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In a striking development in the last decade, scholars have argued that religious belief, broadly construed, results from natural selection, or it is at least a by-product of evolved human nature (see, for example, the massive multivolume treatment edited by McNamara, 2006). These and other authors maintain that, because religious communities demand costly commitments by members, they eliminate the free-rider problem, allowing group members to trust each other. Kirkpatrick (2005) has argued that religion has been so singularly successful in the marketplace of ideas because belief systems tap into a wide array of evolved psychological mechanisms, including the need to seek protection and guidance from parents and other authority figures. Paralleling belief in supernatural agents with belief in the existence of others’ minds, Barrett (2004) argued that both forms of belief are automatic and nonreflective. Religious belief may thus be the default setting for our species.

In this crowded field, The Biology of Religious Behavior occupies a distinct niche: explaining religious behavior. The key questions are not why religion as an institution exists or why individuals believe in a supernatural God, but how to describe and explain behaviors that are recognizable across many diverse religious traditions. One obvious reason for focusing on overt behavior rather than belief is that behavior is directly and reliably observable and measurable. In chapter 2, Steadman, Palmer, and Ellsworth lay out the case for studying behavior, noting that scientifically investigating what someone believes is difficult when the validity of the object of belief cannot be empirically verified. Studying belief is just investigating people’s talk, which is too frequently unreliable. The authors refer to classic writings in the anthropological literature in which beliefs conflict with behavior, such as Palmer’s study of Maine fishermen who follow taboos in their work even though they deny believing in them.

There is a second, more comprehensive reason for organizing a research program around the behavior that accompanies religious commitments. Feierman wants to garner fresh insights into religion by using what he calls the biobehavioral approach, which draws on the methods of ethology. Ethologists study animal behavior as it naturally occurs in the organisms’ typical environments. Feierman explains in the book’s introductory chapter that ethologists begin their
For ethologists like Konrad Lorenz or Niko Tinbergen, the behavior might be a chick’s repetitive following of the first moving object it sees or its pecking the mother’s beak to signal her to regurgitate food. Once a behavior was described, Tinbergen posed four specific questions: What is the evolutionary history of the behavior? How does it develop from birth and across the lifespan? What are its mechanistic causes in terms of physiology or brain mechanisms? What evolutionary advantage does it offer?

Given its focus on behavior, *The Biology of Religious Behavior* contrasts in particular with the cognitive science of religion. Although the latter is likewise grounded in evolutionary principles, it draws not on ethology but on the findings of the cognitive sciences, with a particular emphasis on the symbolic, computational, and modular aspects of the brain’s functioning. Researchers in the cognitive science of religion seek especially to identify the mental processes that make belief in the supernatural normal and automatic (e.g., Barrett, 2004).

Feierman has organized the sections of the book to represent the five broad investigative steps advocated by Tinbergen, including the first one of observing and describing a behavior. Chapters in the first part of the book survey the diversity of religious behavior over historical time. In chapter 1, Sanderson emphasizes the importance of understanding religious behavior in its socioecological context. He includes a typology of cult institutions, which consists of the four major stages in the evolution of religion—shamanic, communal, Olympian, and monotheistic. He also reviews his own recent work showing that two variables explain 65% of the variance in stages of religious evolution: subsistence style and presence of a writing system.

The second part of the book is concerned with the next important step in the ethologists’ research program, the evolutionary history of religions behavior. Here Feierman reviews basic concepts from the ethological framework, such as coordinated motor patterns and releasers—behaviors or stimuli that initiated behavioral responses in others. He then presents his own research into a type of religious behavior that is well suited to the ethological approach: the making of oneself lower, smaller, or more vulnerable (LSV behavior), which would be called a fixed action pattern or, in Feierman’s terminology, a “coordinated motor program.” It occurs in conjunction with petitionary prayer as well as on other occasions when submission is expressed to a higher power or religious authority figure. It is evolutionarily related to the forms of LSV exhibited by most other mammals to indicate submission, or at least nonaggression, thereby deterring attack by a threatening conspecific. But once it was co-opted by humans for petitionary prayer to a deity, Feierman notes, this posture of submission was no longer accompanied by the fear grimace.

Tinbergen’s next question regards the developmental trajectory of the behavior. Two chapters address aspects of this broad question, one pertaining to religious development in childhood and a second to significant changes in adolescence. The first of these chapters, by Abelow, examines the role of childhood corporal punishment in disposing individuals to affirm a patriarchal god who metes out punishment and demands obedience. Abelow provocatively notes, “When the believer follows in Christ’s footsteps, he or she, in essence, steps into shoes that corporally punished children throughout history have already worn” (p. 101).

In the second chapter on religious development, Alcorta extends the principle of costly signaling to the initiation rites for adolescents, who thereby gain recognition as adults by their social group. To explain why adolescence is treated as a special time for learning a society’s sacred texts, Alcorta suggests that, just as childhood is the critical period for language
acquisition, so adolescence may be the crucial time for acquiring religious traditions. Like language, the learning of specific religious behaviors and beliefs may be grounded in an innate disposition that is most open during an optimal period—in this case, adolescence. At this time, maturing connections among centers for memory, abstract reasoning, and emotion dispose teenagers to become emotionally invested in what is salient in their environment. Alcorta argues that exposure to religious ideas in the context of music and emotionally meaningful group rituals can serve to rewire the adolescent brain in such a way that religious symbols and rituals acquire special significance and become integral to what is meaningful in the lives of these emerging adults.

In her mostly compelling proposals, Alcorta may overemphasize the importance of emotional reorganization and underestimate the likelihood that the maturing abstract reasoning ability of adolescence is the primary reason why societies reserve this period for the cognitive chores of reading and memorizing sacred texts. But her intriguing analogy with language, mentioned by others in this volume, may be even closer to target than she suspects. Recent surveys of why adults believe in God repeatedly demonstrate that family upbringing is the most important factor. It seems plausible that childhood is also the critical period for acquiring the basic values and foundational thinking patterns of the culture that will make the religious beliefs of the community seem natural. The teen years, then, may have special significance for learning the specific textual knowledge that adolescents will use as adults, with music-enhanced group bonding helping them shift their primary allegiance from parents to the non-kin of their larger social group.

Ethologists also inquire into the mechanistic or immediate causes of behavior. The next section of the book, “Causes of Religious Behavior,” consists of three chapters that loosely invoke brain–behavior relationships. In their provocative chapter on the brain’s role in religious adaptations, McGuire and Tiger observe that humans have the ability to choose behaviors, environments, and situations that reduce or minimize stress. These elements include not only rituals, which are calming because of their predictable elements, but also aesthetically designed places of worship and religious gatherings with caring others, all of which adaptively soothe the brain and enhance fitness.

In his chapter on the mechanistic causes of religious behavior, Oviedo speculates that such behavior may be internally guided by religious feelings and needs. By “internally guided” (referenced with the author’s quotation marks), Oviedo says that he means “not wholly dependent on Darwinian evolution by natural selection for their existence” (p. 141). According to Oviedo, there has been growing dissatisfaction with the adequacy of natural selection as the primary mechanism of evolutionary change. He suggests that theorists are seeking “liberation from the old boundaries and former ways of looking at religious behavior, which were constraining its evolution into the narrow mold of natural selection” (p. 142). Oviedo advocates a new perspective that is “more emergentist (belief in emergence, particularly as it involves consciousness) view, avoiding a too reductionist stance, but keeping, nevertheless, the scientific standard” (p. 142). The syntactic contortions here indicate that Oviedo is moving gingerly, but it is hard to discern what alternative to natural selection he is proposing. Oviedo could be simply advocating the well-known proposal that advanced cognitive abilities freed humans from some of the strictures of Darwinian evolution, the standard approach of the social sciences before the advent of evolutionary psychology. According to this view, “internally guided” means that religious behaviors are like other cultural behaviors—algebra, writing
systems, astronomy—that draw on symbolic reasoning and other intellectual capacities of our large brains, although I note that Ovideo does not make this comparison himself.

The last section of the book takes up Tinbergen’s final point of analysis: identifying the adaptiveness of the target behavior. Two of this section’s four chapters are on standard topics in the evolutionary psychology of religion: cooperation and punishment as ways to enhance group functioning. Jaffe and Zaballa present computer simulations in their chapter, “Cooperative Punishment and Religion’s Role in the Evolution of Prosocial Altruism.” In the chapter “Religious Behavior and Cooperation,” Yamamoto and colleagues present an original experiment with Evangelical Christians and Atheists that was designed to test how religiousness influences cooperation with in-group and out-group members. The other two chapters present relatively fresh approaches, or at least ones that were novel to this reviewer. Price begins his chapter on the adaptiveness of changing belief systems by discussing a psychiatrist’s observations of patients who shared the delusion of being prophets. This quirky beginning was unsatisfying and its fit to the volume themes was unclear, but then late in the chapter Price unleashed his provocative idea that prophets and their followers are what biologists refer to as dispersal phenotypes. Many species have both a maintenance phenotype, which is adapted to the environment in which it is born, and a dispersal phenotype, which “is programmed to move to a new area and that often has the capacity to adapt to a new environment” (p. 185). He notes that individuals who are able to leave their habitat and colonize a new territory would often have a tremendous reproductive advantage.

Goldberg’s chapter, “The Adaptiveness of Fasting and Feasting Rituals: Costly Adaptive Signals?” is similarly fresh and thought provoking. Both fasting and feasting are costly and thus can elicit admiration from others; they may also indicate commitment to the group or to an ideology. Goldberg argues that, because fasting is not costly for wealthy individuals, who may be plump or in good health when they choose to fast, such persons should signal group allegiances by ostentatiously donating food. For poorer or impoverished individuals, fasting demonstrates the ability to sacrifice health and to withstand significant distress.

Some of the chapters work less well than others. As a case in point, Magnusson’s attempt to draw correspondences between repeating biological patterns such as DNA and the hives of social insects, on the one hand, and repeated patterns in “long and standardized verbal strings” such as the Holy Bible and the Koran, on the other, is both unconvincing and not clearly relevant to the ethological approach.

Feierman’s concluding chapter succeeds in filling in gaps and even clarifying some aspects of the preceding chapters. Beyond summarizing what came before, he reviews areas pertinent to the biobehavioral approach that had not been addressed, such as the newly emerging field of neuroethology. He also provides some provocative observations about the topics addressed previously. A key adaptive function of religion, for example, is widely believed to be enhancing group cohesiveness. Although costly commitments can serve that end, as originally proposed by Sosis (2006), it is only in modern religions that texts emphasize in-group cooperation. Feierman notes that the gods of ancient societies had little interest in how humans treated one another.

Although the chapters vary in their innovativeness, relevance, and informativeness, on the whole they admirably demonstrate how the ethological paradigm—investigating naturally occurring behavior in its typical environment—can shed new light on religion’s evolutionary origins.
REFERENCES


