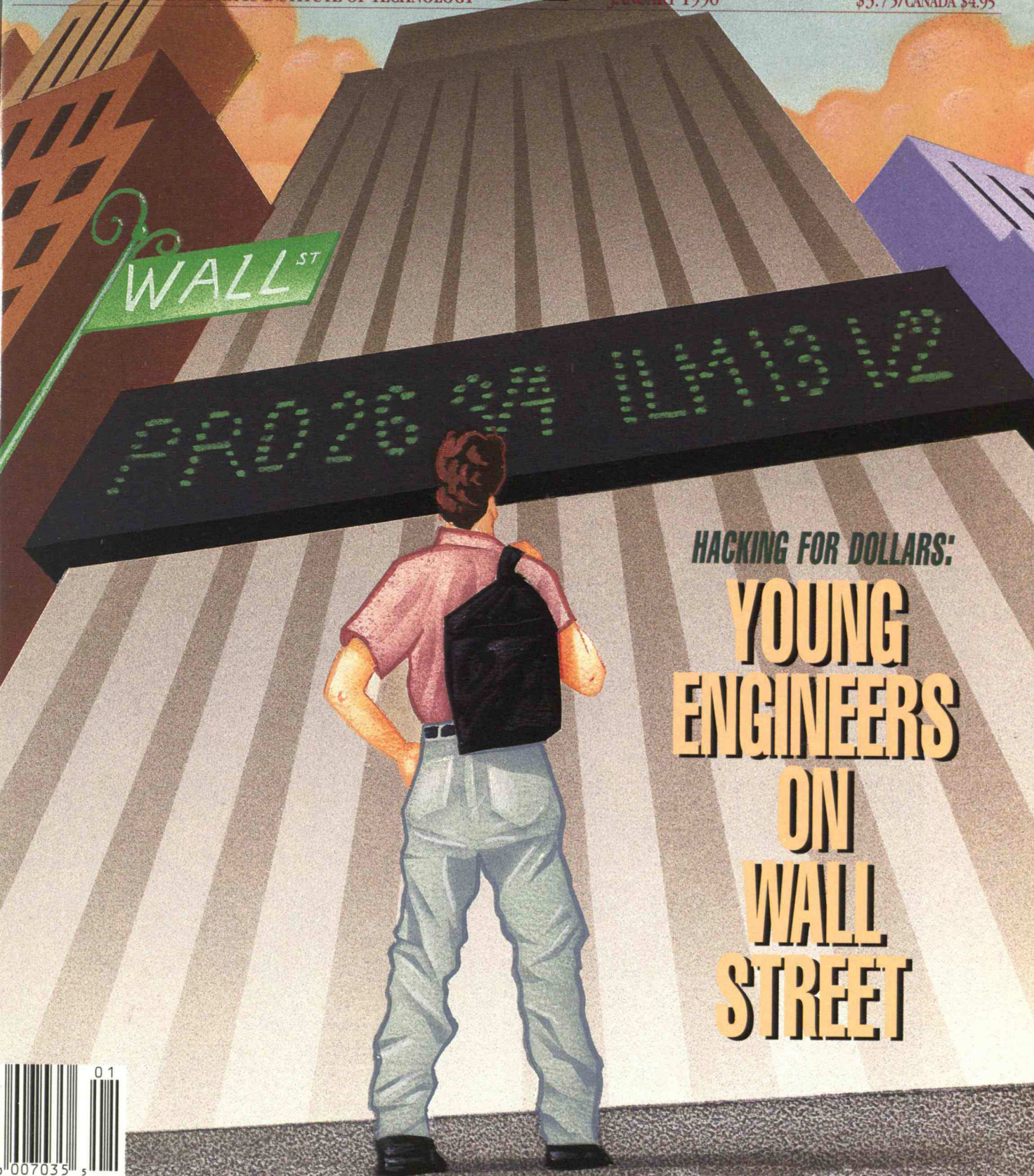


# Technology Review

EDITED AT THE MASSACHUSETTS INSTITUTE OF TECHNOLOGY

JANUARY 1996

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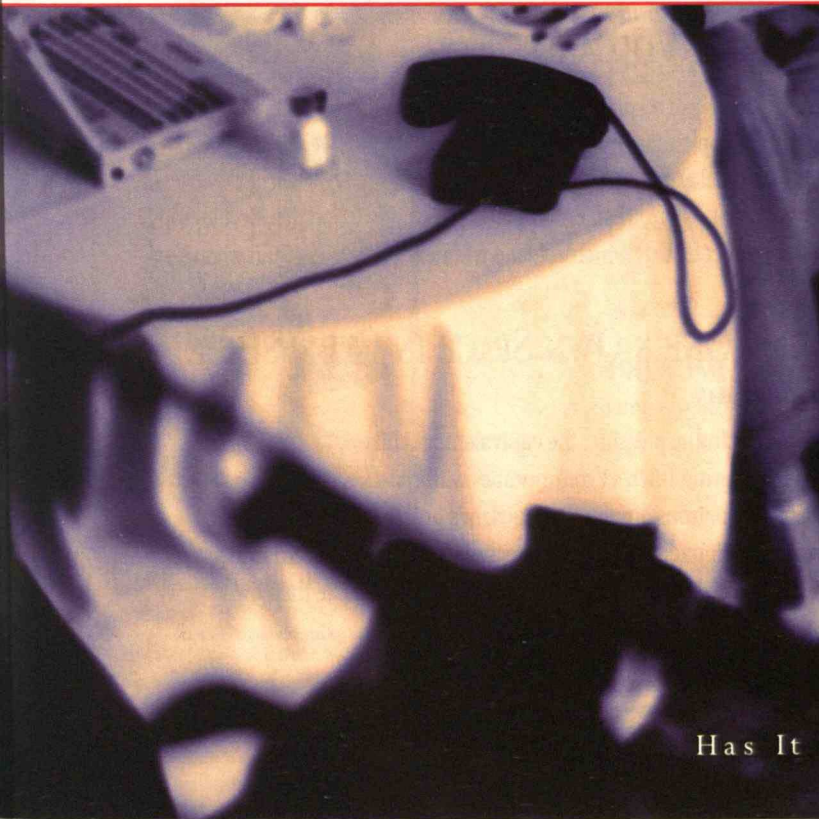
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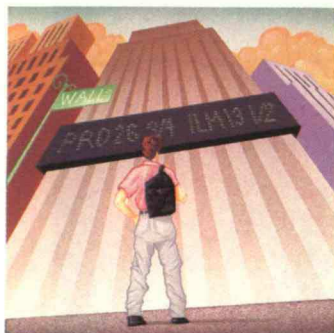
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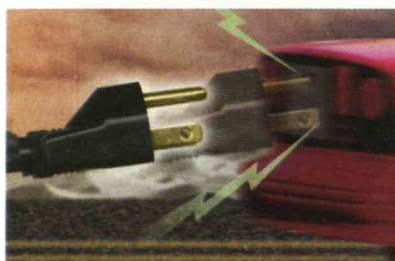


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BY STEPHEN D. SOLOMON

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BY RICHARD DE NEUFVILLE, STEPHEN R. CONNORS, FRANK R. FIELD III, DAVID MARKS, DONALD R. SADOWAY, AND RICHARD D. TABORS

Although some states have made a major commitment to putting electric vehicles on the road soon, EVs are not ready for prime time. Because their cost is too high for their modest performance, argue the authors, they are inappropriate for the consumer market. And they will not contribute much to cleaner air. A better approach would promote more effective pollution-reduction strategies as well as research on a range of alternative vehicles.



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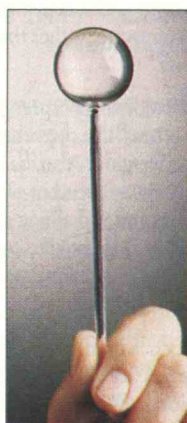
BY AMY BRUCKMAN

What's your electronic pleasure: the equivalent of a biker's hangout or a fern bar? Discovering Internet communities with the desired ambience and compatible patrons among the thousands online is not always easy. A cyberspace aficionada offers specific techniques to help users track down sympathetic sites, shape them to their needs, and even create their own.

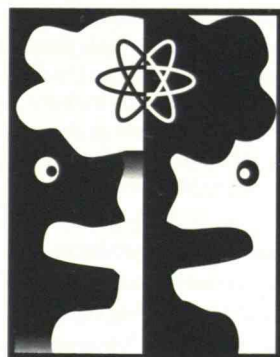
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Editorial, circulation, and advertising offices: *Technology Review*, Building W59, MIT, Cambridge, MA 02139, (617) 253-8250; FAX (617) 258-7264. Printed by Lane Press, S. Burlington, VT. Second-class postage paid at Boston, MA and additional mailing offices. Postmaster: send address changes to *Technology Review*, MIT, Building W59, Cambridge, MA 02139, or e-mail to <traddress@mit.edu>.

Subscriptions: \$30 per year. Canada add \$6, other foreign countries add \$12. Contact *Technology Review*, P.O. Box 489, Mount Morris, IL 61054, (800) 877-5230 or (815) 734-1116; FAX (815) 734-1127, or e-mail to <trsubscriptions@mit.edu>.

Advertising representatives: The Leadership Network: Kiki Paris, 200 Madison Ave., New York, NY 10016, (212) 686-1734.

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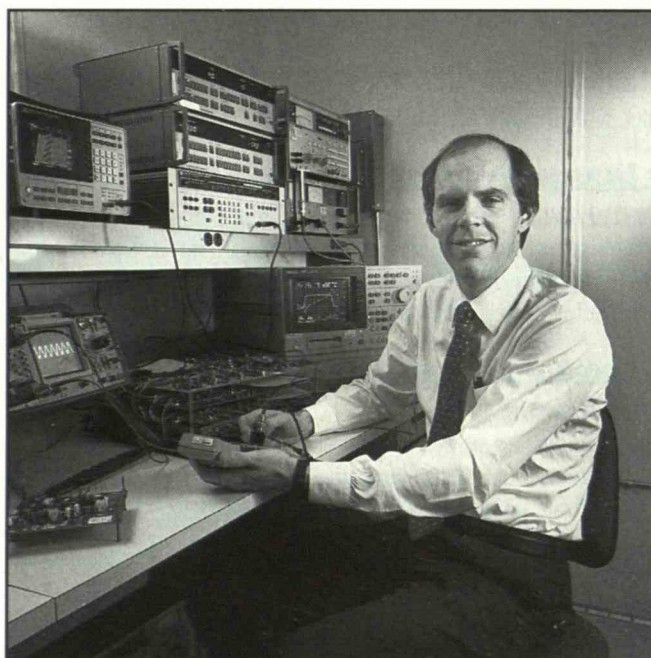
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Rob Parker, in one of the new screen rooms at Bose®.

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# First Line

## Saving the World on Wall Street?

**I**n life, lamented the ghost of Jacob Marley in Dickens's *A Christmas Carol*, "my spirit never walked beyond our counting house....[It] never roved beyond the narrow limits of our money-changing hole."

"But you were always a good man of business, Jacob," faltered Scrooge.

"Business!" cried the Ghost, wringing his hands again. 'Mankind was my business. The common welfare was my business...'

Many journalists who came of age in the 1960s—indeed, students and professionals of all kinds who struggled with the big issues of the era—were intent on applying their skills to that common welfare. "Business," especially in its pejorative "money-changing" connotations, was about as attractive to many of us as napalm. Though our definitions of right and wrong may have been narrow, even intolerant, we were proud that our purpose—basically, to "save the world"—was lofty. Regardless of what we may now do, we therefore tend to be appalled that contemporary campuses have become, in the words of activist Abby Hoffman, "hotbeds of rest." Recent graduates seem not only unhindered by major social concerns but to be actively "selling out."

Thus it is with a tinge of ambivalence among a few of the staff members of *Technology Review* that we present this issue's cover story, "An Engineer Goes to Wall Street" by Stephen D. Solomon. On the one hand, it is a fascinating article describing a bona fide national trend—the recognition by parties well outside the realm of traditional engineering, particularly leaders in the financial industry, that young engineers possess the mathematical and general problem-solving skills to become critical assets in this age of complex services and high-speed transactions. For engineering graduates, that industry represents a new and exciting source of career opportunities, espe-

cially as jobs in more "traditional" arenas dry up.

On the other hand, it is worrisome to note the lack of apparent soul-searching by young professionals as they abandon attempts to create wealth through conventionally defined means and move into new activities that seem to create little of their own. Such efforts presumably divert scarce resources, not least the engineers' talents, from more productive enterprises. Says one *TR* colleague: "I have little interest in anyone who would

*As young engineers  
branch far and wide,  
do they squander their  
skills or apply them in  
new and valuable ways?*

---

use 13 years of an MIT education to design blackjack programs and then take a job because of some abstract, unexamined compulsion to hack."

I asked author Steve Solomon, a professor of journalism at New York University, for his own reactions. He concurs that social consciousness is indeed relatively rare among students today, regardless of major. But Solomon notes that the young engineers heading to Wall Street do not see themselves as selling out. For the most part, he says, their goal is "not to milk the system with trades but to design different kinds of products—financial products—that create wealth just as surely as, say, computers." Interestingly, many of these individuals, says Solomon, "are simply turned off by traditional engineering," seeing it as overspecialized and boring.

Meanwhile, Robert K. Weatherall, director of career services at MIT, sees the tendency of recent engineering graduates to turn to the financial industry as a marvelous "tribute to the skills of engineers." Rather than bemoan it, he ad-

vises, "we should rejoice."

In any case, Weatherall notes that he has been working with engineering students since 1969, and "very few have ever gone off on 'high-minded' pursuits." Most have taken jobs with, or founded, technology-based companies, and in this day and age firms in the financial industry are themselves becoming technology-based companies. Thus to dismiss the young engineers on Wall Street as having been impressed into some crap game, he says, is wrong.

But even if the machinations of Wall Street are indeed nothing more than a glorified casino, who can say whether this ultimately hurts or serves the nation—whether financially savvy individuals acting in their own self-interest undermine or actually help fulfill the "high-minded" principles of others. For example, Solomon notes that even the much-maligned arbitrageurs, who exploit minuscule price anomalies between securities in different locations to earn large profits, can be seen as "lubricating the market" to the benefit of all who buy and sell.

"Greed, for want of a better term, is good," asserts the fictional Gordon Gekko, a prominent securities speculator and chief heavy of Oliver Stone's film *Wall Street*. "Greed is right. Greed works. Greed clarifies, cuts through, and captures the essence of the evolutionary spirit. Greed in all of its forms—greed for life, for money, for love, knowledge—has marked the upward surge of mankind."

This is clearly a "good man of business" in whom my *TR* colleague would have "little interest." But maybe we should not presume to judge him or his ilk or their technologically sophisticated associates. A democratic society, after all, must operate according to the principles of do your own thing and live and let live. A vital economy, like a strong and healthy ecosystem, needs critters at diverse points in the food chain. Only with tolerance and mutual respect can we all do our part to "save the world." ■

—STEVEN J. MARCUS



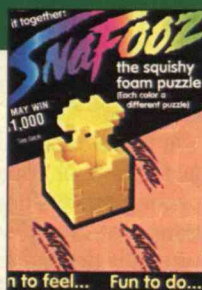
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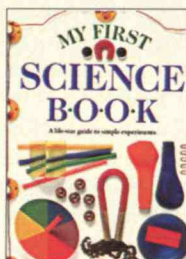
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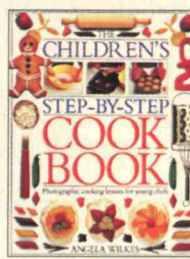


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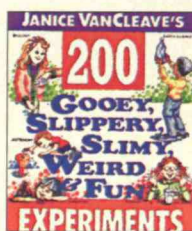


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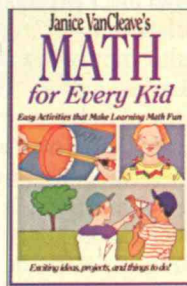


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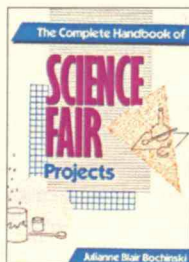


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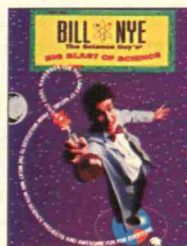


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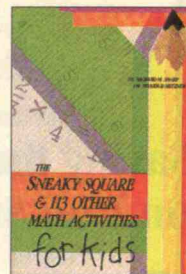


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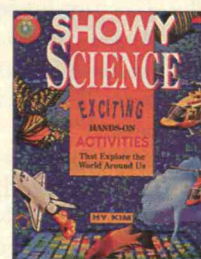
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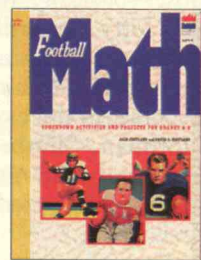
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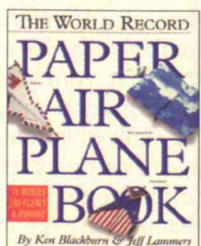
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# Letters

## ACKNOWLEDGING THE MICROBIAL THREAT

In "Conquering Infectious Diseases" (*TR* October 1995), Stephen Morse argues that today, perhaps more than at any other time in history, we need to address the problem of emerging microorganisms. Because we have conquered traditional pestilences (smallpox, the plague, and yellow fever), many people mistakenly assume that available resources and expertise are adequate to cope with new epidemics. Although the complacency toward infectious diseases that characterized the 1970s and 1980s was called into question when HIV emerged, today—more than a decade after the discovery of the causative virus of AIDS—the disease continues to spread relentlessly while our defense is limited to little more than efforts to modify human behavior.

Hypothesizing a scenario more catastrophic than AIDS is not difficult: just imagine the Ebola virus with influenza's capacity to spread through respiration. As the author notes, the probable sites for the emergence of such diseases would be densely crowded, unsanitary areas in the tropics. However, early detection in such locations is unlikely considering their inadequate supply of medical facilities and epidemiologists. Identifying culpable organisms and developing diagnostic tests, vaccines, and drugs require special containment laboratories. There are, at most, five such laboratories in the world (the United States has two). All are of limited capacity and unable to meet the research needs of the recently emergent Ebola and Hanta viruses.

The author suggests an infusion of \$10 to \$20 million to fund research on infectious diseases, expand the laboratory network, and develop drugs and vaccines. Morse's figures represent a beginning. Not less than 10 times his estimate is needed annually to mount a serious effort. Can we afford such expenditures in a time of fiscal austerity? With substantial military budgets being sustained, it may be time to weigh microbial threats in similar strategic or quantitative terms. Whereas the threat to our national security is a perceived

one, the threat of microbial organisms is tangible. Recent reports estimate that 1.5 million people, both military and civilian, have died annually during this century from war. Compare this figure with the more than 2 million annual deaths occurring now from tuberculosis and malaria and that occurred during the 1960s from the lowly smallpox microbe. The microbial world clearly must be viewed with greater concern and apprehension. The salient question is whether we can risk *not* making substantial additional investments.

D.A. HENDERSON

University Distinguished Service Professor  
Johns Hopkins University  
Baltimore, Md.

## A HARD FIGHT FOR RENEWABLES

George Sterzinger's examination of what role the U.S. government should play in gasifying biomass and fostering the technology to power a turbine (*Making Biomass Energy a Contender*, *TR* October 1995) clearly applies to many other emerging technologies as well. But while the evidence of global warming grows stronger every day, the federal government is in full retreat from supporting research and policies that would cut carbon emissions and resolve remaining uncertainties surrounding global warming. Not surprisingly, private capital markets have also failed to acknowledge the serious risks of climate change.

The longer action is delayed, the faster emissions will have to be reduced to stabilize atmospheric concentrations. Unfortunately, the Department of Energy projects that coal and natural gas will actually increase their share of national electric-power production through 2010. Thousands of megawatts of new electric generating capacity will exacerbate the situation before any international agreements to limit carbon emissions are likely. By investing in renewable technologies, we can reduce

