

Published in *The Christian Century* 117/2 (January 2000): 61-64.

Biology Meets Theology

Philip Clayton

Holmes Rolston, *Genes, Genesis and God* (Cambridge: Cambridge University Press, 1999).

Michael Ruse, *Taking Darwin Seriously* (New York: Prometheus Books, 1998).

Robert J. Russell, William Stoeger, and Francisco Ayala, eds., *Evolutionary and Molecular Biology: Scientific Perspectives on Divine Action* (Vatican City State: Vatican Observatory Publications; Berkeley: Center for Theology and the Natural Sciences, 1998).

When it comes to Christianity and evolution, it seems like Kansas gets all the attention these days. Clearly when conservative Christians stand up and take a stand against evolutionary theory, everyone notices. Likewise, when some Oxford or Harvard biologist such as Richard Dawkins or E. O. Wilson makes radical claims about how evolutionary biology excludes faith, disproves God, or reduces man to ape, the religious community becomes irate and newspapers spread the story in bold across their front pages.

Here is one case, however, where we *must* be better than our popular press. The real work on evolution and faith is being done by two sets of scholars whom the popular press would rather ignore. One group consists of Christians who are attempting to think the providence and design of God together with the long evolutionary process that has assuredly preceded humankind's arrival on the earthly stage. The other is made up of non-believing or agnostic biologists who eschew radical anti-religious claims in favor of sober assessments of genetic influence. The books by Rolston, Ruse and Russell represent the best in the field over the last few years.

Holmes Rolston is one of the sober and intelligent Christian voices in the discussion of evolution. His mediating position is signaled already in the book's subtitle: "Values and their Origins in Natural and Human History." Rolston, a leading figure in the religion/science debate for several decades now, cares deeply about preserving the non-biological aspects of culture, ethics and religion. His search is for the "brooding Spirit of God" (362) within the world. An advocate of divine providence, Rolston believes that religion is indeed about "the finding, creating, saving, redeeming of... persisting sacred value in the world" (363). No question here of an attack on the transcendent God.

And yet Rolston is willing to embrace what have been the clear results of the scientific study of the biological world: "This has been Darwin's century, and we have more understanding than any people before us of the evolutionary natural history by which we arrived" (213). Our genetic makeup is result of an evolutionary process; we share most of our genetic structure with other animals, particularly with the higher primates; and this genetic code influences vast areas of human behavior. Indeed, given the strength of the influence, Rolston admits the strong pull to "naturalize" and "socialize" the domains of culture, ethics and religion. And yet in each case he

finds good reasons for rejecting a complete reduction to natural causes. Finally, he triumphantly proclaims, biological evolution leaves room for an enduring place for religious truth.

But is Rolston successful in his apologetic for core Christian beliefs? Consider three of his central arguments. One is that cultural history arises above its genetic influences: “With the coming of humans there appears the genesis of ideas; encultured thereafter, ideas are perennially generated and regenerated” (136). For him biology and culture are ultimately separate, parallel aspects of the human person: “the self is not simply biological and somatic but cultural and ideological”; “the self is expansive and finds an entwined destiny with many other persons” (220). Therefore, once humans rise to the level of cultural evolution, genetic evolution has little control: “One does not have to have ... Darwin’s genes to be a Darwinian, or Jesus’ to be a Christian” (ibid.).

Of course, our biological equipment may be set, “like a computer hardware, as a given to work with” (139). The metaphor is crucial for Rolston’s case against genetic determinism. After all, can’t an extremely large number of software programs be run on a given piece of hardware? You can use your home computer to write about shagging or Shakespeare, to play games or search the heavens, to buy stocks or solve differential equations. The same degree of freedom, he argues, *characterizes the whole realm of human culture and thought*.

Rolston thinks his second example is even easier: ethics and values. Ethics involves altruism, the placing of the interests of another above one’s own interests (217). Rolston can show that altruism is a type of behavior that many biologists find in studies of animal behavior. Indiscriminate altruism—acting for the good of all and not merely those who carry our genes—contributes to a healthy society, and thus, albeit indirectly, to biological fitness as well. Yet here, too, Rolston opts for parallel universes. Altruism and other forms of ethical behavior are not to be measured only for their biological survival value, but also for their contribution to the flourishing of culture. Morality is emergent: at least one species has risen from “is” to “ought.” In the end, Rolston insists, the “ought” that is basic to any ethics whatsoever simply cannot be derived from the descriptive “is” of biological research. Part of what it *is* to be a person is to be “moral, valuable, and evaluating” (280). A new language is needed—the language of religion. Only the language of transcendence can grasp the human mind, which is able “to reach truths about realms that it does not inhabit, extrapolating and reasoning from the realms it does” (290).

This claim brings us to Rolston’s third and final point: the case for Christianity. Here the starting point is the transcendent power of the human person. Our ability to transcend our self, our social or historical context, and even our biology, he claims, is strong evidence in support of religion, and in particular in support of a personal transcendent God. *Genes, Genesis and God* thus tries to show not only that theism has a positive biological function for human culture and human survival, but also that there is good reason to take it as true. Tribal religions have proven “non-exportable” (and therefore false?); “only the universalist synoptic creeds have proven exportable, globally functional, because they speak to the common condition of humankind” (345). The fertility of the idea of God, and the fact that a biological species could produce such an idea, need to be explained; for Rolston, the only adequate explanation is the actual existence of God. Surprisingly, the evolution of biology and culture *demonstrate* that “there is a Ground of Information or an Ambiance of Information otherwise known as God” (359). God is a “countercurrent to entropy, a sort of biogravity that lures life upward. ... God introduces new possibility spaces” into human existence (364). Rolston is cautious about introducing God as a miracle worker or regular causal force in the world, but he is optimistic about demonstrating a

God who gives meaning to the world as a whole.

What stance should Christian scholars take toward Rolston's project? Of course, we will *want* the project to succeed: it would be a great achievement to have established a full compatibility between genes, genesis and God. If we could find a natural theology that makes God the best explanation of all of biological evolution, in one fell swoop we would have eliminated both atheistic naturalism and the anti-scientism of the recent Kansas condemnation of evolution. But is it so? Or is Rolston's picture too easy, too good to be true?

I suggest that Rolston's *project* remains vital, but that he is painfully over-optimistic about the results. To see this more clearly, consider how each of his main arguments looks from the standpoint of Michael Ruse, one of the leading moderate theorists of evolution writing today. According to Ruse, Rolston has failed throughout at "taking Darwin seriously" enough. Ruse thus comes up with different answers to each of Rolston's three major points:

* Ruse argues convincingly that culture is not just a parallel phenomenon to biology. It is not a relatively independent sphere built on top of its biological basis like software running on hardware. Instead, research has shown the biological constraints on culture to be much more influential and much more pervasive than Rolston's picture allows. The type of language we can produce, for example, is determined by our mouth and throat structure; the mental categories we use are either responses to our environment or reflect our own physiological structure (as in the case of color categories); and there is no other means for establishing which of our beliefs are true besides interacting with our physical environment. Truth and biological survival are, Ruse insists, the closest of allies.

It may well be that the strict "bottom up" model of determination by our genes—a model passionately advocated by the well-known Oxford Darwinian Richard Dawkins—has been replaced by the more complex model of *epigenesis*, according to which non-genetic factors influence gene expression and thus behavior. But, Ruse insists, though the circle may be broader than the "gene reductionists" believe, it still starts and ends with gene expression. It is not as though brains evolve and then, from that point on, function as a sort of *tabula rasa*, molded and formed by culture alone. Instead, humans are born with highly structured brains, hormonal and behavioral dispositions, strong tendencies to think and behave in particular ways—and all of these things bear the mark of our particular evolutionary history.

* The same holds true for ethics. Of course, the specific ways that we formulate our ethical principles are not totally determined by their genetic basis. But this doesn't mean that one can load just any ethical software onto our biological hardware. To start with the obvious, if a given population accepted a moral injunction against sexual intercourse (and its substitutes), it would be guaranteed to have no more than a one-generation life span! Ruse's string of examples fall into two categories: those, like the one just mentioned, that underscore biological *constraints* on the ethical positions one may take, and those that trace biological *influences* on ethical beliefs. Thus Ruse connects universal taboos against sexual relations between siblings with the biologically based tendency for people raised in the same house to lose sexual interest in each other. In general, "epigenetic rules giving us a sense of obligation have been put in place by selection, because of their adaptive value" (223). In the end, "in fact, morality is a function of (subjective) feelings"; we just *think* that morality must be something more because "we have (and must have) the illusion of objectivity" (253). Our brains and bodies—and the genetic coding that transmits these patterns to our offspring—are able to increase our chances of survival "by filling us full of thoughts about obligations and duties." That is, we survive better "because

we think morality is something laid upon us” (253). But any sense that obligations are something more, something transcendent or “real,” is illusion not fact.

* What applies to ethics applies with a vengeance to religion. First, the same *constraints* apply: when religious beliefs and practices conflict with what's necessary for biological survival, they and their holders will soon find themselves decisively selected against. Similarly, biological *influences* upon religious belief and practice can also be traced. Religious belief is not like the content of what you type into your word processor, which is presumably unaffected by whether you're using a Mac or a PC. Instead, strong lines of influence run from the survival needs of the species to the sorts of religious beliefs we form. Biological factors may not determine your doctrine of the Trinity or your particular theory of the Eucharist; however, according to Ruse, they do affect the *sort* of beliefs and practices that tend to be developed and preserved within successful religious communities. Think, for example, of the links between the physiological characteristics of bread and wine, the social role that these two foodstuffs play, and the religious use to which Christianity has put them.

In many ways Ruse remains a moderate. His most recent book, *Mystery of Mysteries: Is Evolution a Social Construction?*, challenges the strong claim of radical evolutionists like Richard Dawkins and Daniel Dennett that Darwinism counts against theism and makes religious practice absurd. Unlike these critics, Ruse believes that the truth of biological evolution *leaves open* the question of the ultimate meaning or purpose of the universe—religion just might be true. Still, the argument developed in *Taking Darwin Seriously* represents the antipode to Rolston's theistic evolution. For Ruse, Darwinian evolution is sufficient unto itself, thank you very much; it doesn't need any support from God, and it *certainly* doesn't by itself provide the direct evidence for God's existence that Rolston hopes to find.

How can one mediate in this dispute? *Evolutionary and Molecular Biology: Scientific Perspectives on Divine Action* provides a sober assessment of what can and cannot be achieved at the interface of biology and theology. The essays in this volume are part of a ten-year project, cosponsored by the Vatican Observatory and the Center for Theology and the Natural Sciences in Berkeley, which seeks to rediscover a place for divine action in a scientific age. This final work shares neither Rolston's optimistic exuberance nor Ruse's dogged insistence on the ultimate explanatory power of Darwinism. Instead, its moderate stance, technical (occasionally highly technical) argumentation, and cautious inferences represent an effective foil to the sometimes overstated conclusions of the two other authors.

In opposition to Rolston, most of the Vatican authors don't think that a divine purpose to the universe can be demonstrated on the basis of the emergence of order, design, culture or religion in the natural world. For example, in "Evaluating the Teleological Argument for Divine Action," Wesley Wildman challenges all attempts to use evolutionary biology to support the reality of divine action and purpose in the natural world. Like Ruse, Wildman questions the use of evolution as evidence on either side—either to prove or to disprove theism. Wildman's analysis of the limitations of teleological (purpose-based) arguments, when combined with the careful summaries of the scientific data in this volume by Ayala, Cela-Conde, and Chela-Flores, sound a powerful cautionary note to Rolston's apologetic project. Biology and theology are not in separate worlds, but they are not bosom buddies either. Evil, as in the massive death of individuals and species within biological evolution, adds a weighty negative column that must be deducted from Rolston's more positive entries (see the essay by Thomas Tracy, "Evolution, Divine Action, and the Problem of Evil").

The most helpful positive argument in this important volume may be Paul Davies' presentation of the emergence argument in his "Teleology Without Teleology: Purpose through Emergent Complexity." Davies notes that the laws of physics are responsible for the emergence of ever higher orders of organized complexity within the natural world. Each of these new orders represents the emergence of a genuinely new type of reality onto the stage of natural history. Ruse is right that complexity emerges gradually and only through the evolutionary process. Still, *what* emerges are types of properties that are genuinely new in the natural order: cells; organisms with their striving to exist and to reproduce; ecosystems with their complex interdependence among living beings; and finally, in the higher primates, complex modes of thought leading, eventually, to consciousness. With consciousness come moral beliefs, rational argumentation and self-awareness. Perhaps most surprising of all, along with consciousness emerges that preoccupation with transcendence—with God, freedom and immortality—that has characterized our species since the early millennia of its existence.

Had he done justice to this pattern of emergence, Ruse would have been more sanguine about basing ethics and knowledge on Darwinian principles alone. The truth of influence "from below" is undeniable; and yet emergence forces us also to acknowledge that rationality and ethics—and perhaps also religion—depend on meta-biological factors as well. It's not a big step from this insight to the recognition of a basic "directionality" to the evolutionary process, as William Stoeger describes it here. If there is "purposiveness without purpose" in natural history, then Christian language of divine guidance and care may find at least a handhold within the biological sciences (see the more theological essays by Ellis, Hefner, Barbour, Haught and especially Peacock).

These are the sorts of contributions that represent the real cutting edge in discussions between Christianity and biology. The Vatican/CTNS volume provides a careful, sober assessment of the biological story in all its complexity. Even scientific laypersons reading through it will recognize that the story must be more ambiguous than Rolston would have it—without yielding negative conclusions as strong as Ruse's. Certainly the essays provide an effective answer to the anti-religious biologists Dawkins and Dennett: nothing in biological evolution clearly rules out religious belief in the way they have argued.

Clearly, differences remain. Still, one is comforted by the fact that the debate has now moved so far from Kansas. Missing in all three volumes are the acerbic and extremist views that the press loves to trumpet from the street corners. Rolston does not claim that evolution shouldn't be taught in schools or that it stands opposed to the belief in a revealing and providential God. He draws from evolution and considers it an ally—even if he sails ambitiously beyond the evidence at points. Likewise, Ruse does not castigate Christians for failing to see that all their beliefs have simply been falsified by evolution. Instead, he understands that the question of theism's truth is left open by the evidence we now have for evolution—even if he also goes too far in reducing the explanations down to biological terms. One can only hope that the church as a whole will enter into *these* sorts of debate, and with the care and reasonableness of these authors, instead of joining the vocal extremists who dwell loudly on the Op Ed pages and on the televised debates ... and in the halls of Kansas.