determinism. Having established that nations *should* have some role on the Internet, and that borders do have some value, they swing us alarmingly from the anarchy of Barlow's cyberspace to a realpolitik that places national sovereignty above all other moral and political values. After a vividly documented chapter on the challenges that Chinese censorship and political repression pose to the Internet, our law professors tell us that on the bordered Internet "there is no legitimate basis for giving any single law a kind of global constitutional status." So the Chinese laws must be given effect online along with all other national laws. Are Goldsmith and Wu so convinced of the legitimacy of state power that they are prepared to toss out international norms of human rights?

As the international community (governments as well as leading companies such as Google, Microsoft, and Yahoo) wrestles with the response to Chinese demands for censorship of political speech, what theory we adopt about the relationship between the Web and national law is far more than just a theoretical matter. The authors present us with a false dilemma in opposing to Barlow's utopian anarchy a state-dominated, bordered Internet. It would be worse than ironic if the spread of a speech-enhancing medium caused us to turn our collective back on the centuries-old project of expanding the right of individual expression.

—Daniel J. Weitzner

The Private Lives of Eugenicists

BETTER FOR ALL THE WORLD: The Secret History of Forced Sterilization and America's Quest for Racial Purity.

By Harry Bruinius. Knopf. 401 pp. $30.

Is anything still a secret about America's regrettable flirtation with eugenics in the early 20th century? In this new history, Harry Bruinius, a professor of journalism at Hunter College in New York, tackles the troubling story of the effort to sterilize Americans deemed to be of poor stock. He is far from the first to tell it: Many authors, most notably Daniel Kevles in his book *In the Name of Eugenics* (1985), have ably charted the lengths to which American eugenicists were able to go. Nor did the movement's main proponents try to hide what they were doing. They lobbied state legislatures to get laws enacted that would allow for the medical sterilization of men and women who threatened to dilute the American gene pool.

Bruinius's is a "secret" history in the sense that it concentrates on mostly unknown aspects of key eugenicists' private lives. He offers detailed personal portraits of figures such as Charles Davenport, who introduced eugenics to the United States, and Harry Laughlin, a Davenport protégé who headed a large-scale project to identify "unfit" families throughout the country. The tone of these profiles is odd, gossipy, and almost malicious. Davenport's daughter Millia married a Jew (Jews were considered poor stock by Davenport) and never had children; Laughlin had seizures, one of the conditions for which he and his colleagues advocated sterilizing others.

The author uses the lives and work of these men as a window through which to view our contemporary debate over genetic enhancement. He argues that eugenics and genetic tinkering have a particular appeal because conceptually they mesh with aspects of the American dream. It's a provocative, if not highly original, claim. But Bruinius weakens his comparison of the past with the present by focusing on the personalities involved in eugenics, rather than on the social milieu in which their ideas took hold—a milieu marked by the new supremacy of science, a rising tide of immigration, and changing sexual mores.

He has greater success in his highly sympathetic portrayals of those personally affected by sterilization. The book starts with an excellent description of the notorious 1927 case *Buck v. Bell*, in which the Supreme Court ruled 8–1 that involuntary sterilization was constitutional. Bruinius delves deep into the lives of plaintiff Carrie Buck and her relatives, suggesting that Buck's foster parents disowned her when she announced her pregnancy in part to protect a nephew of their own, whom she charged with paternity. Buck's trial, Bruinius shows, was a sham,

with the chief evidence of her feeblemindedness coming from schoolteachers who had taught not her but her relatives.

He puts an even more personal face on sterilization with an extended visit to Lucille, a 78-year-old Colorado woman who, declared legally insane after a troubled childhood, had been sterilized with her parents' consent. The loss of her reproductive capacity haunted her for half a century, further complicating the depression and other mental troubles that compromised her life. In a painstaking picture of this desolate soul, Bruinius tells us that Lucille, who refused to discuss the subject of children with him, spends her final days in a nursing home watching *Perry Mason* reruns.

The portrayal of these two women may be Bruinius's chief contribution to the history of eugenics. By showing that real people's lives were changed irrevocably by the movement, he provides, by implication, a persuasive argument against forging ahead with efforts to genetically enhance the next generation. Promises of collective benefit to all humankind are all very well, but they don't mean much if individuals are left worse off than they began.

—Shari Rudavsky

The Cosmic Computer

PROGRAMMING THE UNIVERSE: A Quantum Computer Scientist Takes On the Cosmos.

By Seth Lloyd. Knopf. 221 pp. $25.95

Some 14 billion years ago, just after the Big Bang, the universe was a strange but fundamentally simple place, a hot dense blob of stuff teeming with elementary particles. So how did we get from there to here? How did that mostly featureless goo evolve into the universe we find today, with its galaxies and stars, planets and rocks, oceans and weather, bacteria, beetles, and, of course, our own estimable selves?

Seth Lloyd, a professor of mechanical engineering at MIT, would like us to think he has the answer, or at least the beginnings of one. Lloyd does not build bridges or design power stations. His interest is in computing, specifically the novel discipline of quantum computing. A conventional computer operates on classical bits—the familiar ones and zeroes of binary arithmetic. The "qubits" of a quantum computer, by contrast, can exist in several states at once—superpositions, to use the official word—that resolve into particular outcomes only when some suitable measurement is made. What this means in principle, as Lloyd explains, is that a quantum computer—if it can ever be made to work—is just the thing for doing massively parallel calculations, where you want to perform the same operations on lots of data at once.

Lloyd's cosmic ambitions hinge on two points. First, in a precise sense, the whole universe *is* a quantum computer. That is, it's a physical system running according to the rules of quantum mechanics and generating an observable outcome. Second, the complexity of the universe today, as contrasted with its simpler origins, can be thought of as an increase in information content. You need more data to describe a motley collection of stars and planets and animals than you do to describe a uniform blob of hot particles.

Connecting these two points is the marvelous fact that a quantum computer can actually generate information. Because quantum events are only partially predictable, and can lead to a range of possible outcomes, a quantum system can grow in information content as it evolves. By thinking in these terms, Lloyd asserts, we can get a handle on how the universe came into its present state.

Lloyd's writing is engaging but not always easy. Following his explanations is sometimes like trying to solve horrible chess problems in one's head. Still, the general idea comes across.

Yet I read this book with mounting skepticism. Is Lloyd offering an explanation of the universe, or merely a new description? In the 19th century, at the peak of the industrial age, it was commonplace to regard the world as a giant machine. Now, in the information age, the universe has apparently become a giant computer. Lloyd's argument is that describing the universe in terms of quantum computations provides a new way to tackle pressing theoretical problems in physics.