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Ecology and Religion

An ecological approach to religion requires taking into account the environmental constraints within which organisms seek to survive, as well as the fact that being an organism entails being subject to internal constraints, constraints which are themselves the result of adaptive evolutionary strategies. In this regard, a properly understood ecological approach, instead of contradicting, encompasses the methods employed by biologists, ethologists and cognitive scientists. From this unified perspective, religions can be understood as the attempts to come to terms with constraints of all kinds, a task that is accomplished by exploring through speculation and ritual the range of options open to the kind of organisms that humans happen to be. But because of the peculiar human capacity to use complex tools and symbols – including tools to make tools and symbols to refer to symbols – a peculiarity that necessarily entails establishing distance between oneself and the rest of reality, religions must also be understood as attempts to escape limitations of all kinds, an undertaking that involves the postulation of mystical or utopian realms. In either case, just as it happens with other natural processes, the symbolic systems, ritual practices or mystical speculations generated by human beings can metastasize, taking forms that instead of furthering survival go against it. In order to approach religion from an ecological angle, therefore, one needs to consider instances of adaptation as well as of maladaptation; indeed, given that adaptation is a process rather than a state, one must pay attention to the precariousness inherent in all social and ideological formations. At the same time, just as the reference to a precariousness that is "inherent" in social formations points in the direction of certain epistemological assumptions, we must assume that during certain long evolutionary segments – which for us human beings constitute reality *tout court* – certain constraints, which are also enablers, will be at work, underlying the "social constructions" that seem to have become the primary concern of social scientists.

In order to do justice to the role played by the ecosystem in the development of a religious system we must place societies along a continuum according to their size and complexity. At one end we find small-scale societies, whose symbolic-ritual systems seem to have emerged in order to insure the maintenance of an equilibrium between a human population and its ecosystem, while at the other we encounter vast social systems whose religions seem to play no ecological role whatsoever. As we shall see, however, even in small-scale societies it is difficult to discern the role played by religion in ensuring adaptation to an ecosystem, that difficulty being multiplied when one deals with large-scale, especially industrial, societies. The classical example of an ecological approach to the ritual system of a small-scale society is found in Roy Rappaport's *Pigs for the Ancestors*, a study of the ritual system of the Tsembaga of New Guinea. In this book, Rappaport postulates that the Tsembaga ritual slaughter and consumption of pigs – the *kaiko* – functions as a regulatory mechanism that keeps within acceptable parameters the size of the herd of pigs, the intake of animal protein, and the amount of female labor needed to take care of them as well as of the gardens. The picture presented by Rappaport is one in which all the components of Tsembaga reality – ecological, nutritional, social, military, ideological – constitute a coherent totality. But Rappaport's reconstruction has not gone unchallenged; for example, Lees has called attention to a passage of *Pigs for the Ancestors* in which Rappaport mentions how "men with few or no pigs responded to the talk of an approaching *kaiko* by attempting to acquire animals," thus questioning the regulatory function of the slaughter of pigs (Rappaport 1984: 159; see Lees 2001). Similarly, Gillison has pointed out the contradiction between Rappaport's report that "the Tsembaga have difficulty in *increasing* their herds" and his "assertion that Tsembaga herds spontaneously grow to unmanageable proportions" (Gillison 2001: 293). Whatever the results of the debates among New Guinea specialists, it can be said that *Pigs for the Ancestors* together with Rappaport's related studies provide a model for understanding the role of ritual in the creation and maintenance not just of social solidarity, à la Durkheim, but in the maintenance of the conditions within which human organisms can survive. It must be added that, despite its flaws, Rappaport's model has been used by a classical historian, Michael Jameson, to show the correlation between the Greek sacrificial calendar and the consumption of animal protein; Jameson having also shown the continuity of that correlation in Greece in recent times. The persistence of this connection shows that even in a modern society such as Greece one can still see the ritual calendar being involved, however minimally, in the regulation of meat

consumption – a significant fact, given that virtually all the meat consumed in the ancient Greek world came from animals that had been ritually slaughtered.

Besides studying the Tsembaga and making important contributions to the theory of ritual and sacredness, Rappaport proposed a distinction that is useful for an ecological approach to all symbolic systems. He distinguished between "cognized" and "operational models," the former referring to the systems of meaning created by human actors, whereas the latter refers to the organization of nature. Rappaport's thesis is that there is a correlation between the level of discrepancy between the cognized and the operational models and the degree of endangerment of the individuals who generate the cognized models. An example of a situation in which there seems to be a consonance between cognized and operational models, that is, of the way in which a symbolic system is used to regulate the relation between a human population and its ecosystem, is provided by the Tukano of the Colombian northwest Amazon, studied by Reichel-Dolmatoff. The Tukano understand the cosmos as having been designed by Sun-Father, an anthropomorphic divinity who created only a limited number of animals and plants, which he placed in a restricted space. These limitations have led the Tukano to understand the world in a manner that resembles modern systems analysis – that is, as a system in which the balance between them and their ecosystem is kept in place through the regulation of the input and output of finite energy. This circulation of energy is represented in sexual terms, in such a way that repressed sexual energy is believed not to have been wasted but to have gone into the ecosystem. In practical terms, this results in periods of sexual continence which, in combination with herbal oral contraceptives, keep the population size under control. Dietary restrictions, continence, and taboos involving menstruation are enforced during periods of hunting, thus reinforcing the regulatory function of sexual abstinence. The role of the supernatural realm in the regulation of hunting is shown by the role of the "master of animals," who jealously guards his flock, as well as by the shaman, who controls all the activities through which the population interacts with their ecosystem – hunting, fishing, gathering and harvesting.

Bali provides an example of a larger, more complex society, but one in which it is still possible to discern the interaction between religious practices and the maintenance of equilibrium between a population and its ecosystem. The ecological characteristics of the island require the construction and maintenance of a vast network of irrigation canals as well as a system to regulate the supply of water to the rice fields. Construction, maintenance and distribution of water to the rice fields are regulated by the "religion of water" (*tirtha agama*), a system constituted by a ritual calendar and by a number of hierarchically arranged water temples and shrines built at various points between the Crater lake and the places were the irrigation water enters the fields. It must be pointed out that unlike the cases studied before, in which the entire population lived in a homogeneous territory, one finds in Bali an ecologically determined distinction between forms of social organization: egalitarian forms are found in the highlands where wet-rice cultivation is not possible, and where, therefore, there is not much of a surplus to be extracted by the lowland nobility; in the southern plains villages, on the other hand, one finds a hierarchical organization that approximates to the Indian system. This distinction, and the fact that force or the threat of force were used to extract surplus from the peasantry, refutes the irresponsible claims advanced by C. Geertz, for whom Bali was a "theater state," where pomp validated power rather than the other way around.

Having found in Bali a ritual system which besides being intimately connected with the management of agriculture is also hierarchically arranged – both in terms of the hierarchy of water temples and of social hierarchy – we must now pay attention to the effects of stratification on the management of the ecosystem, a connection that is relevant insofar as both the management of the ecosystem and the division of society have generally required validation through non-falsifiables, that is, religious, means. Nowhere is the concern with hierarchy more visible than in India; and it is in India that a hierarchical system built ostensibly around the poles of ritual purity and impurity affects society and its ecosystem in a number of sometimes contradictory ways. In effect, the obsessive concern with the purity of one's body and of one's dwelling, but not of one's surroundings, contributes to the degradation of the environment. To complicate the situation, the fear of ritual pollution confers a degraded status on garbage collectors, making it difficult to institute recycling practices. A concrete example of the connection between mythology and health risks is provided by the belief in the purifying nature of the Ganges, a belief that leads worshippers to disregard the effects of human waste on the river, as well as the contaminating effects of the water on themselves. Being interested above all in maintaining their livelihood, the *pandās*, the Banaras pilgrim priests, contribute to the problem by resisting efforts to reform the traditional cremation practices. No less important in terms of its ecological impact is the role played by religiously validated views of gender. In furthering the desire for male offspring, these views contribute both to the subordinate position of women and to population growth, growth which in turns exacerbates ecological problems. It is instructive to contrast this reality with the claims made by Western enthusiasts and by purveyors of Oriental wisdom concerning the holistic view of reality supposedly prevalent in Asian societies. In reality, neither in the canonical texts nor in those that belong to the Tantric or Shakta forms of South Asian religion does one find evidence

of attempts to preserve nature. Similarly, contemporary everyday practices do not lead one to assume that modern Asian societies are better equipped than Western ones to achieve ecological balance.

The interaction of ecological and ideological constraints can be seen at work in the practice of intensive irrigation agriculture in the polities that emerged in Southeast Asia partly under the influence of Indian symbolic systems. For our purposes it will be sufficient to mention the case of the hydraulic Khmer cities, whose collapse appears to have been caused by the negative ecological consequences of the building frenzy ordered by the Angkor rulers, between the ninth and the eleventh century. According to Groslier, the sedimentation in the artificial lakes built between the ninth and the eleventh century impacted negatively the soil, leading eventually to the destruction of what had been the flourishing agriculture of these hydraulic states. The Cambodian situation demonstrates the consequences of the discrepancy between the operational models, constituted by the ecological conditions of the Khmer territories, and the cognized models, constituted by the Angkor rulers' need to legitimize themselves through the use of pan-Southeast Asian symbolic systems involving vast temple complexes. In the end, the ideologically motivated need to create ever larger reservoirs eventually outstripped what the land was able to sustain, leading to the decay of the kingdom. Ultimately, the Khmer situation seems to constitute the ecological amplification of the economic consequences of temple building encapsulated in the Burmese saying, "the pagoda is finished and the country is ruined."

Examples of this maladaptiveness can be found in many places. Indeed, in his critique of ecological approaches to religion, Walter Burkert has pointed out as a counterexample the ecological collapse of Stone-Age Malta about 2500 B.C.E., a collapse that may be linked to the proliferation of large temples during the Tarxien period – that is, to the fact that instead of using their resources in a productive way, Stone-Age Maltese diverted their energies into wasteful construction projects. Burkert is right in referring to the Maltese case; nevertheless, there is no necessary contradiction between ethological approaches such as the one he proposes and ecological ones, for one can still hold to an ecological/evolutionary perspective, as long as one is aware that, as pointed out at the beginning of this essay, adaptiveness is not a once-and-for-all affair. One must recognize, rather, that in order to be effective the practices through which a community seeks to maintain an ecological equilibrium need to be fine tuned; for if such practices become ends in themselves, they will eventually lead to situations which imperil the survival of the community in question. It is above all changes in the size of the human population or in the ecosystem that require changes in the mechanisms of adaptation: in either case, the disappearance of the situation that gave rise to a given symbolic universe and to their concomitant ritual practices renders such symbolic-ritual clusters ineffective or, worse, counterproductive. Often, the very success of religiously legitimized adaptive strategies may lead to population increase, which in turn leads to ecological degradation.

Related to population expansion and to the resulting increase in social complexity is the coming into being of a priesthood. The role of a self-perpetuating body of religious specialists is generally negative in terms of the maintenance of ecological equilibrium, as the members of the priesthood tend to be concerned above all with their self-perpetuation, whether this takes place as the result of sexual reproduction or of recruitment. Being above all ritual specialists, priests seek to protect the means that validate their existence. In the case of Buddhism, for example, the concept of merit (*punya*) led to the direct economic support of the monks, understood as "merit fields," and to the construction of temples, an activity that in some cases – Burma, for example – has been economically wasteful, while in others – China, Cambodia – has had negative ecological consequences. In this regard, insofar as the process can be reconstructed, the Maltese case constitutes but an extreme example of what happens when the means become the ends, or when "a people focus too much energy on worshiping life rather than sustaining it" (Malone et al.: 1993: 110) – to use the words of a team of archeologists engaged in studying prehistoric Malta.

We can also see the ecological dangers inherent in the concern with priestly self-perpetuation in the case of the Roman Church, an organization whose ritual specialists are concerned with defending at all costs their status as the necessary link between ordinary Christians and the supernatural realm. Torn between an understanding of reality as a god's creation and a deep unease toward anything that comes between the believers and their god, the Roman Church is condemned to claim the right to manage sexual reproduction and physicality in general, while at the same time having to reject those aspects of sexuality that come between human beings and their god. These contradictory demands force high-ranking celibate ritual specialists – popes, cardinals, and such – to stress the link between sexuality and reproduction, while being adamantly against sexual activities that are not aimed at reproduction, as well as, *a fortiori*, against homosexual behavior (this last aspect more in theory than in practice, as clerical recruitment may suffer now that the population pressures that led men and women to enter religious orders have disappeared in Europe).

The Roman Church's concern with the regulation of life can be seen in the speech the pope delivered to the Italian parliament in November 2002, a speech in which, among other things, Woytila spoke about a "birth crisis, demographic decline and ageing of the population"; he also referred to the human, social and economic problems that

this crisis will cause in Italy in the next decades. Given the fact of Italy's low birth rate, one can say that the operational model involving the relationship between the future retirees and the as yet unborn workers whose contributions will keep those retirees alive, coincides with the cognized model proposed by Woytila, a cognized model constituted by the Roman Church's understanding of sexuality and reproduction. Insofar as the sermon to the Italian people contained within the speech to the Italian parliament constitutes a non-calendrical ritual attempt to regulate human fertility, we can see Roman Catholicism still seeking to function in a way that is not substantially different from the manner in which religions have functioned in the pre-industrial world – that is, as a ritual/ideological mechanism that regulates the relations between a population and its ecosystem. In this regard, therefore, one can say that some manifestations of contemporary religion can still be understood in evolutionary terms as having been generated in order to regulate birth, copulation and death. We must recognize, however, that even though this particular call to increase fertility seems to be reasonable, such reasonableness is the exception rather than the rule, as the reproductive policies – that is, the cognized models – that constitute the Roman Church are counterproductive outside Europe.

What is significant about this obsession regarding sexual activities and gender roles is its archaic character, which in certain ways resembles that of the Tukano. In effect, this sacramental conception of reality presupposes the existence of certain natural constants, the most important of which is the distinction between maleness and femaleness and, in more general terms, the distinction between male and female realms, the latter having been charged with the preservation, and indeed multiplication of life regardless of the costs. Despite the reasonableness of assuming the existence of natural constants, one must recognize that symbolic systems that keep small-scale societies viable are unlikely to serve the needs of large-scale societies; therefore, the deleterious effects of this sacramental conception of reality in terms of population increase, transmission of diseases and ultimately of ecological disaster cannot be overstated.

While bodies of clerical ritual specialists try to regulate, generally without success, the sexual behavior of the citizens of modern societies, those same citizens are still subject to a successful ritual calendar that contributes to the mobilization of the process of demand, production and work. In contemporary Western societies the process is set in motion by the Christmas season, a period which, clerical protestations not withstanding, is built around giving and receiving rather than around the human birth of a god. It is true that given the complexity of the social system as well as the size of the economic sphere, the regulatory function of the Christmas rituals of giving is not as evident as that played by analogous practices in small-scale societies such as the Tsembaga or the Tukano. This is especially clear when one compares the frequency of meat consumption in tribal New Guinea or ancient Greece with that of modern Western societies. Whereas, as noted above, meat consumption among the former was regulated ritually, increased meat consumption during Christmas and Easter (and Thanksgiving in the United States and Canada) has a negligible effect in terms of the total intake of animal protein among the inhabitants of industrial societies. Nevertheless, it would be a mistake not to pay attention to the long-term environmental effects of ritually regulated social practices in large-scale industrial societies.

Besides considering the characteristics of a given territory, an ecological approach to religion must pay attention to weather patterns, especially to the effects of abrupt changes on people's religious attitudes. With this in mind, we can consider from an ecological angle developments as distant from each other as a drought that affected Greece in the eighth century B.C.E. and the witch-craze of the sixteenth and seventeenth centuries. Regarding the first, we can follow Camp's reasoning and recognize that the drought, famine, and epidemics that affected Athens in the late eighth century B.C.E. led to a renaissance in religious activity, prompted by the fears of inhabitants of the affected areas. (It must also be mentioned that an ecological explanation of Greek pederasty and of its surrounding mythology has been offered: according to Percy, Greek pederasty emerged in the seventh century as an attempt to control the population.)

Moving ahead more than two millennia, we can turn to the witch-craze, the madness that unfolded at the threshold of European modernity, pitting neighbor against neighbor. That religious and political elites were involved in fanning the fires is beyond doubt; that the anxieties produced by the Reformation and the Counter Reformation played a role seems beyond doubt as well; nevertheless, the evidence indicates that the accusations appear to have grown mainly from below, in many cases having been resisted by the ecclesiastical and civil authorities. Why the fear and the accusations then? The reasons for them are multiple, but there is one to which not enough attention has been paid, namely, that the accusations of witchcraft took place during the "little ice age," that is, at a time when crops, always at the mercy of the weather, were especially vulnerable. The mix of scarcity and fear resulted in neighbors being accused of stealing or damaging crops through magical arts. Rather, then, than the generalized fear chronicled by historians such as Jean Delumeau, what we encounter in late medieval and early modern Europe seems to be a situation in which the uncertainty that characterizes pre-industrial societies – the image of the limited good – was exacerbated by a world that, as Lehmann and Behringer have shown, in climatic terms had been turned upside down.

Far more radical than changes in weather patterns are those brought about by sudden natural disasters such as earthquakes and volcanic eruptions. The effects on the European intelligentsia of the destruction of Lisbon in 1755 by an earthquake are well known, but despite the contribution of that catastrophe to the process of secularization one may be hesitant to consider this episode as having much to do with an ecological approach to religion. On the other hand, the effects of the explosion that destroyed the island of Krakatoa in 1883 must be mentioned, for it seems to be the case that as the result of believing the disaster had been caused by their gods, the inhabitants of Java converted to Islam, making Indonesia the largest Muslim country in the world – this development being parallel, albeit extreme, to the surge in devotional activity in late eighth-century B.C.E. Greece.

The role of labor, cognition and ideology in the adaptive process must be mentioned to conclude this survey. Labor functions as the mediator between groups and their ecosystems, for it is through labor that human beings confront their milieu, in a process that involves accommodation as well as transformation. As we have seen, in small-scale societies both the accommodation and the transformation involve, besides physical exertion, the generation of etiological myths, symbolic systems, and ritual practices through which the interaction between humans and the rest of nature are made intelligible. Lest one be tempted to romanticize the pre-industrial world, or to reduce it to the realm of pure meaning, it must be stressed that in hierarchical societies the myths, symbols and rituals represent attempts to validate social stratification, attempts that are always backed by the threat of force. In the stratified societies that emerged in the Fertile Crescent, for example, the rise of organized labor gave rise to a mythology involving a stratification of the pantheon. Whether subaltern groups, generally condemned to acknowledge the reality of brute force, submit also to the ideological constructs that seek to transfigure that brute force is open to question; it can be said in fact that the symbolic systems constitute arenas within which various groups advance their interests.

If we turn to the cognitive capacities through which human organisms engage in the process of accommodation and transformation to which we have referred, we see that these cognitive capacities emerge, just as labor does, in order to allow the organism to satisfy needs. But it must not be forgotten that our cognitive proclivities are such that through the religions they make possible, these cognitive propensities serve also as the scaffolding for symbolic/ideological constructions. Among the former we find the tendency toward the personalization and indeed the anthropomorphization of natural processes; these include the personifications of staples, such as the "goddess of rice" in Southeast Asia, or the dema divinities, sources of tubers and grains, studied by Jensen. We find also the tendency to imagine mythical beings, such as the master of animals, who serve as the mediators between humans and their prey; the human counterpart of the master of animals is the shaman, a ritual specialist who has been postulated at the origin of kingship, thus establishing one of the connections between religious and political symbolism.

In the context of a discussion of the relationship among conceptions of supernatural beings, political organization, forms of production and ecological constraints, we can refer to a controversy among Swanson, Underhill and Simpson, in which Swanson maintained that monotheism tends to appear in societies which having developed settled agriculture, depend on grain as their most stable sources of food. He also claimed that there is a correlation between monotheism and political complexity, defined by the presence of a hierarchy of sovereign groups in a society. Underhill, on the other hand, emphasized the correlation between economic complexity and monotheism and claimed that although economic and political complexity have effects on monotheism, economic complexity has the stronger independent effect. Approaching the problem from an ecological angle, Simpson focused on the activeness or inertness of the subsistence raw materials on which small-scale societies depend, claiming that the degree of activeness or inertness can serve as predictors of the presence or absence of a high god. He observed that "active raw materials may provide contingencies that are best dealt with by the skilled and, sometimes, necessarily swift action of individuals and/or the concerted action of highly motivated individuals . . . active raw materials support and encourage pragmatic and autonomous role definition" (Simpson 1979: 306). This led him to conclude that a high god "can be viewed not only as the symbolic arbiter and judge of the world's events but also as the symbolic representation of the efficacious, pragmatic worker" (Simpson 1979: 307). He also approached the activeness/inertness continuum by focusing on the type of animal kept and the type of fauna hunted in a given society, concluding that there is a correlation between large and powerful animals and the belief in high gods. For our purposes it is not necessary to try to determine which of these positions is the correct one; it is sufficient to point out that by emphasizing the correlation between purposeful action and the belief in high gods, Underhill and Simpson, and to a lesser extent Swanson, explore the connections among ecology, work and conceptions of god.

As we can see from this controversy, the work required to survive within a set of ecological constraints gives rise to conceptions of agency and of rulership, human and divine; but as we also saw at the beginning of this essay, human peculiarities also give rise to the opposite: to the desire to give up one's agency, to flee the power of

the ruler, to erase the distinction between oneself and the world.

Gustavo Benavides

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Eco-magic

Eco-magic is the use of magical and spiritual techniques for the benefit or protection of the environment. Because practitioners believe that magic backed by practical action is more effective, eco-magic often supports conventional campaigning or is integrated with direct action.

Eco-magic is an evolving practice that blurs into a whole ideology of change. Starhawk, a witch and political activist, "offers the principles of magic not as a belief system . . . but as an alternative descriptive system that can help develop a psychology of liberation" (1987: 20).

Because eco-magic is a strategy that a conventional opponent will find hard to counter, it has been perceived as a tool of the oppressed.

Any magical tradition or technique can be adapted to eco-magic and practitioners work with a wide variety of deities. Rituals can be public or private and involve groups or single individuals.

Western eco-magic does exhibit certain distinctive qualities, notably the use of elements of performance, especially drumming, dance and chanting.

Certain symbols and mythic elements recur. The goddess Gaia and the Green Man appear frequently, as does the Dragon, symbol of Earth energy. Spirals and runic talismans (e.g., the Dragon Tree Rune) are common.

Eco-magic often involves working with the "Genius Loci" of the place, the Devas or Faery Folk, who are understood as teachers and allies in the campaign.

Since the early 1980s, a more theorized eco-magic practice has emerged from Western Paganism. Starhawk, Reclaiming and the Dragon Environmental Network have been influential in defining this practice, which I call "Dragon/Reclaiming eco-magic" (DREM).

Although generally eco-magic may include cursing or similar "aggressive" magic, DREM is nonviolent, nonhierarchical, and strives toward holistic solutions. It is a magic that works toward building reciprocal relationships between the natural world and humanity. DREM excludes Western magical traditions that use nature spirits instrumentally. Practitioners allege that such traditions emerge from a cerebral "dominator" ideology of control that is incompatible with an eco-magic that works in tune with nature.

Mainstream environmentalists are generally dismissive of spiritual perspectives while many spiritual people consider political issues to be irrelevant. Eco-magic, like liberation theology, explicitly connects the political and the spiritual: "the personal is political is spiritual" (Harvey 1997).

Eco-magic blurs the distinction between political action and magical ritual: "When political action moves into the realm of symbols it becomes magical" (Starhawk 1982: 169).

The Three Mile Island Memorial Parade (1980) combined a march with a large-scale public ritual. By integrating elements of a conventional political demonstration with ritual and aspects of theatre, magic and politics can merge seamlessly.

Although magical practice is normally secret, eco-magic rituals are often public. This serves a psychological purpose, boosting the morale of campaigners and unnerving the opposition. Public ritual is unusual in Western magic but is common in the tribal cultures that influence many eco-activists.

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Further Reading

Harris, Adrian. "Dragon Decade – A Personal Perspective on Eco-magic." *Dragon Eco-Magic Journal* (June 2001).