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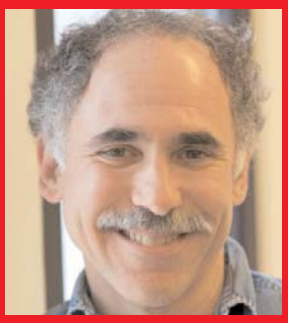
Dr. Lee M. Silver



Challenging Nature: Embryos, Stem Cells, Cloning and the Meaning of Life

Among the most contentious debates in society today is whether biomedical scientists should be allowed to use human embryos -- created by in vitro fertilization or cloning -- to develop stem cell therapies for the treatment of disease and aging. This line of research, unimaginable a decade ago, could revolutionize diverse fields of medicine. However, opposition is loud and fierce. Bioethical or religious principles drive some opponents, but in other cases, misunderstanding and a failure to distinguish fact from fiction are to blame.

In this animated, multimedia lecture, Dr. Silver, a professor at Princeton University in the Department of Molecular Biology and the Woodrow Wilson School of Public and International Affairs, will tease apart the diverse scientific and religious conceptualizations of life in general, and human life in particular. He will explain the scientific principles of cloning, its biomedical potential, and the clash of opinions surrounding the ethics of the technology. Silver will also provide a cultural framework for understanding why Asian countries like China, Singapore, and India are embracing cloning technology, and the implications for continued American dominance over biomedical research.

Silver's most recent book is ***Challenging Nature: The Clash of Biotechnology and Spirituality***. The philosopher and author Peter Singer calls *Challenging Nature* "a provocative and sorely needed book," with a "rich array of arguments [that] will force you to think afresh about many cherished preconceptions."

The New England Journal of Medicine wrote that Silver's previous book, ***Remaking Eden***, is "a panoramic view of molecular genetics, sexual reproduction, in vitro fertilization, and cloning."

About Dr. Silver:

Silver has had pieces published in *The New York Times*, *The Washington Post*, *Time* magazine, and *Newsweek International*. In addition, Silver has published over 200 scientific articles in the fields of genetics, evolution, reproduction, embryology, computer modeling, and behavioral science, and other scholarly papers on topics at the interface between biotechnology, law, ethics, and religion. He has appeared on numerous television and radio programs including “Charlie Rose”, “20/20”, “60 Minutes”, “Good Morning America”, “The Jim Lehrer PBS News Hour”, “NBC Nightly News with Tom Brokaw”, and in documentaries in the U.S. and abroad.

Silver, who has appointments in Princeton's Program in Science, Technology, and Environmental Policy, the Center for Health and Wellbeing, the Office of Population Research, the Princeton Environmental Institute, and the Center for Law and Public Affairs, received Bachelor's and Master's degree in physics from the University of Pennsylvania and a doctorate in biophysics from Harvard University. He trained at New York's Memorial Sloan-Kettering Cancer Cancer and the Cold Spring Harbor Laboratory, directed by Nobel Laureate James D. Watson. He has been elected to the governing boards of the Genetics Society of America and the International Mammalian Genome Society. Silver is currently a trustee of the American Council on Science and Health and a member of the Scientific Advisory Board of the nonprofit Institute of Systems Biology (Seattle).

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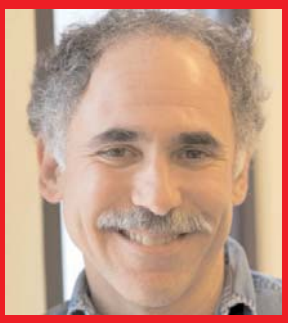

Praise for Challenging Nature:

"A spectacular and riveting book that puts those who reason by assertion of prior traditions on the run. [*Challenging Nature*] makes you think and rethink the most basic questions about the nature of human existence. I say Bravo!"
-- Michael Gazzaniga, a leading American neurobiologist and member of President Bush's Council on Bioethics

Lecture Responses:

"Dr. Silver gave a mesmerizing talk about this most important subject [the clash of biotechnology and spirituality]. His main points were well-illustrated with informative and often bizarre (yet relevant) illustrations of some of the inconsistencies and hypocrisies rife in the anti-technological, anti-science movements so active in both the U.S. and Europe today."
--Gilbert Ross, M.D., Medical Director of the American Council on Science and Health

"We just had a great visit with Lee Silver. What a brilliant, exciting, energetic, and friendly man he is! Needless to say, he left all of us with things to think about/discuss for years to come."
--Professor Beverly Johnson, Bates College

"I am writing to let you know how much I thoroughly enjoyed your keynote address at the Genome Sciences Retreat in Leavenworth, WA. I found your frank comments about genetic engineering to be entirely refreshing and spoken out of great depths of learning... I am certain that even in academic circles that your talk is controversial, but I admire your convictions to deliver it and to keep pushing the envelope of academic and public discourse."
--Lisa Kim, scientist, University of Washington, Seattle

Additional Lectures:

The Clash of Biotechnology, Religion, Pseudoscience and Politics

Over the last quarter century, scientists have gained remarkable insight into the molecular processes of life and have used this knowledge to develop ever-more powerful tools of biotechnology aimed variously at cell-based therapies to overcome human disease and at the genetic modification of plants and animals to increase agricultural productivity. Indeed, the wise use of biotechnology provides the greatest hope for alleviating human suffering and sustaining a vibrant biosphere. But with its long history larger unknown, biotechnology appears as the most contentious of modern inventions.

Different cultures, however, direct their enthusiasm for -- and ire against -- its application to different realms of life. Conservative Americans abhor research on human embryos but are generally supportive of genetically modified (GM) crops. Secular European societies accept embryo research (albeit cau-

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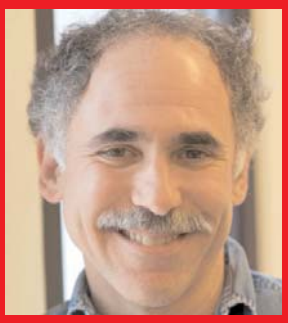

tiously) but are violently opposed to GM crops. In both cultures, biotech opponents often claim the mantle of science to support arguments that are neither scientific nor rational. Professor Silver will argue that monotheistic Christian and subliminal post-Christian conceptualizations of a preordained Master Plan for the universe lie at the heart of western dissonance. Meanwhile, the more fluid spiritual traditions of Asian cultures allow a ready embrace of both embryo research and agri-biotechnology, with enormous implications for western competitiveness and, ultimately, the fate of the biosphere.

The Human-Designed Biosphere: Past, Present, and Future

The earth is a finite place already altered drastically by billions of human beings. Today, 53% of the world's landmass is used to feed and house humankind, few pre-civilization ecosystems survive anywhere, and human-created organisms like corn, cows, and pigs predominate over all "natural" life forms. Continued exploitive growth with increases in human population is unsustainable.

But we should not look to Mother Nature to solve the problems of the world because she cares not for any creature or even any species. Humanity, in contrast, does care. And, in many natural situations, we have a universal preference for some outcomes rather than others. Why let Mother Nature throw the dice when we can place them on the table with the most desired number. Not every placement will be a win. Indeed, losses are a certainty. But they will be far fewer in number compared to those imposed by randomness, or a faith in transcendent non-randomness. Ultimately, through the wise use of biotechnology, both humankind and the biosphere could be sustained and nurtured. But as happened in the past, the height of unnaturalness for one generation will become the new natural for the next, and the cycle will repeat over and over again. Slowly, inevitably, Human Nature will remake all of Mother Nature in the image of the idealized world that exists within our own minds.

Genetic Enhancement, Evolution and the Future of Our Species

What does the future hold for Homo sapiens. In a thousand years or a million years, will there be descendants of our species, and if so, will they be mostly indistinguishable -- both physically and mentally -- from people somewhere on the broad curves of humanity that exist today, will our species go extinct like nearly every other species that has ever existed, or will human descendants evolve into something completely different?

Based on our current understanding of human biology, advances in biotechnology, and the nature of human nature, I will argue optimistically that a global human society will turn-around and call a halt to the Darwinian treachery of natural selection. Nevertheless, evolution of the human species may proceed apace, driven by the genera-tion-by-generation accumulation of genetic enhancements provided to children by their parents. Will a single global society evolve together or will different human groups diverge into separate species? The unanswerable question -- more philosophical than scientific during our lifetimes -- is whether and when human descendants will evolve into a "post-human" being that is as different from us as we are from our early hominoid ancestors.

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