



lation to understand and accommodate science-driven change and to devise rational strategies to deal with it.

I live in Seattle, which hosted a meeting of the World Trade Organization in December where the angry villagers gathered. European Greens traveled a third of the planet's circumference to protest this country's agricultural use of genetically modified soybeans and corn. I don't challenge their right to protest, but I wish they would find a better cause. Selective breeding using random (and often chemically induced) mutations has been an important part of agriculture for centuries.

It is not Frankenstein and "frankenfood" we should fear but the mob of angry villagers now converging on the castle of scientific progress.

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but repair and redesign a physical body down to molecular detail.

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Though I appreciated many of the book recommendations in the recent symposium, I was somewhat disappointed by the emphasis on sociobiology and the implicit commitment to determinism in many of your writers' selections.

I was surprised by the partiality to E.O. Wilson's *Sociobiology: The New Synthesis*. For one thing, Wilson's synthesis is hardly new; it's decades old. More importantly, as applied to human action, its thesis has been subjected to ample and devastating criticism, one of the most effective by Philip Kitcher in *Vaulting Ambition: Sociobiology and the Quest for Human Nature* (MIT Press, 1985), which goes unmentioned in the symposium. Thus Michael Ruse badly misses the point when he implies that it's a good thing that Wilson's book causes "consternation in the ranks of social scientists, feminists, Marxists, liberals, and many others." In fact, Wilson's thesis about human action merits outright dismissal by anyone who rejects the idea that human agents are controlled by their genes—or, indeed, by anyone who rejects Professor Ruse's apparent belief that sociobiology shows us that "the whole of life is a sham."

That brings me to the topic of free will. Oddly, neither the term nor the concept

### More Reads on the Future

Gregory Benford and I are both physicists who write science fiction, the literary genre that focuses on change as it affects the human condition and on the human response to change. In his book symposium contribution ("Future Shocks," December), Professor Benford refers to the bio-engineering of Huxley's *Brave New World*. However, Mary Shelley's *Frankenstein*, written decades earlier, sets the stage for much of what has followed in the bio-manipulation of life. *Frankenstein* epitomizes the twin problems of science-driven change: the dangers of loss of control and of public overreaction. Which should we fear more, the shambling monster or the angry villagers, waving their torches as they converge on the castle?

In the light of recent history, from Dolly the sheep to gene-engineered soybeans and human stem cells, it is clear that out-of-control science is not the central problem. There are many open questions in bioethics and human genetics, but these are in the spotlight, the focus of ongoing debates, and the target of labyrinthine laws and regulations. The more serious problem is the inability of much of the popu-

Each year when I read REASON's special December book issue, I like to play a little game and guess how I would answer the question before reading everyone else's. This year, I was somewhat disappointed that no one mentioned *Nanomedicine, Volume I*, by Robert Freitas (Landes Bioscience, 1999).

The book, which has been available since late October, is very technical and detailed, and it hits the reader over the head with voluminous citations. The book has an edge of hard engineering through direct physical manipulation rather than the softer feel of interventions based on guiding unfolding organic processes. It represents early groping in a new field, and years from now it may have a quaint feel.

Nonetheless, *Nanomedicine* is probably the most important work of the year on biotechnology. Its first two chapters are accessible to the interested non-technical reader, and it carefully walks through the foundations of appropriate medical ethics for technologies that can radically restore and alter human life. Its huge technical scope helps the reader glimpse a future where we can not only change a few genes

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are much discussed in the symposium despite its obvious connection to the issues covered there. Though some of your authors criticize the “nature vs. nurture” dichotomy, Deirdre N. McCloskey seems to be the only one to see the crucial point that free will provides the way out of it. It’s worth noting, however, that of the many philosophers Professor McCloskey cites, two—Susan Wolf and Philippa Foot—are renowned defenders of determinism. Significantly, despite her recognition of the relation between nature, nurture, free will, and character, Professor McCloskey doesn’t mention a single explicit defense (or defender) of free will in her article.

The *locus classicus* of an individualist defense of free will is, of course, Ayn Rand’s “The Objectivist Ethics” in *The Virtue of Selfishness*—a profoundly “biological” work that also goes unmentioned in the symposium.

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## Crossing Words

I found “From Donald to Deirdre” (December) informative and thought-provoking, and I wish the author well in what seems to be her true identity.

Yet there are two points which, unfortunately, come into sharp conflict. First, the gist of the article seems to be that “crossing,” as the author calls it, is and should be an elective process. Thus she argues the classic libertarian view, which I share, that a person’s life is his or her own and she or he has the basic right to make decisions regarding it.

However, she also derides Blue Cross for failing to pay for an extremely expensive set of elective procedures. Certainly no insurance company could survive in the marketplace if every elective procedure were covered. What if I decide that the “real” me needs a larger penis or larger breasts? Should these services also be covered? Can we even begin to calculate the costs?

The author then compounds the logical error by pointing out that the operations are reversible, though at an even

higher cost than the original procedures. I suppose Blue Cross should pay for that, too? As a Blue Cross policyholder (and shareholder) I can’t help but wonder what would happen to my premiums, to say nothing of the company’s ability to sustain its business, if it did.

I support the author’s right to make her own choices. But if her situation is not, as she says, a disorder or disease but rather a matter of choice, then it’s not a health matter, and no health insurance company should have to pay the costs of that choice.

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## Fears of a Clone

Ronald Bailey’s “Petri Dish Politics” (December) paints a grim picture of medical advancement if we let the statists get the best of us. But perhaps what’s more frightful is that their distrust of stem cell research is nothing new.

When Dolly the sheep gained international fame for her unique genetics—or, more precisely, the lack thereof—I was working at a division of CBS News and listened to senators and leaders in D.C. debate cloning research for six hours. It was an exercise in cowering. Our would-be leaders, Republicans and Democrats alike, spoke in the hellfire-and-brimstone tones of demagogues warning of Armageddon.

Interestingly, the only person I heard support cloning research—and who chastised his small-minded comrades—was Sen. Tom Harkin. The Democrat from Iowa is one of the two leading Senate proponents of human stem cell research.

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The physicist Steven Weinberg once remarked that until we have truly solved a problem we do not know how deep it really is. In this spirit, we stand at two removes from the brave new world of biotech hailed by REASON: We don’t know how to do the wonderful things that its contributors anticipate. And even if we did, we have no expectation of doing them on a mass scale.

In vitro fertilization is a case in point.

Its significance does not lie in having made sex obsolete, for it is costly and cumbersome as a medical procedure. Rather, its importance lies in the joy it has brought to couples, who have had the babies that they otherwise would have been denied.

Similarly, if cloning becomes feasible, its significance will also lie with individuals. Imagine a woman who bears a daughter that is actually her identical twin or another who loves her husband so much that she bears not his baby but his clone.

An analogy to 20th century medicine is in order. We have heart transplants and other miraculous interventions. Yet while these have saved lives and restored health, they have contributed little to improvements in life expectancy. The largest contributions have resulted from clean water, improved nutrition, and campaigns against endemic diseases. In the new century, the most important medical advances may well be similarly undramatic.

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## Tactical Reality

Kudos to REASON and Thomas Hazlett for his column “Hayek’s Heroes” (December). As a former “grunt,” I readily recognize the need for military decisions to be made by the man on the spot, as opposed to commanders and doctrine whose perceptions are only loosely based on reality. The soldier, by contrast, has plenty of reality (sometimes too much of it) and uses his knowledge, training, and perceptions to impact that reality.

The column brought to mind two quotes from *The 11th Special Forces Group Field Order of Battle Handbook*:

“The reason that the American Army does so well in wartime is that war is chaos, and the American Army practices chaos on a daily basis.” —an unnamed German general

“One of the serious problems in planning against American doctrine is that the Americans do not read their manuals, nor do they feel any obligation to follow their doctrine.” —from a Russian document

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I am afraid that I cannot agree with Thomas Hazlett on Hayek and D-Day. I certainly agree with his larger point about dispersed information and our debt to Hayek on that score. I even agree that application of this principle is especially effective on battlefields. Unfortunately, I do not think that one can say that the democratic Anglo-American armies applied this principle while the totalitarian Germans did not.

Indeed, Stephen Ambrose's work notwithstanding, the generally well-established consensus among military historians is exactly the opposite, i.e., that it was (unfortunately) the Germans who showed far more initiative on the battlefield. Certainly the Germans had cumbersome and bad command arrangements for the Normandy campaign, and Hitler did hamstring German operations with restrictive orders. But at the battlefield level, the Germans were far more flexible than we.

In fact, the major debate among historians about the Normandy campaign is why it took the Allies so long to break out, and what this says about the relative quality of the German and Allied armies. It would be nice to believe that democracies inherently produce better soldiers. Unfortunately, this is simply not true.

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As a Marine Corps infantry officer (now serving in the Reserves), I agree wholeheartedly that the strength of current U.S. doctrine is our acceptance of decentralized decision making. The junior officers and noncommissioned officers are empowered to take whatever actions they deem appropriate to accomplish the "Commander's Intent." Rather than being told what to do and how to do it, subordinate leaders are told what the commander envisions as the desirable "end state of the battlefield" and are set loose to accomplish it.

I have one minor complaint, however, concerning Mr. Hazlett's portrayal of the Wehrmacht as representing centralization of command and the U.S. Army representing decentralization of command. I think he's painted the two armies with too broad a brush. While the German division and corps commanders indeed found their

hands tied by the sometimes baffling dictates of Hitler, at the battalion and company level German junior officers and NCOs had at least the same degree of autonomy as their American counterparts. In fact, it was official German doctrine that the leader on the spot could disobey orders when the situation called for it.

In my opinion, we owed our victory at Normandy more to high-level blunders by the German command combined with their low-quality troops than to our own good, small-unit tactics and decentralized decision making.

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**Thomas Hazlett replies:** Many thanks for these (and other) thoughtful letters on "Hayek's Heroes." As for the areas of agreement, I agree. As for the areas of disagreement, I shirk. As I noted in the column, my take on D-Day was drawn from Stephen Ambrose's history. The interesting points of contention would be usefully debated with Professor Ambrose. I deserve no credit and scamper from any blame—a cowardly baby boomer contrast to the heroic actions on display June 6, 1944.

### What Might Have Been

I very much enjoyed reading Charles Paul Freund's article on counterfactual history ("Spilt History," December). It was therefore especially disappointing that he neglected to mention the one work that does the most effective job of countering the deterministic in historical studies, Karl Popper's *The Open Society and Its Enemies*.

Popper makes an explicit connection between determinism and Marxism/totalitarianism that would strongly support many of Mr. Freund's points. His work is also important because it makes the same connection between deterministic history (historical teleology, or historicism) and the misunderstanding of science that justifies historicism as having more authority. The phenomenon, I believe, is known as "physics envy," and it is entirely misplaced.

My own hook for this is Isaac Asimov's classic *Foundation* trilogy, in which he

invents "psychohistory." Psychohistory treats history mathematically once there are a sufficient number of individuals acting, just like thermodynamics makes deterministic predictions about sufficiently large numbers of atoms. The difference between molecules and people is, it seems, trivial.

This is a complex and wide subject, involving both common expectations for our lives and the sometimes silly "science wars" in the academies. It is endlessly fascinating, and I want to express my appreciation that Mr. Freund did a good job of making the case that historicism is tied to this misunderstanding of science.

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Charles Paul Freund's article on "what ifs" was a model of cool erudition and refreshing open-mindedness—just the sort of work one looks for in REASON. If anything, he may have underestimated the significance of "what if" thinking in guiding our policies. I'm thinking in particular about Vietnam and the "Vietnam syndrome."

What if LBJ had possessed a crystal ball in 1964 and had foreseen all the agony, outrage, and brutality that his Vietnam policy would produce and, most important, the eventual defeat of our side? Doves say that LBJ would never have embraced such a fate. Rather, he would have found a way to stay out. Hawks say LBJ would have or should have upped the ante militarily and the U.S. would have prevailed.

Both sides agree that LBJ made a big mistake. Most of the debate has been whether he was blinded by some personal flaw or was fooled by his generals. I've heard many people assert that either policy would have been better than the no-peace/no-victory strategy we actually followed. This is a sort of double counterfactual built on a super horror of the factual.

In our can-do country, an unhappy result *must* be the result of a mistake. I suspect LBJ would not have taken either alternative, no matter how much he saw of the horror that awaited.

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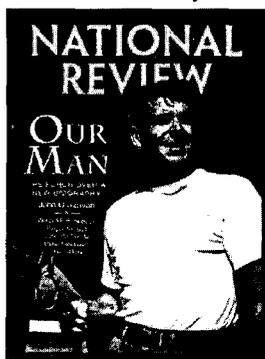
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