

Book Review

Religious Belief: An Evolved Behavior

A review of Jay R. Feierman (Ed.), *The Biology of Religious Behavior: The Evolutionary Origins of Faith and Religion*. ABC-CLIO, LLC: Santa Barbara, CA, 2009, 301 pp., US\$49.50, ISBN 978-0-313-36431-0 (hardcover).

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When and where our species developed religion we don't yet know. The social maturity that might have supported religion is believed to have arisen with Cro-Magnon man, who flourished in Europe and Asia 35,000-20,000 years ago, alongside Neanderthal. The genetics and appearance of Cro-Magnon were like our own; Neanderthal was not. Cro-Magnon was well equipped with the artifacts: clothing, artistic jewelry, tools and artifacts, and burial of the dead. There is something else: elaborate paintings, mostly of large hunted animals in caves located in France and Germany. Caves are pitch-black places, yet these paintings are stunningly accurate, which required high quality "candles." On the current count, there are more than 2,000 depictions in dozens of caves.

Jay R. Feierman's collection of essays, 15 in number, is a splendid effort to show how religion evolved and how it creates the identity of religious communities. It also explores the psychological mechanisms of religious belief. Four essays attend to the description of religious behavior, and four more to its adaptiveness. Three essays investigate the causes of religious behavior, and two describe the development of religious behavior in the individual. One essay, "The Evolutionary History of Behavior," authored by Feierman, is his effort at a comprehensive perspective on religion. His evolution mechanism is (of course) natural selection. The key religious attribute is submission in the sense of Make-Myself-Small, well illustrated by the Muslim prayer posture (pp. 76, 81). Prayer, he proposes, is the origin of religion (p. 81). Dominance and submission, Feierman notes, are a behavior expressed by widely across vertebrate and invertebrate species; hence they would have been well established in *Homo sapiens* prior to its specialization as prayer. What were the conditions that prompted selection for prayer? The stimulus of reproductive behavior would have been among them. Religions stipulate extensive rules for mating; consequently we should hope to find the change in mating that evolved prayer as religious submission. But there is very little regularity in the mating practices and rules of religious groups, which range from celibacy to polygamy. There is also marked variation, within and between religions, in the number of offspring encouraged. Where, then, are the data showing that populations that developed prayer behavior out-reproduced those

that did not, because of the reproductive benefits of prayer? Or to put it another way: the hypothesis that prayer is beneficial implies that religious groups out-populate non- or less-religious groups. Yet there are religious groups that control their population to small numbers. What is the evolutionary advantage in this case?

Let me turn now to three essays grouped under the heading, the causes of religious behavior. Two of them, Michael McGuire and Lionel Tiger's "The Brain and Religious Adaptations" and Burgess C. Wilson's "Mirror Neurons, Culture, and Spirit" are written by psychiatrists. The third, "Is Religious Behavior 'Internally Guided' by Religious Feelings and Needs?", is authored by Lluís Oviedo, a theologian. McGuire and Tiger examine the neurology of an effect called "brainsoothing." Brainsoothing can be stimulated in many ways—relaxing, taking a holiday, visiting a spa. Its adaptive outcomes include improved health and longevity. It is needed to off-set or undo the effects of stress that trigger biochemical reactions that prepare a person to cope. This happens thanks to a series of biochemical reactions that release hormones which prime the body for action and muscle tension. Should the stress persist, an aversive condition involving nervousness, fear, sleeplessness, and emotional instability occur. Beliefs are cognitive-emotional systems that organize thought and behavior. Since stress is a continuing condition for humans, one response is religious belief that counter-acts stress by brainsoothing that substitutes happy thoughts for stressful predicament. How is this known? By EEG (electroencephalogram), PET (positive emission tomography) scans, and fMRI (functional magnetic resonance imaging). Religion is not the only brainsoother. Positive beliefs on any topic activate the prefrontal cortex. But "what is special about religion is its predictable soothing influence on brain activity and chemistry as well as its improbable ubiquity" (p. 128). Critical to this analysis are the well-known effects of the brain hormones that change and affect feelings: serotonin, dopamine, norepinephrine, and, oxytocin. Since the manipulation of these hormones achieves therapeutic benefits that are well known, McGuire and Tiger apply these findings to religious rituals and beliefs. They report that "many rituals are accompanied by an increase in cerebral blood flow to the amygdala and prefrontal cortex and enhanced cognitive focus" (p. 131). The beneficial effects of rituals are short-lived; hence their repetition is a key ingredient in religious practice. Religious belief, by contrast, provides a comprehensive or holistic overview of the dilemmas of life, death, and individual or small group disasters. McGuire and Tiger report that "pleasant beliefs of the afterlife correlate positively with improved mental health" (p. 133). How fear of eternal punishment factors into this scenario isn't discussed

Wilson's essay on mirror neurons and their relation to religion, or at least to animism, assesses the extensive literature. The "mirroring" function is that the neuron fires when the individual acts and when it observes the action performed by another (it was discovered in macaque monkeys in the 1990s). It seems that the system provides the mechanism for perception-action integration. Thus, mirror neurons facilitate understanding the actions of others, and learning new skills by imitation. It is critical to Wilson's argument that mirror systems simulate observed actions, and thus contribute to the "theory of mind." That is, "the individual arrives at a mental attribution by simulating or reproducing in his or her own mind the same state as the target's . . ." (p. 158). This process is automatic and unconscious. However, it occurs within belief systems that convert the unconscious attribution to belief in spirit, which is "the biological basis for animism" (p. 158). Non-human objects to which agency has been attributed elicit prosocial behaviors that in turn promote survival. However, Wilson reminds us that significant cultural differences must be considered. Contemporary secular culture "views

animism as foreign or illogical . . . and may reduce or inhibit inanimate form's capacity to activate the mirror neuron system" (p. 163). Nevertheless, since activation of mirror neurons can provide "feelings of spiritual connectedness" so that "there arises the felt experience of an all-powerful ever present spiritual being, underpinning and promoting monotheistic religion" (p. 163). I'm not sure what to make of this. Christians and Muslims number in the billions. Add Buddhists and Hindus, and one is reminded that our secular culture mingles with a variety of specific religious beliefs, not merely a monotheistic preference. More important still is that our secular culture fictionalizes science in a high prestige industry, and in this genre, the animation of machines is common place, as we see in *Star Wars*, the *X-Files*, *2001: A Space Odyssey*, and in the Harry Potter films. Wilson's claim that Western children's tendency to animation "is lost by adulthood" clashes with these facts. A piquant counter-example is the transformation of a computer (Hal 9000) into a person and back again into a machine in Stanley Kubrick's *2001*. More generally, the IT industry fervently promotes the integration of the latest machines with new owners. How is this related to evolution? Wilson believes that religion, primitive and advanced, is a high cost commitment and accordingly, if nature were efficient, an inhibiting mechanism would have evolved (p. 165). However, Wilson believes that a more detailed consideration of primitive cultures' interaction with their natural environment turns the evidence around in favor the animistic tendency (p. 167). This conclusion is obtained by a comparison of the natural selection efficiency of two hunter-gatherer cultures in Mexico (p. 165). Is this sufficient, since there are thousands of now vanished hunter-gatherer cultures? To identify just what in their respective ecological niches negated their fitness lies well beyond accessible data; under that condition we cannot demonstrate the evolution of religion.

Luis Oviedo, a professor of theological anthropology at the Catholic university in Rome, has written a concise summary to show that religious beliefs and behaviors cannot be reduced to evolutionary explanations, especially to natural selection. His point of departure is not an appeal to emotional-cognitive traits of religions, but to the expansion of recent evolutionary thought beyond the reductionist paradigm. A classic statement of this position is Jerry Fodor's article, "Against Darwinism," but other authors he cites include Joan Roughgarden, John Dupré, and Anthony O'Hear. Once the reductionist perspective is exchanged for the more comprehensive perspectives of the authors just mentioned, Oviedo speaks of religion as universal and adaptive, driven by the instincts of moral solidarity, and resistance to fear of death. That however is only the beginning, for he introduces "internally guided" religious feelings that evolutionists tend to avoid: wonder, forgiveness, internal peace, love, hope, transcendence (p. 150). These internal feelings are expressed in the monumental art created by religions, which was first visible in Cro-Magnon cave paintings. Oviedo outlines three procedures for testing his hypothesis of the mind's resistance to reductionist explanation (pp. 152-153). But there's something missing: the "Them and Us" distinction, or more generally, conflict and war. Are religious wars (and lesser conflicts) independent of the evolutionary struggle for existence? Given their scale and frequency, their independence would negate an evolutionary theory of religion. This problem need to be paired with another: Oviedo doesn't discuss the relationship between reproductive systems within and between religions and their evolution, even though this is critical to an evolutionary analysis. The available data are probably not sufficient to answer these questions.

My review has discussed only four of 15 very thoughtful chapters. My apologies to the undiscussed authors, but let me use that apology to urge readers to read Feierman's outstanding edited volume.