

Lee M. Silver. *Challenging Nature: The Clash of Science and Spirituality at the New Frontiers of Life*. HarperCollins: New York, 2006. 444 pp. ISBN 0060582677. US\$26.95.

It has been almost ten years now since Lee M. Silver, a professor of molecular biology at Princeton University, wrote the book *Remaking Eden*, in which he optimistically presented the scenario of a future in which the single human species has splintered into many different species because of reproductive genetic engineering. In that book, he briefly made a connection between religious persons and secularists who believe that "it is wrong to mess with 'Mother Nature.'" Now, in *Challenging Nature*, Silver has fleshed out and extended this connection, arguing that "all naturalistic arguments against biotechnology are actually spiritual arguments in disguise." In other words, Silver argues, left-leaning environmentalists who believe that the Earth is sacred and right-wing conservatives who are opposed to human cloning and embryonic stem cell research are just two peas in a pod, more alike than they are different.

One way to respond to Silver is to protest angrily, saying that he is wrong to associate liberal environmentalists and conservative Christians in this way. This was my first reaction. But we really need to settle down and ask: Is Silver right about anything here? Are the two groups similar in any way? Perhaps surprisingly, the answer is yes. But they are not similar in the way he envisions. Christians and environmentalists do have some things in common, as they are now beginning to realize more deeply. Indeed, in an unprecedented recent development, a group of evangelical Christians and environmentalists met together and issued a press release expressing their concern for "creation," saying that people have a moral obligation to protect the Earth from global climate change. And, for decades, mainstream Christian churches have been involved in environmental issues, especially from an environmental justice perspective. So, Silver is right; Christians and environmentalists do share something in common. But of course his assessment of the similarity is purely negative.

The book is divided into five parts: Spirits, Human Beings, Mother Nature, Biotechnology and the Biosphere, and The Final Chapter? In "Spirits," Silver explores the meaning of human spirituality, religion, and the soul. He discusses, for instance, the evolutionary origin of spirituality, suggesting that genes for "schizophrenia and other forms of a predisposition

to hallucination” might be maintained in human populations in order to preserve the evolutionary benefits of spirituality. Needless to say, Silver has a very gene-centric view of evolution and organisms; for him, genes drive everything, from physical appearance to personality and talents to spiritual beliefs. Because of his strong reductionism, as well as his extreme optimism about technology, Silver truly believes that we humans can control our own evolution.

He also believes that we can control nature, transforming her to suit our desires. In the Prologue of the book, he writes “[s]lowly, inevitably, human nature will remake all of Mother Nature in the image of the idealized world that exists within our own minds.” Unfortunately, this sentence alone will seriously diminish the impact of Silver’s book among scientists. Ecologists and meteorologists, who are cataloguing the impact that our actions are having on the planet through our burning of fossil fuels, will shake their heads in disbelief. It is patently obvious that we presently have an incomplete understanding of how the Earth works. How could we possibly control Earth’s systems? Moreover, if we cannot even get our collective act together to control our global carbon dioxide emissions, how could we possibly “remake Mother Nature?” Ecology, however, seems to be missing from Silver’s account. In light of this it is not, perhaps, surprising that Silver presents a solution to the problem of unwanted global climate change. A purely technological one, his solution is for future human societies to “fine-tune CO₂ levels (as with a thermostat) to achieve a desired average global temperature.” Again, where is the evidence that we humans could pull off such a delicate social balancing act, assuming that it were even scientifically possible?

Part two, titled “Human Beings,” is marked by strong arguments against neo-conservative thinkers such as Francis Fukuyama, Nigel Cameron, Leon Kass, Robert George, and others. He criticizes these high profile conservatives, most of whom are opposed to both human cloning and human embryo research.

Parts three and four of the book, perhaps most interesting to readers of *Worldviews*, make the switch from embryos, souls and neo-conservatives to Mother Nature, genetically modified (GM) organisms and biodiversity. In part three, titled “Mother Nature,” Silver disparages organic farming by associating it with the unusual spiritual beliefs of its founder, Rudolf Steiner, even though organic farming today is a respectable, scientifically-based

industry. In part four, titled "Biotechnology and the Biosphere," he revises the history of human agriculture as a story of human biotechnological triumph, defining plant and animal breeding as "biotechnology." He defines the agricultural green revolution as a biotechnological innovation similar to the invention of GM crops. Here, Silver also suggests that we should not be concerned about the extinction of animals and other species because they might be more comfortable in zoos anyway. About the bonobos he saw in the San Diego zoo, he writes: "To my eyes, at least, they seemed to be happy. And so the question arises where they would prefer to live if they could actually make a choice. Would it be the natural Congolese jungle? Or would it be the artificial jungle in San Diego...?" Silver's view here is irrationally anthropocentric. Loss of species diversity will affect not only the health of the Earth, but also our own health because our health is dependent on the Earth's.

In part five, titled "The Final Chapter?," Silver discusses existing reproductive technologies and looks wistfully into the future, imagining a globalized human society in which humans have genetically engineered themselves. Although he is much more restrained than he was in *Remaking Eden*, he nonetheless predicts that we humans, sooner or later, will cross the threshold into an engineered future.

Silver's tendency, throughout the book, to move from science to science fiction is unfortunate because he does have something of value to say. He is right in saying that there is an intrinsic commonality between Christians and environmentalists. The core values of both of these groups should, indeed, lead to the belief that the Earth is sacred, although each would come to this belief from its own perspective and for a different set of reasons. The Christian perspective is that the Earth is sacred because it is God's creation; the environmentalist perspective is that it is sacred because of the profound interconnectedness of life it supports and its ancient evolutionary history.

Silver is also right when he argues that a belief in the Earth as a self-regulating, Gaian system will lead one to question "the morality of genetic manipulation of the natural world." A belief in the sacredness of Earth and a rejection of the genetic manipulation of the natural world, including our own species, *are* connected. He has highlighted this connection. Yet something is amiss. Like a photographic negative in which all of the elements are present but their relationships are all wrong, Silver's perception is

skewed. He is right about the commonality, the connections. But he is wrong about the relationships.

The solution to Silver's misperception of nature, his photographic reversal, is to properly develop the negative, restoring the elements to their right relationships. Silver's incorrect image needs to be transformed using the proper interface. And what provides this proper interface? It is *ecology*, which celebrates the relationships among living creatures in their native environments, and ties them together in the context of their common evolutionary story. In fact, it is ecology that needs to inform all that we humans do. Only when informed in this manner will we be able to reverse the environmental onslaught we are perpetuating upon the ecosystems of the Earth. Only then will we be able to live in right relationship with the Earth and with each other.

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