked to validate religious messages, and that it has its repercussions upon the substance of religion. To transmit religion is to transmit fear.

"Fear, first of all, produced gods in the world," *primus in orbe deos fecit timor*, Statius wrote. While this is a criticism from his standpoint, which is that of ancient philosophical enlightenment, it shares the self-interpretation of many religions. The main word to characterize gods and religion in Akkadian is *puluhtu*, fear. An Assyrian king, in all his arrogance, will proclaim himself the one "who strongly knows the fear of the gods and goddesses of heaven and earth." For "the fear of gods creates kindness," or, as Solomon put it in one of his most quoted sayings, using the Hebrew variant of the same Semitic word:

"The fear of god is the beginning of wisdom." The equivalent Greek expression, *theoudes*, god-fearing, occurs as a mark of moral distinction in Homer. "The divine is fear for prudent mortals." Another Greek word commonly associated with religious rites is *phrike*, hair-raising shudder. Moderns came back to the suggestion that awe was the basic religious feeling; Rudolf Otto substituted a neo-Latin term, *mysterium tremellidum*, and shivering mystery. Shudders of awe are central for the experience of the sacred. The very means of indelible transmission, threat and terror, are correlated with the contents of the religious part of the mental world: the prerogative of the sacred requires the fear of god.

Yet anxiety, fear, and terror are not just free-floating emotions brought on by psychological fantasy. They have clear biological functions in protecting life. Seriousness means giving priority to certain vitally important programs. The utmost seriousness of religion is linked to the great overriding fear of death. The value of religion, manifest in the forms of religion's cultural transmission and in the insiders' confessions, is that it deals with the "ultimate concern" and thus fits the biological landscape. The drama of religion's interaction with the unseen by manipulating and displacing anxiety takes place with death as the backdrop. Man knows about death, and that death cannot be abolished, but this knowledge develops in a peculiar way. Personal death is a reality beyond imagination, an x, an unknown, inaccessible to experience; the experience of other people's deaths, however, another surprise when proofs accumulated that forms of incest avoidance are not confined to the human species but are common among most higher animals. The biological advantage is clear in this case, since inbreeding has specific risks and dangers. But how did the biological recommendation enter human consciousness, to be transformed into spontaneous feelings as well as explicit verbalized rules of cultural institutions? This puzzling question has not been solved. Is it that random rules, adopted by chance, took root through their genetic success? But the effect only manifests itself through a long sequence of generations; it is hardly perceptible in individual experience. Norbert Bischof has devoted a painstaking study to this problem. He ends up with a metaphor: social rules, if general and persistent, must somehow "fit the landscape."

It is the landscape, formed by age-old geological events, that makes water concentrate into rivers and flow in a pre-established course and sets limits even to the chaotic turbulences of weather. How the architect perceives the landscape, or the landscape influences the architect, is still a mystery. Natural religion, that is, basic and common forms of addressing the supernatural, did not develop in a void but through adaptation to a specific "landscape," conditioned by the age-old evolution of human life. If there are certain predilections and attractions as well as fear and revulsion, feelings of needs shaped by biology, this complex may account for the stability of belief and concomitant behavior.

To use another metaphor: verbalized culture, transmitted by teaching and learning, may be called the "software" of humanity, easy to copy and to pass on regardless of its complexity. Still, the question is whether this software can be chosen and modified arbitrarily, or whether it remains bound to certain preconditions of the original programming, to patterns and effects left by the "hardware" that generated it.

The biological organization of the brain and other cybernetic systems of living beings existed long before verbalized culture; that it continues to influence our behavior and communication cannot be denied. Aboriginal programs of action, sequences, sense prompts imaginative dealings with the unknown within the common mental world, with displacement, disclaimers, shifting substitutes, and continuing indelible shock, assuaged or rekindled in turn.

Anxiety was bound to multiply at the human level, the level of a conscious representation of the world both near and far, of past and future. We may wonder how herds of African zebras and gnus are able to graze in the presence of lions. The lions will attack at some point, but only at the moment of immediate danger does an animal take flight; the others save their energy and go on grazing, and before long so will the animal that escaped the predator this time-what else can they do? But humans, as they consciously seek to control their environment, storing recollections and anticipating the future, cannot forget the presence of lingering lions. They can try to attack and to kill the predators in turn; they may succeed in creating a peaceable environment: this is one reason why many primitive cultures enjoy the symbols of killing. Yet man will fail in his attempts to remove all anxiety-arousing dangers from the world, especially as his violence meets with the violence of other men. Death remains the constant.

To shield mental life from despair and depression, which are factually lethal, there must be counter-forces, optimism, faith, or "opium." This may be the final necessity for sharing fictitious worlds which employ seriousness, nay terror, to counter worldly fears by fear in a hierarchy that reaches toward the absolute. "The highest fear is the fear of god," Aeschylus stated, and he was not alone in offering this message. "The fear of god drives out the fear of men."? As religious reality claims precedence over mundane reality, frightful dealings with death and killing gain overwhelming importance in the form of funerary and sacrificial rituals.

This apparently negative preoccupation of religion is just a foil for what is really at stake. A resounding voice in the self interpretation of most religions, diverse as they may be in other respects, is the longing for life. "Give us life, life, life" is the refrain of an African harvest ritual. *Ahura*, key word of the Zoroastrian religion, means Lord of life. Egyptian gods carry the sign of *ankh*, life, in their hands. Greeks were keen to find the meaning of life, *zelz*, in the name of their ruling god *Zeus*. The Living God is a basic concept in the Old and even more in the New Testament. "I am alive, and you will live," is Jesus' final message to his apostles. Gods grant life, gods protect life, just as their wrath can destroy life. The impetus of biological survival appears internalized in the codes of religion. Following this impetus, there is the postulate of immortality or eternal life, the most powerful idea of many religions. Even self-sacrifice is for the sake of eternal life. The negation of death presupposes the fact of death. The idea of the supernatural emerges within the landscape of nature. Religion's seriousness, so manifest in our feelings, reflects the hard rocks of the biological landscape, the dangers, limits, and the drive for the preservation of life. Religion keeps to the tracks of biology. Some extremists may happen to get off the tracks, but they will disappear unless they somehow make their way back.

Life's achievement is self-replication, self-regulation, and homeostasis. Hence the gods are the most persistent guarantors of order, the forceful regulators. Life needs seclusion for its own protection, building up cells to separate what is inside from the outside; the religious world view usually adopts some privileged center to keep in touch with the divine despite chaotic or diabolical surroundings. If reality appears dangerous or downright hostile to life, religion calls for something beyond experience to restore the balance. Catastrophes do happen; but in the widespread myths of the flood the endings always tell of the survivors preparing to offer sacrifice. Religion is basically optimistic.

