Program of Dialogue on Science, Ethics, & Religion

Summary
Darwin's Cathedral - Evolution, Religion and the Nature of Society

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The Mormons claim the beehive as a symbol. In Japan and China monasteries are constructed in the shape of the sitting Buddha. These two metaphors are among many that equate a human religious community with a single organism.

In the scientific world such a metaphor fell out of favor for a long while, but it is once again gaining respectability. According to David Sloan Wilson, Ph.D., it is now credible to consider evolution as taking place not only through mutation and selection at the individual level but also through adaptations at the level of social groups.

"What before seemed the ultimate in naiveté is now a solid dot on the scientific radar screen," asserted Wilson in a November 12 lecture sponsored by the Dialogue on Science, Ethics, and Religion (DoSER), a program of the American Association for the Advancement of Science (AAAS). Dr. Wilson is professor of biological science at Binghamton University and author of *Darwin's Cathedral*, a new book that explores in-depth an evolutionary theory of religion.

In the latter half of the twentieth century, Wilson explained, an "age of individualism" reigned which disclaimed any role for society. He quoted the social psychologist John Campbell, who asserted that groups and social organizations "have no ontological reality" and are only "convenient summaries of individual behavior." Wilson also cited a relevant quotation from Margaret Thatcher: "There is no such thing as society. There are individual men and women, and there are families."

Discoveries in evolutionary biology have reasserted the critical role of social groups. It is now understood that the major transitions in evolution have occurred through "merger events" at the group level: individual genes evolving into networks of genes (chromosomes); gene networks evolving into bacterial cells; bacterial cells evolving into eukaryotic cells (cells with a nucleus); cells evolving into multi-cellular organisms; and multi-cellular organisms evolving into societies.

Such findings are "deliciously ironic," Wilson said. "If individual organisms are literally the social groups of past ages, the concept of social groups as like organisms becomes more plausible." He noted that social insect colonies are now acknowledged by scientists to be group-level organisms, since most traits in social insects evolve because they benefit the colony relative to other colonies. The question thus deserves study; do

humans also evolve at the group level? According to Wilson, they do, primarily through the force of moral systems such as religions.

When groups are considered *as* organisms (as opposed to groups *of* organisms) the problem of cheating has to be considered, Wilson said. Cheating is behavior that benefits individual entities within the group at the expense of others in the group and the group as a whole. "Cheating represents a conflict between levels of natural selection," Dr. Wilson stated, adding, "Natural selection within groups is at best insensitive to the welfare of the group."

To illustrate this point, Dr. Wilson described a chicken breeding experiment conducted at a commercial poultry farm where chickens live in caged groups. The experiment sought to select and breed the best egg layers. This was attempted in two different ways: by selecting the best egg layer within each group and by selecting the best group of egg layers from among the many groups of chickens.

Breeding the former led eventually to "psychopathic" chickens: chickens so selfish and aggressive that they plucked each other's feathers out and were too hostile to concentrate effectively on egg laying. Breeding the latter led to "Mr. Roger's" chickens: peaceable, productive egg layers. "The chicken experiment shows that what seems to be an individual trait is in fact profoundly a social trait," Dr. Wilson stated. "To get an adaptive society we need to select at the societal level. That's what these experiments show."

Dr. Wilson noted that group-level selection does not exclusively favor overt altruism or self sacrifice. It also favors social control mechanisms that prevent cheating. "Between-group selection does not eliminate conflict so much as elevate conflict up the biological hierarchy" from within groups to between groups, he said. This would account for religion's "dark side," that is, the competition and conflict that can exist between faith groups.

Wilson asserted that the question of social group evolution can be studied scientifically, borrowing hypotheses from evolutionary biology. For religion, these are the hypotheses:

- Are the individual traits fostered by a religion adaptations that evolved by natural selection? If yes, did they evolve by group selection or by individual selection? That is, do they benefit the entire community or is there "fleecing of the flock" by a privileged few?

- Is the religion operating as a parasite – akin to the AIDS virus, flourishing to the detriment of both individuals and groups?

- Is the religion a non-adaptive byproduct of evolution? An example would be a religion that promotes allegiance to kin groups, which may be maladaptive in modern societies that are not organized by kinship. Religion may also be a

byproduct of economic imperatives; this is known as the "rational choice" theory of religion.

To test each hypothesis, Dr. Wilson used a randomized process to select religions for study from a 16-volume encyclopedia on religion. He derived evidence from the works of social scientists and religious historians. He defended the legitimacy of this evidence, saying that such scholars "have been studying religions with the same care and integrity as the early naturalists."

His survey included hunter-gatherers, Calvinists, worshipers in the water temple system of Bali, Jews, early Christians, and several other religious communities. He examined specific traits of each religion such as how people are instructed to behave towards each other, how their beliefs in a God reinforce their behavior towards each other and towards others outside their religion, and how their social practices prevent cheating and support collective action.

The results of his research strongly support the group-level adaptation hypothesis, Wilson maintains. As an example, he described Jainism, an Indian religion that advocates extreme ascetic practices. Jains strain their drinking water, wear masks to strain the air, and carry brooms to sweep aside living creatures from the ground they step upon. Some Jains literally fast themselves to death. "If any religion was to put a challenge to my thesis that a religious group is adaptive for its believers, it is this one," Wilson asserted. Yet it turns out that the ascetic Jains are a tiny faction of a much larger, interdependent religious community, which includes some of the wealthiest merchants in India. "These ascetic practices are not just superficial, they are integrally involved in causing this religious community to be ultra-cooperative."

Dr. Wilson concluded his remarks by noting that the theory of group evolution affirms religion. It offers an explanation for morality, he said, and it suggests that most religions result in "a human community that simply works better than in the absence of the religion."

Cynthia S. W. Crysdale, PhD., associate professor of religion and religious education at the Catholic University of America, provided a response to Dr. Wilson's lecture. She stated that the paradigm proposed by her colleague contrasts to the "commonly accepted narrative" in which "religion is at best a commodity exchanged for individual benefit and at worst a matter of deception and superstition." In Dr. Wilson's paradigm, she said, "religion is good for you or, more importantly, good for your group."

By this theory, religion is not so much about the individual experience as it is about the group phenomenon. "Everything interacts for the good of the whole, and to merely focus on one unit within the whole is to miss the true picture."

Also by this theory, religion is adaptive and so "religious symbols, belief systems, moral codes, ritual practices, economic demands – all these serve to monitor intra-group conflict, towards the ends of ensuring total group survival and reproduction."

According to Dr. Crysdale, the theory is useful to theologians who seek to understand how their faith has been shaped by cultural and historical experiences over time. On the other hand, she noted, the theory "explains *away*" religious experience. She asked, "Does this paradigm give such an exhaustive account of the rise and fall of various religious groups that 'God,' or at the very least 'self-transcendence,' falls by the wayside as a quaint or anachronistic or primitive concept?"

Dr. Crysdale emphasized that she believes "there is such a thing as authentic religious experience of the ultimately transcendent. Psychological forces, communal constraints, biochemical factors – surely these are involved. But such factors do not preclude the real action of a divine agent." The term for this in Christian theology, she added, is incarnation: "God always manifests herself concretely in the embodiment of creatures in this world." And, she added, "that such creatures gather together in organism-like groups does not preclude the idea that God is thus present in such groups."

Crysdale noted that her colleague alludes in his book and lecture to "the otherworldly nature of religion," but his theory fails to account for this characteristic. In his book, for example, he refers to the four gospels of the Bible's New Testament as a "distortion" of the historical truth. Are they a "distortion," she asked, or did they evolve through the intervention of the Holy Spirit, to create a narrative that holds meaning for later generations of Christians?

Crysdale also questioned what she called the "latent reductionism" in Wilson's theory. Evolutionary biology is concerned with success as measured by survival, she noted. "There are many religious groups that survive and reproduce, that are thus adaptive, but which we would not necessarily consider authentic."

Dr. Crysdale said that as a religious thinker, she believes that human purpose transcends mere survival. "From my perspective, no matter how sophisticated our theory of group adaptation, we have a reductionist paradigm that does not do justice to the whole of human life."

Summary composed by Catherine Baker, Science Writer