

Evolutionary and Religious Perspectives on Morality

REFLECTIONS ON THE EVOLUTION OF MORALITY

by Karl E. Peters

Abstract. In my summary lecture at the IRAS 1997 Star Island Conference on the Evolution of Morality, I reflected on the thinking of other speakers in light of my own personal experience. My remarks were organized around five questions: (1) Do worldviews matter, and how do we decide if some matter more than others? (2) What does it mean to be moral? (3) What is the relation between biology and culture? (4) How does a scientific, sociobiological description of how we have become moral fit with our own personal quest for meaning and moral guidance toward richer and fuller lives? (5) How do we test evolutionary views of the biological conditions of morality scientifically?

Keywords: epistemology; evolution; morality; scientific testing; sociobiology; worldviews

In his opening remarks at the IRAS 1997 Star Island Conference on the Evolution of Morality,¹ Michael Ruse posed two questions. The first was, “Does biology matter?” Does biology matter when it comes to talking about matters of morality? Does it help us understand ourselves as moral creatures? The second was, “How do we determine whether or not biology matters?” We could, he suggested, look for common threads of morality across cultures. If we found such common threads amidst cultural

Karl E. Peters is Professor of Religious Studies at Rollins College, Winter Park, FL 32789. He also is Coeditor of *Zygon: Journal of Religion and Science*. His e-mail address is KPeters909@aol.com. This paper was delivered at the Forty-fourth annual meeting of the Institute on Religion in an Age of Science, Star Island, New Hampshire, 26 July–2 August 1997.

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variation, we might assume that biology has some input into morality. However, if we found our moral codes to differ so much from one another that circumstances peculiar to particular societies appear to have played a significant role in shaping moral codes, then perhaps biology does not matter so much. Near the end of this essay, I'll come back to Ruse's second question by suggesting how we might test biological, evolutionary hypotheses about the origins of human morality.

In this essay I shall be using a personal approach. As I was listening to other speakers at the conference I asked myself, "Karl, does this apply to you? Can you understand yourself in these terms?" After all, I'm a human being, as is each one of us. So if we are talking about the evolution of morality, if we are talking about the biological bases of morality, if we are talking about moral sentiments or social sentiments, if we are talking about cultural codes, all of this is filtered through our own brains and in part shapes our own self-understanding. So I want to ask myself, "How do I become moral? How have I become moral?"

For a long time while I was growing up, I assumed that it was my upbringing that shaped me as a moral human being. I learned things from my parents, teachers, and minister. I suppose this is true for most of us. We are somewhat aware that we are learning morality from others in our society as they influence how we behave. As adults we begin to reflect on those early influences.

My reflections were stimulated by a book titled *The Biological Origin of Human Values* by George Edgin Pugh (1977). Although he is not usually recognized as a sociobiologist, Pugh addresses the same questions. This was the first book I read that seriously tried to account for human values in biological terms. Pugh wrote in ways similar to what we have heard this week. He discussed internal motivators—emotions, drives, feelings—in what he called our motivational system. He described these as "primary values," which had biologically evolved. Some express our own interests, especially in self-protection. Others promote social cohesion and get us interested in thinking about what is good for people in our own society. Still other primary values are intellectual motivators such as curiosity—drives to seek some kind of knowledge or understanding.

When I read Pugh's book, even with my background and my assumptions that I had learned how to be moral solely from culture, I kept saying to myself, "Oh, that's why I'm like that! That's why I do that!" It was a revelation to me personally to read biological, evolutionary explanations about how I became moral and why I tended to behave the way I did. After this, I began to take seriously a sociobiological, evolutionary perspective that suggested that culture did not have all the answers. It wasn't just culture; it was at least in part biology that shaped how I became moral. So, based on my reading of books like Pugh's and on past IRAS conferences, such as the one on E. O. Wilson's sociobiology (*Zygon* 1980), I have finally

come to say that I believe both biology and culture—the latter through family, school, and church—have helped shape me as a moral creature. This is my starting point—it is “both-and.”

I also realize that my particular experiences of culture have shaped my view of the world. I had a liberal Protestant upbringing and went to seminary. However, my deep beliefs were shaped by other experiences of culture. In particular the public school system of Wisconsin, my father’s being a mechanical engineer, and college courses in biology and philosophy have shaped me to think that “matter matters.” Matter matters! In other words, my cultural experience contributed to my having a materialistic, scientific, empirical view of the world. One of the reasons Pugh’s book was so successful in helping me understand myself was that I had been culturally conditioned to accept its scientific, evolutionary portrayal of the origin of human values.

This leads me directly into the outline of the rest of this essay, for now I am beginning to talk about worldviews. I had a certain way of looking at the world that may have predisposed me to think that my morality was not just learned but that it also was biologically based. So I’m going to ask the following questions and use them to try to offer an interpretive summary of what other speakers have said.² My questions are: (1) Do worldviews matter? Do they all matter equally? Are some worldviews better or worse than others? How do we decide? (2) What does it mean to be moral? Some speakers have understood being moral as being responsible. Others have suggested it is being a cooperative part of society. Still others have focused on the question of moral motivation. (3) What is the relationship between biology and culture? I’ve heard at least three alternatives. Some believe that the relationship is antagonistic, others propose that it is continuous, and still others suggest that it is transformative. (4) If we do have a scientific description of how we have evolved to be moral creatures, how does this fit with our own personal quest for fulfillment in life? This is a core issue in science and religion. (5) Finally, I’ll return to Ruse’s basic question from his opening remarks: How can we scientifically test ideas about the biological evolution of morality? I will review some scientific ways of testing and will suggest some nonscientific ways as well.

WORLDVIEWS

By the time I began to think about the kinds of questions we are discussing, I had come to have a particular perspective that helped me to interpret my experience. Growing up in the kind of American society that many of us at the conference grew up in, I developed a naturalistic, materialistic, evolutionary perspective that grounded me in the belief that matter matters. This belief predisposes me and others to say that biology does make a difference. Being so predisposed reminds me of something that Ann

Pederson, IRAS vice president for religion, said a few years ago in one of our conference planning meetings: “Where you stand determines what you see.”³ The kind of conceptual framework you bring to an enterprise helps determine what you find. I think Robert Sussman also points this out in his analysis of Richard Wrangham’s book *Demonic Males* (Wrangham and Peterson 1996). Sussman shows that Wrangham’s idea of “demonic males” is shaped more by cultural myth than by scientific evidence. In other words, a worldview, or at least a particular feature of a worldview, is operating in Wrangham’s thinking.

Mary Evelyn Tucker began her talk by speaking about the worldview assumptions of Confucianism. This ancient Chinese tradition tends to see things as nested in a circle nested in other circles—the individual in the family, the family in the wider society, the wider society guided by a ruler under heaven and earth. This worldview also sees things in terms of cycles—patterns of birth and death and rebirth, yang and yin, for example. Further, there is an assumption that human nature is good. After much early debate, Mencius established the goodness of humanity as the predominant line of thinking in the Confucian worldview. Tucker then went on to show how the particular moral code of Confucianism is expressed in the context of this worldview.

Anindita Balslev did much the same thing, setting Hindu morality in the context of basic pan-Indian philosophical conceptions. These include the ideas of no absolute beginning to the world and of *karma*, the impersonal law of reaping what you sow. Karma, moral law, is a part of natural law, she said, impersonal and unyielding. Through transmigration and reincarnation, you can expect to reap the consequences in future lives of your own actions in this life. In the discussion Karim Ahmed called this law of karma into question when he asked whether the idea of karma has any forgiveness in it. Balslev responded by saying that forgiveness is a part of the moral code of Indian religious philosophies. However, I think Ahmed was asking a more foundational question. It was not just a question of whether forgiveness is a moral expectation, whether we *should* forgive. For a Muslim the question of forgiveness reveals, I think, a deeper question than just how we should conduct our lives. This is because the notion of forgiveness points to the fundamental nature of things, the nature of things that says that Allah is all compassionate and merciful. The very foundation of things is forgiveness. Here we have an instance that worldviews from different cultures or traditions may clash at some fundamental level.

Philip Hefner also illustrated the importance of worldviews when he spoke about how religions present an image of what human nature “is” and how these images give rise to general “oughts” regarding how we should live. He alluded to the eschatological worldview of the New Testament, to how in early Christianity morality was embedded in the notion of the coming kingdom of God. In the first century, the coming of the kingdom

was expected in the lifetime of individuals then living. Hefner, as a liberal Christian, however, broadens it to the general idea of a vision of what we all ought to become as we reach toward human fulfillment. This is a view of the way things are in an ideal sense, containing a vision that we become fulfilled as we come to realize the image of God that is in us. For Christians, Jesus is an exemplar of this image of God, of love, of living in solidarity, empathy, and service.

This notion—that a worldview about how things are has a future to it, and implies becoming—is what some speakers have referred to as *soteriology*. Soteriology is a Greek word, originally applying to Christianity. More broadly, it indicates that in some cultures a worldview may be salvational, not just describing things as they are in the present but offering a framework that tells us how we ought to become. However, when we look at the soteriological aspect of worldviews, we might find a difference, for example, between a Christian worldview and the Buddhist outlook as to what fulfillment means. Is it fulfillment in a loving community in a peaceable kingdom, or is it fulfillment through *moksha*, through release in some profound way from the endless realm of birth and death, the realm of *samsara* or suffering?

Yet, to what extent do worldviews really determine what we see? To what extent should they? Charles Hallisey pointed out that Theravada Buddhism claims there is no universal meaning, that ultimately everything is empty and meaningless, and there is no grand scheme of things. It is fruitless to try to search for a worldview in which we can locate human beings and human history and the history of the planet. What really is at stake is solving the fundamental problem of suffering. Ruse recognizes this when, alluding to Hallisey's work, he argues that there is no foundational philosophical justification for evolutionary ethics. Scientists and philosophers of science might describe how we have become moral, but they then do not go on, or at least according to Ruse should not try to go on, to claim this as a reason why we should be moral. To do so would commit the naturalistic fallacy.

So, the first major point I want to make is that at the conference we talked a lot about worldviews. The question I am asking is: Do worldviews matter? Do they matter in shaping our morality? Do they matter in sociobiological explanations about how morality arises?

MORALITY

What is morality? What does it mean to be moral? Morality is a very rich concept, and at the conference I heard three ideas that I think are important. First, to be moral is to be responsible for our actions, and to be responsible we must be free. Paul Thompson pointed this out at the end of his opening lecture. He suggested that, even though one might try to

argue that we are fully determined, we are such complex organisms that we have a degree of freedom. Perhaps, I reflected, this freedom results from various feedback loops in our very complex brains.

Freedom is a requirement for holding people morally responsible. Balslev talked about something similar. According to the impersonal law of karma we are what we are because of past actions; yet, we also can change. We have the freedom to plant new seeds that will change what we can become in future lives. Therefore, even though karma rules, we are still responsible for our actions. Indeed, the law of karma is what “holds us responsible.”

To be moral also means that we live in societies that have moral codes. The purpose of morality, as some have said, is to enhance social interaction. Its function is primarily to elicit social cooperation. This cooperation extends beyond what people do. I heard a number of times that morality involves both outer and inner aspects of ourselves—not just actions but also words and thoughts. Both Balslev and Hallisey, presenting Hinduism and Buddhism—the pan-Indian view—understood morality to involve action (the physical), talk (the verbal), and thinking (the mental). Tucker made a similar point. Hindu and Buddhist, and perhaps Confucian, moral cultivation programs try to develop the human capacity to engage in right thinking, right speaking, and right acting, usually starting with right thinking.

In Christianity, as Hefner pointed out with a series of quotes from the Sermon on the Mount, we find a similar emphasis on both the inner and the outer. However, here the inner is not thinking but feeling. It is not only what one does but also what one feels that matters. Not only Do not kill, but also Do not hate; not only Do not commit adultery, but also Do not lust.

If we pursued this further we might find an interesting difference worth reflecting on. Whereas Eastern religions (and I found this most clearly in Tucker’s presentation) often talk about moral *cultivation*, Christianity usually talks about moral *transformation*. Often this transformation is very dramatic, so that there seems to be a resetting of the inner mental-emotional drive system of the human being that is the source of moral behavior. Christians call this “conversion.” So one might compare two cultural ways of shaping morality—an educational, cultivational understanding and a transformational understanding.

Besides being free and responsible and living in a society where we come to practice the moral code, being moral also means that we are motivated to act morally. This I think was one of the most important issues of the conference, one that I would like to have seen addressed more. Thompson, Tucker, Hallisey, and Balslev alluded to moral sentiments or predispositions. According to Mary Maxwell, Ruse, and Hefner (following William Irons 1991), these moral sentiments, these drives, these emotions have evolved biologically. However, Sussman, in questioning Wrangham’s

portrayal of demonic males, points out that we have a variety of evolved dispositions. Genetics provides us with a wide repertoire of evolved behaviors, all of which, it could be argued, contribute to our survival. However, depending on our own cultural perspective embedded in our worldview, some of them might seem to be immoral while others seem to be moral. Some of our inner drives, emotions, or motivational feelings get us into trouble—jealously, hatred, anger. Others contribute to peace and joy and love. So the question is, Is a biological explanation of how we have evolved to be moral a sufficient explanation? Biology may be one of the factors shaping our morality, providing a set of necessary conditions. However, by itself does biology give us a set of conditions sufficient to explain morality? The variety of predispositions we have, some moral and some immoral depending on our perspective, indicate that biology doesn't do the whole job.

BIOLOGY AND CULTURE

This leads to my third basic question: How do we then conceive the general relationship between biology and culture? Three possibilities are: an antagonistic relationship, a continuous relationship, and a transformative relationship.

Many sociobiologists think that culture functions to control our biological predispositions. Donald Campbell, the evolutionary psychologist, also has made this proposal (Campbell 1975; 1976). So have Richard Dawkins (1976) and probably Wrangham (Wrangham and Peterson 1996). According to these thinkers, relationships appear to be antagonistic. Culture has to somehow hold biology on a leash, a reversal of what E. O. Wilson was suggesting several years ago here on Star Island (Wilson 1980).

If I hear her correctly, however, Mary Maxwell proposes that culture builds on the biogram. This building metaphor suggests continuity between biology and culture. The biogram gives us social feelings of familial attachment, submissiveness to authority, loyalty to the group, and also moral feelings such as a sense of duty, guilt and shame, and disgust toward persons who do the wrong thing. Culture enhances these feelings. This would certainly fit with the Confucian understanding of moral cultivation, done with the mind-heart on certain underlying feelings.

Yet, some groups in our society develop the cultural equivalent of genes, called "memes" (Dawkins 1976), and some memes instruct us not to submit to authority or not to experience guilt. Our behavior shouldn't always automatically follow our biology. Feminist thought, for example, questions the unthinking submission to authority. Some liberal religious thinkers say that we should not feel guilty. Where we stand determines what we see. If this is so, how is it that we come to believe, in considering biocultural interaction regarding morality, that some evolved biological sentiments should be affirmed and built upon while others should be controlled?

Hefner complicates this situation when he suggests that culture stretches the genes. But he actually seems to go further than that when he follows Gerd Theissen and suggests that culture stretching the genes involves transformation (cf. Theissen 1985). This is more than continuity, but it is not antagonism either. It is transformation of biologically programmed predispositions.

To all these views—whether antagonistic, continuous, or transformative—I raise two questions. One is, To what extent does biology put constraints on culture, even as culture tries to override, build upon, or transform our biology? After all, Wilson did have a point with his metaphor that “genes hold culture on a leash.” A second question is how each of these views handles conflicts within our biological nature. Our biological sentiments are not all in harmony with one another. Paul points this out in his writings in the Christian New Testament, in his own psychological analysis—and he wasn’t a bad human psychologist. He suggests that it’s as though we have two sides to ourselves (what William James called “divided selves”). We have two sets of biological predispositions, which is probably an oversimplification. One set Paul calls the way of the flesh, which includes such feelings as jealousy and anger. Another set he calls the way of the spirit, including joy, peace, and love. Flesh and spirit in Paul’s thinking are not the material and the spiritual. They refer to two sets of biologically based, psychological predispositions. To be a Christian is to be transformed from one set into the other. The question then is: How does one handle the conflict within our own nature?

The evolutionary picture may help us understand how both sets of predispositions evolve. However, it seems to be our cultures that instruct us to build on certain aspects of our biology and to try to keep others under control. In the end, then, how does culture relate to biology? How are culturally evolved moral codes related to our biologically evolved moral and also immoral (depending on our perspective) sentiments?

BIOLOGICAL EXPLANATION AND HUMAN FULFILLMENT

Once we answer the factual question of the relation of biology and culture, what do we do with our answer? How does the scientific account of bi-cultural evolution, regardless of what form we try to shape it into, actually help us live more fulfilling lives? Religion, after all, is in a general sense salvational or soteriological. I think Hefner is right. Religion presents a way of looking at the way things are and also tells us how we ought to become. It specifies that toward which we ought to move.

Some religions do this in a grand scheme, a scheme that may involve the whole world moving toward some greater or greatest fulfillment. Several years ago Hefner and I discussed whether one had to develop an evolutionary theology that proposed a grand culmination. This is the perspective of

some religious traditions—that there will be a final kingdom of peace, joy, love, and happiness, and that the evil in the world will be cast out. However, this runs into problems with the Buddhist critique of overall systems of meaning and Michael Ruse’s concern with separating scientific from philosophical aspects of the evolutionary picture.

What Hefner offered at this conference was a more limited approach to meaning and fulfillment. Instead of a grand culmination, he spoke of how we might become more fulfilled and live richer and fuller lives. He suggested that, instead of seeking the *best possible* state of being, we might find salvation by seeking a *better* state of living than the one we now have.

Whatever our view of “salvation” is, a basic issue is how we deal with the profound problems of life—when we face the limits of our own existence, when we face death and disease and suffering, when we face the difficulties of understanding, when we face our own moral inadequacies.

Our evolved brains and their cognitive abilities, which Thompson alluded to, when combined with a cultural system of language and values, actually increase the problem of facing the limits of our existence. This is because we think about such problems. Not only do we think about them, we worry and fret about them. As least some who are religious worry and fret, and some great religious thinkers do it a lot, such as Augustine of Hippo, Martin Luther, and Siddhartha Gautama. Our cognitive abilities, therefore, help create the religious problem. They are the arrow in the Buddhist story that Hallisey told⁴—the arrow that is a part of our clinging to the idea that somehow we have to surmount the problems of existence. We have evolved, in a sense, to wound ourselves. A worldview that speaks of fulfillment may not be the way out. The way out may be the Buddhist way of simply taking out the arrow through a process of becoming detached in such a way that one no longer worries and frets about the limits and then is released to a life of full compassion.

Still, we need to address somehow the problems of the limits of our existence, and I don’t think it matters whether we subscribe to a particular religious tradition. These are fundamental problems of life. Here I’m not sure that a scientific account of how we came to be moral or how we came to be cognitive really helps a whole lot—unless we can take up the scientific account into a wider system of meaning, as I illustrate with the following personal experience.

Several years ago, just a few weeks after the *Challenger* disaster (which I almost saw; I saw the trail of smoke after the explosion and knew that something crazy had happened), a very dear friend of mine, an older man who was a father figure to me, died of cancer. He had been living with his cancer about eighteen months. One of the remarkable things that he did, because he was a scientist—in particular, a physician—was to give a lecture in our church about how the cancer had arisen and how the cancer was killing him. He’d actually done an investigation, reading the literature

on cancer, to determine how his kind of cancer was taking over. As he put it, "I wanted to get to know my murderer." A remarkable man!

After he died, I was left with a medical understanding of how his condition and his death had come about. However, that wasn't fully satisfying, because I was asking (and this was a simple way of putting it) not just How? but Why? Not why in a causative sense but in the sense, What is the significance of this? and Where do I go from here? I was looking for meaning and moral guidance out of this experience.

The first thing I turned to was the evolutionary epic. What came to mind was a book by Eric Chaisson called *Cosmic Dawn*, which I had taught for several years in one of my classes in science and religion. In that book Chaisson points out that things have to die so that new things can be born. For example, stars die. They go through their main sequence, burning hydrogen and fusing it into helium, until they use up all their fuel. They then go through a series of expansions and contractions until the giant stars explode in supernovae, and out of the death of these stars heavier elements are created. These become the star dust out of which new stars and planets such as our own are born. Death leads to birth (Chaisson 1981, 102–6, 126).

Immediately after this I thought of the Christian story of crucifixion and resurrection as a symbol that, in the dying of something, new possibilities for living arise. So in my own mind I combined a scientific portrayal of things with a traditional religious one. It wasn't the fact that the ideas originated in science or in a traditional religion that was crucial to my understanding of "why." What was important was that *both* a scientifically based account *and* a religious one helped me to get a handle on interpreting what had happened to my friend and told me how to go forward. I should look for the new possibilities arising out of the limits of existence. So, I at least find it helpful to combine scientific attempts to understand how things happen with religious attempts to answer my questions, What does it mean? and How can I live my life?

DECIDING WHETHER BIOLOGY MATTERS

I now come to the last set of issues. How do we decide whether biology matters?—one of Michael Ruse's opening questions at the conference. I will share with you what I have learned from other speakers about how one might scientifically test the idea that biology matters, but first I also want to suggest some other ways of deciding.

One other way is a personal test: Does biology matter *to me*? Does it help to make my life more meaningful and give me some general guidance regarding how I should live? This is a kind of religious test. It is also the kind of thing Ruse was describing when he distinguished the professional, scientific view of evolution from the more popular philosophical view.

However, I don't accept the notion of progress in late nineteenth- and twentieth-century evolutionary philosophies. In terms of what I understand to be Darwinian theory, evolution does not promise progress. It gives us only a mechanism and a process of change. So when I combine sociobiology and evolution in a scientific picture, what I come up with philosophically is that the world is constantly changing, and that change is fundamental to the nature of things. Change is not necessarily progressive; it may go the other way. I find myself in this flux of constant change, of death and rebirth, and it seems that basically what I am doing in my personal life, just as other organisms are, is adapting to my changing circumstances, my changing environment. I and other individuals do this in our everyday behavior. With other organisms, we also can do it through the transmission of our genes, which undergo mutations and sexual recombination that are controlled by natural selection. It's like a dance—a dance of things constantly changing, with one thing adapting to another, each of us adapting to our own circumstances. So the basic metaphor I use is not that life is progressing but that life is dancing—a purpose of living without progress being necessary. This is what I offer as a popular portrayal of the evolutionary nature of things. So, for personal reasons, I want to affirm an evolutionary perspective that says biology matters. However, when I draw out from biology the lesson not of progress but of dancing, I have to recognize that I may be influenced in my thinking by a culturally established set of ideas. I have a certain way of viewing the results of science philosophically. It doesn't all come from evolutionary biology.

Ruse, however, asks for a scientific test of the question, Does biology matter in shaping morality? One scientific test he suggested at the conference is to look for traits across cultures—common threads of morality among the various religions of the world. If we find these threads across cultures, we at least are moving in the direction that morality may be in some sense universal.

I think that whether we find something that is common across cultures may depend on what we are looking for. If the core part of being moral is being responsible, one of the aspects of morality I mentioned earlier, do all cultures expect people to be responsible for their actions? Is this a cross-cultural thread, a universal trait? If morality also means living in society and building on various kinds of biologically based affections, how do we test that? Are the social affections that Maxwell talks about found across cultures? Is familial attachment a universal? Is submissiveness to authority a universal? Is loyalty a universal? What about Maxwell's moral feelings? Is the sense of duty universal? Are guilt and shame universal? Is disgust toward others who do the wrong things (what she calls righteousness) universal? I think that Sussman would remind us that it is one thing to construct an evolutionary hypothesis about how such feelings might or might not be adaptive and therefore might have been selected, but it is another

thing to find the empirical data by examining what cultural anthropologists have collected about what is going on in various cultures. Of course, the cultural anthropologists have to be careful to filter out their own Western biases in order to see other cultural systems as they really are—echoing perhaps the Buddhist injunction to become detached, which may express in its own way the idea of scientific objectivity.

Another possible way of scientifically testing these hypotheses is to compare humans and primates, as suggested by Hefner. If the same behaviors occur in other species as well as in our own, especially in species closely related to our own, and if there is no culture as we know it in those other species, then the behaviors are likely to be biologically based. However, Sussman has pointed out that we can't do this evolutionarily, because since humans broke off from other primates millions of years ago, it is possible that both species have evolved over the course of time.

We might go beyond comparative behavior and bring in whatever evidence there is from contemporary comparisons of brain structure, biochemistry, and genetics. Here I suspect that we might find some evidence that would suggest that biology matters. We did not focus on this at the IRAS 1997 conference. However, Hallisey discussed the possible relationship between neurotransmitters, depression, and Buddhist world-weariness. Also, in an exchange between Sussman and Ursula Goodenough, the question was raised whether socially conditioned behavior and experience in living can affect the level of testosterone. Sussman suggests it is not just a one-way street. There is a kind of feedback loop between biology and culture that regulates the level of testosterone. Biology and culture are thus interactive even at the chemical level.

I love the evolutionary epic. It makes a lot of sense to me, it helps me make sense out of my own life. However, I recognize that we have not gone very far in doing the nitty-gritty work of actually establishing hypotheses that are testable against the data, whether cross-cultural data concerning human species or cross-comparison data of the human species with other primates. We have to do a lot more at conferences such as these if we are going to test the overall hypothesis, Does biology matter?

DECIDING WHETHER WORLDVIEWS MATTER

Finally, I think the idea of scientific testing is clouded by the problem of worldviews. One can ask whether morality can be separated from these worldviews, the belief systems that I talked about earlier. Ruse suggests that they can. Even though he talks about a Christian worldview, Hefner at one point suggests that what really matters is what Christians do, not what Christians believe. So it may be possible to separate what we do (and perhaps feel and think) morally from what we believe about the nature of things, whatever those beliefs might be.

However, if worldviews do play a role and at least set the context for some aspects of our being moral, we then have to go on to ask the question, Are all worldviews equally credible? In other words, we have to try to test the worldviews. We know about Confucian, pan-Indian, and Western theism (the worldview of Judaism, Christianity, and Islam). We also know about an evolutionarily, scientifically, materialistically oriented worldview that in some cases, as Ruse pointed out, goes beyond science to become a popular philosophy or secular religion. This latter worldview holds that biology matters. How do we test these worldviews against each other?

One way is to see if one worldview can account for the others. I suspect that each worldview can probably account for the others in some way or another. It certainly seems to me that the evolutionary worldview, even though materialistic, offers a story that might account for the rise of the other worldviews as culturally evolved traditions. This story involves a combination of biological evolution leading into cultural evolution, which feeds back and interacts with the biology. It doesn't matter whether that worldview is Confucian, pan-Indian, or Christian; an evolutionary perspective does account for the rise of a variety of religious and philosophical worldviews. I'll leave it to some who espouse those other worldviews to ask whether they can account for the evolutionary worldview. I think that one of the powerful features, at least philosophically, of the evolutionary worldview is that it provides a way of accounting for cultural as well as biological diversity and for cultural as well as biological change.

Another test of worldviews is a pragmatic test. Does the worldview help members of society to live well in meeting what I have called the profound questions of life, the questions of limits? After all, worldviews and what they espouse have to be lived out—the old cliché that the proof of the pudding is in the eating. One general test, not scientific but nevertheless a pragmatic test of worldviews, is how well they contribute to harmony within ourselves, in societies, and between us and the rest of the world. *Shalom, salem*, peace. The idea of harmony, however, is itself a cultural value; it may be part of a particular worldview.

As we live them out, our worldviews may change—sometimes in small ways and sometimes in major revolutionary ways at a fundamental level. Along with many others I listened to conference chaplain Lucy Reid as she told her story of how she underwent a change within Christianity from traditional Christian thinking to feminist spirituality. Her journey is a powerful story, and I found myself moved to tears several times as I reflected on different but comparable aspects of my own life even as she reflected on hers. At the core of her changes was a set of experiences, experiences of unjust hierarchy that did not square with her own inner experience of calling to be a priest and her own sense of equality. In other words, parts of our worldview are sometimes tested against personal experience, and those experiences may embody values.

Reid's journey reminds me of what Mary Maxwell said in the part of her talk about the evolution of human society, when she spoke of early human societies being mostly egalitarian. However, Maxwell also talked about an evolved submissiveness. With Reid, submissiveness gave way to a sense of justice and a sense of empowerment. How much, then, does a worldview, scientifically based or otherwise, allow people to put things in their lives together to realize a kind of fulfillment? Somehow our experience also matters—along with what we inherit in our biology, along with what we learn from culture. But how does experience lead us to deny or revise part of our *cultural* heritage? And how does experience lead us to want to fulfill a part of our *biological* potential and to deny and try to control other parts?

The 1997 IRAS Star Island Conference was a rich offering of ideas as we attempted to address the general question of how well current thought from sociobiology and evolutionary psychology fits with the history of the moral aspects of religious traditions. Some of the richness of what was said on Star Island is contained in other papers in this issue of *Zygon*. My contribution at the conference was to offer an interpretive summary of what others said and to indicate where further thought might be given. Summing up the many questions I have raised, I leave you with these five questions: (1) Do worldviews matter, and how do we decide if some matter more than others? (2) What does it mean to be moral? (3) What is the relation between biology and culture? (4) How does a scientific, sociobiological description of how we have become moral fit with our own personal quest for meaning and provide moral guidance toward a richer and fuller life? (5) How do we scientifically test evolutionary views of the biological conditions of morality? Coming back to the questions in Ruse's opening remarks at the conference, Does biology matter? How do we determine scientifically whether biology matters?

NOTES

1. This essay is a revision of a talk I originally presented as a summary lecture on Star Island. To capture some of the original talk as you read it, imagine yourself in a lecture hall of a nineteenth-century hotel, ten miles out from the mainland, with the cries of sea gulls in the background. It is Thursday night, and you have heard presentations from Paul Thompson, "Evolutionary Ethics: Its Origins and Some Current Issues"; Robert Sussman, "Man the Hunter/Killer Myths and the Evolution of Human Morality"; Mary Evelyn Tucker, "Confucianism"; Anindita Balslev, "An Outline of Hindu Ethical Ideas"; Charles Hallisey, "Biology and the Sociology of Theravada Buddhist Morality"; Michael Ruse, "Evolutionary Ethics Today: A Sociobiological Perspective"; Mary Maxwell, "Morality: Evolved and Culturally Designable"; and Philip Hefner, "Going as Far as We Can Go: The Jesus Proposal for Stretching Our Genes." You also have listened every morning to Lucy Reid's chapel talks on feminist spirituality, and you have heard James Gilbert's special Tuesday night lecture, "The Cultural Links of Science and Religion," in which he placed the founding of IRAS in the context of other developments in science and religion in the middle of the twentieth century. (See the chapter on "The Religion of Science" in Gilbert 1997.)

2. The ideas of many of the speakers are presented in other papers in this issue of *Zygon*.

3. Pederson was expressing the viewpoint of feminist philosopher of science Sandra Harding that all knowledge is socially situated. Becoming aware of the wider culture that has shaped what

we know and how we come to know it makes us more objective than when we pursue knowledge without awareness of culturally predisposing assumptions. (See Harding 1991.)

4. In response to a question about whether Buddhists pursue ordinary purposes in living or ultimate purposes, Hallisey replied that Buddhists, like everyone else, are humans. They have politics, they wage wars, they have very ordinary purposes. And they are very good in achieving such purposes. However, the universe itself, according to Theravada Buddhism, does not have a purpose. It just is. There's no "why" to it.

Hallisey then told a famous Buddhist story. Someone comes to the Buddha and says, "I won't do what you say, I won't practice what you teach unless you tell me why it is this way." The Buddha says to him, "You're like a man who has been shot with an arrow and you're lying on the ground dying. The doctor comes and says, 'I'll take out the arrow and you will live.' And you say, 'I won't let you pull out the arrow until you tell me who shot me, why did he do it, and what was his purpose.' The physician replies, 'You're going to die before you get those answers. Why don't you just let me pull out the arrow? Then, if you still want to know the answers to those questions, you'll have all the time to get them.'"

So in Theravada Buddhism, questions about ultimate purposes are generally dismissed as questions that are wrongly put. They seem to have answers, but they don't. We agitate ourselves, spend a lot of time, and cause a lot of suffering to ourselves because we're looking for answers to them. This doesn't mean that people are not goal-directed. They have ordinary purposes all the time. But it's not possible to redeem this world in a way that we can say it's going to be meaningful. It just is.

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