"Given her temper, it is likely that Franklin would have been very angry if she had known the extent to which Watson and Crick used her data," maintains Lynne Osman Elkin, a professor of biological sciences at California State University, Hayward, writing in *Physics Today* (March 2003).

But did Franklin not know? In an article published a year after the famous 1953 article, Crick stated that "without [Franklin's] data, the formulation of our structure would have been most unlikely, if not impossible." Though they became friends, he and Franklin, according to Crick, never discussed the subject during the five years between the 1953 article and her death. Writes Wade: "It was probably obvious to Franklin, as Crick believes, that the structure rested on her data because no one else was producing any experimental results. And both knew that Crick had understood what Franklin's data meant before she did."

Franklin and the Watson-Crick team represented two contrasting approaches to doing science, observes Harvard University biologist R. C. Lewontin, writing in *The New York Review of Books* (May 1, 2003). "For Franklin, whom Watson characterizes as 'obsessively professional,' the evidence would finally speak for itself. . . . For Watson and Crick . . . data were useless without a prior concept. The facts could serve only to suggest a range of models and as a check against errors. They garnered their facts where they could."

"We're very famous because DNA is very famous," Watson tells *Scientific American* (April 2003), referring to Crick and himself. "If Rosalind had talked to Francis starting in 1951, shared her data with him, she would have solved that structure. And then she would have been the famous one." But 50 years after the discovery, with two biographies of her published and another in the works, Rosalind Franklin is now almost as famous as the Nobel laureates. In their great collective accomplishment, observes Lynne Osman Elkin, there's "enough glory" to go around.

Brave New Brains

"The Battle for Your Brain" by Ronald Bailey, in *Reason* (Feb. 2003), Reason Foundation, 3415 S. Sepulveda Blvd., Ste. 400, Los Angeles, Calif. 90034–6064.

If drugs were available not only to repair defective brains but to "enhance" normal ones, would humans lose sight of what it means to be human? Bailey, science correspondent for *Reason*, sees no cause for alarm, so long as decisions are left to the individuals whose brains would be upgraded.

Francis Fukuyama, author of *Our Posthuman Future* (2002), has called for close regulation of biotechnology. He would direct research toward therapy while putting severe restrictions on cognitive enhancement: "For us to flourish as human beings, we have to live according to our nature, satisfying the deepest longings that we as natural beings have."

But personality is not an unchanging quality, Bailey argues: "Fukuyama has a shriveled, stunted vision of human nature, leading him and others to stand athwart neuroscientific advances that will make it possible for more people to take fuller advantage of their reasoning and learning capabilities."

The common objections to the prospect of using pills to improve mood, memory, and intelligence are unconvincing, Bailey maintains. Instead of making people less "authentic," drugs can make them *more* authentic, as happened with the Prozac user who said it was "as if I had been in a drugged state all those years [before], and now I'm clearheaded." Nor will neurological enhancements undermine personal responsibility or good character, says Bailey. Aren't people with attention deficit disorder who take Ritalin to change their behavior acting responsibly? Even if taking brain-enhancing drugs were made easy, there would still be plenty of challenges in life to aid in the formation of character.

Why, Bailey asks, should it be considered better to induce a behavior change by altering a child's environment than by giving the child a brain-altering drug for the same pur-

pose? If Ritalin and the Kaplan SAT review each "can boost SAT scores by, say, 120 points," observes Michael Gazzaniga, a neuroscientist at Dartmouth College, "I think it's immaterial which way it's done."

"Fukuyama and other critics," concludes Bailey, "have not made a strong case for why *individuals*, in consultation with their doctors, should not be allowed to take advantage of new neuroscientific breakthroughs to enhance the functioning of their brains. And it is those individuals that the critics will have to convince if they seriously expect to restrict this research."

Cardiology in Crisis

"When Doctors Slam the Door" by Sandeep Jauhar, M.D., in *The New York Times Magazine* (Mar. 16, 2003), 229 W. 43rd St., New York, N.Y. 10036.

It must have seemed an obviously good thing to do more than a decade ago when the federal Health Care Financing Administration and several states began monitoring the performance of heart surgeons and other medical professionals. In the early 1990s, New York and Pennsylvania began publishing "report cards" for public consumption. The idea behind all these efforts, notes Jauhar, a New York City cardiology fellow, was "to improve the quality of cardiac surgery by pointing out deficiencies in hospitals and surgeons," channeling patients toward the good ones and forcing the deficient others to heal themselves. The worst surgeons might lose their hospital operating privileges.

At first, there seemed to be amazing improvements. In New York State, for example, "mortality rates for coronary bypass surgery declined a whopping 41 percent." (Nationwide, surgeons perform some 500,000 bypasses annually.) But skeptics feared that surgeons intent on boosting their scores might be declining to treat their sickest patients. "In a survey a few years ago," Jauhar reports, "63 percent of cardiac surgeons in New York State said that because of report cards, they were accepting only relatively healthy patients for coronary bypass surgery." Now there's hard evidence, too. Researchers at Northwestern and Stanford Universities who compared 1990–93 data from New York and Pennsylvania with data from states with no such report cards found something striking: Patient health-care expenditures over the year *before* coronary bypass surgery dropped by seven percent in the two states while staying about the same elsewhere. That's evidence that healthier patients were being "cherry picked" for surgery. The decline in expenditures in New York and Pennsylvania "was matched by a drop in the number of operations for sicker patients. They experienced 'dramatically worsened health outcomes' as a result, including more congestive heart failure and recurrent heart attacks," notes Juahar.

He sees "a kind of spiritual crisis in the field of cardiac surgery. Heart surgeons, among the most highly trained and fearless of specialists, are shrinking from taking on the toughest cases because of statistics."

The pity of it is that they're the wrong statistics. Some 98,000 Americans die every year because of medical errors, but seldom is an individual surgeon—or nurse, or technician, or anesthesiologist—solely responsible. "Health care is too complex; outcomes depend on many variables," Juahar believes. To ensure real accountability, we must focus not on individuals but on the systems that deliver our health care.

The Hottest Century?

"Reconstructing Climatic and Environmental Changes of the Past 1,000 Years: A Reappraisal" by Willie Soon et al., in *Energy & Environment* (Mar. 2003), 5 Wates Way, Brentwood Essex CM15 9TB, United Kingdom.

The world has just put a long, hot century behind it, and now the question of where the era stands in the history of the world's climate has become an item in the debate over global warming. One influential recent study of global temperature