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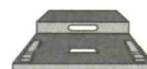
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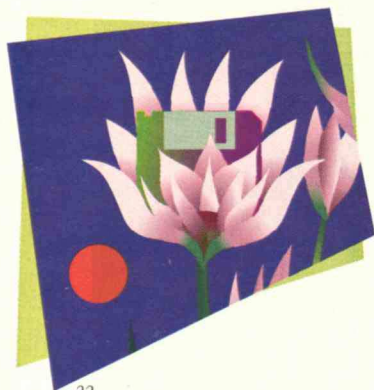
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Contents

FEATURES



22

22 MAINTAINING DIVERSITY IN THE ELECTRONIC REPUBLIC

BY LAWRENCE K. GROSSMAN

Interactive telecommunications could give citizens more influence on public policy, but as media come under the control of mega-companies preoccupied with entertainment and sports, options could shrink. The nation needs a public-interest organization, with teeth, to assure access to diverse information and ideas.



37

28 PATENT MEDICINE

BY SETH SHULMAN

Companies in emerging fields often receive patents that are so broad as to hinder competition. The aging U.S. Patent Office ought now to swallow some bitter pills—like better training for examiners and a weakening of the protection it grants.

37 THE TRULY ENDLESS FRONTIER

BY HARVEY M. SAPOLSKY

To thrive, academic science needs a persuasive political rationale to replace defense. The new basis for R&D should be health. Public and congressional interest is strong, personal, and bipartisan; and it is a quest that never ends.

SCIENTISTS AND ENGINEERS AS POLITICAL ADVOCATES

BY REP. GEORGE E. BROWN, JR.

The research community should not only link its work to a set of concrete national goals but must actively engage in the political process, competing effectively with rivals for funding from the federal government's discretionary pot of programs.



44

44 AVERTING A GLOBAL FOOD CRISIS

BY LESTER BROWN

A major side effect of China's headlong dash toward industrialization is a decline in its ability to grow enough grain to feed itself; factories, roads, and parking lots are devouring precious farmland. Worse, because of the hungry giant's sheer size, as well as similar development patterns elsewhere and limits on the output of grain-exporting nations, China's food shortage could become everyone's food shortage.



54

54 WHEN THE UNIVERSE BEGAN, WHAT TIME WAS IT?

BY MARCIA BARTUSIAK

It's morning in the cosmos. All matter is squeezed into a point the size of a subatomic particle. There are no clocks, no vibrating atoms, no other references for tracking the order of events. So how do you figure out what happens next? To answer this question, theorists are busily rewriting the laws of physics.

DEPARTMENTS



11



26



67

5 FIRST LINE

6 LETTERS

11 MIT REPORTER

Recognizing Stars in an Age of Teamwork; The Little Enzyme That Could

14 TRENDS

Electronic Support Groups; New Eyes in Space;
The Perfect Sweetener?; Making the Sound Barrier

26 FORUM

EVAN I. SCHWARTZ

Today's feeble experiments in "interactive television" are built on dubious assumptions about consumers' needs. The road to success? Emulate the Internet.

64 THE NATIONAL INTEREST

ROBERT M. WHITE

The U.S. system of graduate education needs reshaping to retain its luster, respond to altered patterns of support, and better reflect the changing roles of PhDs.

66 THE CULTURE OF TECHNOLOGY

LANGDON WINNER

Looking for quality on the World Wide Web: with all this horse manure, there's just got to be a pony in there somewhere. What would Aristotle think?

67 REVIEWS

Kathleen Courrier on *A Moment on the Earth: The Coming Age of Environmental Optimism*, by Gregg Easterbrook

Robert J. Crawford on *The Quark and the Jaguar: Adventures in the Simple and the Complex*, by Murray Gell-Mann

72 PHENOMENA

Mr. Mens, Meet Mr. Manus

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First Line

Scientist, Explain Thyself

AN advertisement a few years ago for New York's Plaza Hotel featured a shot of Walter Matthau and his family enjoying breakfast there. The caption boldly declared: "Nothing unimportant ever happens at the Plaza."

Now Mr. Matthau is one of my favorite movie stars and I'd bet his family is a lovely bunch, but why was their morning meal such an important event? Don't we all eat breakfast, more or less every day, maybe even occasionally in fancy places?

Thus it seemed to me that the ad backfired: if the hotel's management deemed a routine breakfast significant, one might wonder whether *anything* important ever actually happens at the Plaza. Similarly, consider the packages most offices regularly receive from Federal Express and other overnight-mail services that identify the contents, however ordinary, as "Extremely Urgent." If everything is labeled extremely urgent, and nothing is ever unimportant, the audience grows skeptical and may ignore the arrival of something truly critical.

The erosion of trust that results from grandiose claims is not peculiar to commercial enterprises. Our own science and technology community, where research is invariably "of fundamental importance" to the welfare of the nation, is also at fault. Many such claims turn out to be true, but unless they are convincing to the public and its political representatives—unless scientists and technologists patiently explain in some detail why their work is so critical—the researchers will be perceived as just another self-serving interest group wrapping itself in glamorous but deceptive packaging, and consequently deprived of funding.

I fear that we're currently witnessing such a phenomenon—ironically, in response to something that truly is "nothing unimportant." Initiatives led by Republicans in the House of Repre-

sentatives—in the spirit of balancing the federal budget, cutting unnecessary governmental costs, and furthering the ideology that the marketplace knows best—would steadily and significantly reduce federal support of science and technology over the next seven years. By FY 2002, total funding for nondefense R&D, under current House proposals, would be some 33 percent lower than in FY 1995, with agencies such as NASA, the National Science Foundation, and the Department of Energy taking major

Researchers need a better strategy for fighting threats to federal funding.

hits in both their structure and the work they support.

If all this comes to pass, numerous projects will be cut back or eliminated, and the impact on many scientists' and technologists' careers will be profound. In lots of cases, the ultimate effects on society could also be profound. But the R&D community has been responding to this crisis mostly with blunt instruments, rarely venturing beyond the vague generalization. We hear warnings that the House proposals will have "serious ramifications for the entire nation," but we do not hear case-by-case arguments for reinstating each funding cut deemed misguided.

Problem is, *all* the cuts are apparently deemed misguided by spokespersons for the R&D community. But when research is represented in monolithic terms, as if every contribution were of equal merit, it becomes impossible for legislators to weigh the value of each potential investment, and a major opportunity to reach them is lost.

Granted, it's not easy to be specific about the long-term benefits of individual R&D projects. But surely researchers in each case have some initial ideas—however fuzzy, limited in scope, or ulti-

mately incorrect—on where their work may lead, and can offer them in candor as a starting point. This would be a lot better than the verbose attempts to brand the entire science and technology enterprise extremely urgent, which amounts to saying nothing.

Luckily, the scientists who would have the hardest time predicting the outcomes of their work are off the hook: Republican budget-cutters generally have no problem with basic research, which they view, at least in principle, as legitimate for public funding. They need to be convinced, however, about applied research. But this is by definition a lot easier for researchers to match with intended pay-offs: in the applied arena, they usually know what practical ends they seek, and why public funding in many cases might make more sense than private. Thus the R&D community has little excuse for not being more articulate about the anticipated benefits of most of the projects now actually slated for cuts.

Because it would acknowledge the practical needs of legislators, such specificity would be part of the "long-neglected dialogue with the political system" that Rep. George E. Brown, Jr. (D-Calif.), writing in this issue of *Technology Review* ("Scientists and Engineers as Political Advocates," page 40), urges researchers to cultivate. "The research community," he advises, "must stress pragmatic and short-term returns on our R&D investment rather than the loftier goals of expanding human understanding."

Neal Lane, director of the National Science Foundation, sounded a similar theme in a symposium last summer convened by the American Association for the Advancement of Science. Along with the privilege of receiving taxpayer support, he said, researchers have "the responsibility to explain to the American public the contributions that science and technology make in meeting the goals of the nation and its citizenry. It is only then that we can expect society to truly understand and value those contributions."

—STEVEN J. MARCUS

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Letters

RECALLING THE DAYS THEY DROPPED THE BOMB

I disagree with author John W. Dower's assertion in "Hiroshima, Nagasaki, and the Politics of Memory" (*TR August/September 1995*) that the scaled-back Enola Gay exhibit at the National Air and Space Museum denied the American public "a rare opportunity to use the fiftieth anniversary of Hiroshima and Nagasaki to reflect more deeply about these world-changing developments." The public was spared the original, seriously flawed exhibit that, through omission and selective editing, painted a distorted picture of the Japanese in World War II as the victims and the Americans as the racist aggressors. Far from thoughtful, it did little to capture the many nuances and complexities surrounding the decision to drop the bomb.

Out of the original exhibit's 302 pages of text, only three referred to the Japanese atrocities before or during World War II while 99 pages covered the devastation in Hiroshima and Nagasaki, the Japanese casualties, and the suffering and damage from earlier B-29 firebombings. Likewise, there were 49 photos of Japanese casualties and only three of American casualties. Ten months and four text revisions later, there were improvements in balance and context. But by then, the issue had become a political hot potato and the ideological content of the exhibit was dropped.

Brief wall labels, photographs, and artifacts are not the easiest medium for conveying complicated issues. The introduction of ideology makes the task impossible. The exhibit that finally opened contains none of the original distortions. Along with a very focused technological display of the Enola Gay, there are explanations of the B-29's technical achievements, details of the 509th Composite Group's mission, a video of the crew's recollections, and an outstanding collage of newspapers from August 7, 1945, the day after Hiroshima was bombed. Those who

take the time to read the articles will find in them many of the issues that are still being debated today.

STEPHEN P. AUBIN
Director of Communications
Air Force Association
Arlington, Va.

John W. Dower writes that "In the end, one of the great legacies of World War II was the redefinition of the legitimate targets of war to include noncombatant women, children, and men." To the contrary, this has been a policy of U.S. warfare since our earliest days when pox-ridden blankets were distributed to native tribes with the intention of

wiping them out. During the Civil War, the Union Army destroyed crops in the Shenandoah Valley to deny them to the Confederates and burned houses and barns there in retaliation for the deaths of Union officers.

At the turn of the twentieth century, U.S. troops carried out wholesale slaughter in our new colony, the Philippines, to pacify the inhabitants, who mistakenly had assumed that our defeat of the Spanish meant independence for them.

The episode in the Philippines also contradicts a point made elsewhere in the same issue, by Robert J. Lifton and Greg Mitchell in "The Age of Numbing," that "Hiroshima was the mother of all cover-ups: it spawned patterns of distortion, manipulation, and concealment that have contaminated American life ever since." If anything, the cover-up by the U.S. press of the atrocities in the Philippines was more effective because the protests of the leading citizens of the time, including author Mark Twain, were simply smothered. Can any American now recall this disgraceful incident?

Dower, Lifton, and Mitchell are naive in fancying that Americans were "nice guys" until only recently. Sad to say, we've had our little lapses throughout our history. Like Hiroshima, said lapses



did serve their purposes at the times they happened, and, of course, the winners wrote the history books—which apparently, these authors read.

G. RAY FUNKHOUSER
Fort Washington, Pa.

John W. Dower speculates that the Japanese would have surrendered “probably by November 1—without the atomic bombs, without the Soviet entry, and without an invasion.” With the Japanese military firmly in control and the populace prepared to fight to the death of the last citizen, Dower’s estimate isn’t even slightly reasonable.

JAMES F. HIELD
Lake Ozark, Miss.

A NEEDLING OBSERVATION

Since sewing needles sold in the United States have been made and packaged in Japan for years, your illustration on page 63 of the August/September 1995 issue—showing U.S. ambivalence about the atomic era by way of a needle packet—reveals even more ambivalence than you realized.

MARGARET P. HOLTON
Seattle, Wash.

THANK THE HAWKS

Prompted by the 50th anniversary of the end of World War II, the media in general—and *Technology Review* (August/September 1995) in particular—were rife with commentaries on the use of the atomic bomb. Included in these collections were the discourses of “revisionists” who claim that the bombings of Hiroshima and Nagasaki were inhumane and even unnecessary to save lives and shorten the war. We strenuously disagree.

Only something on the unprecedented scale of these atomic bombs could have quickly ended the war, thereby sparing the millions of individuals on both sides who would have been killed or seriously injured in land invasions of Japan. And we are sure that there was no alternative to such invasions because the firebombings (with conventional weapons) of Tokyo, Yokohama, Kobe, and other

industrial centers, which were actually more destructive than the two bombs of August 6 and 9, did not force the Japanese to surrender. They respected the power of the atomic bombs, however. Postwar interviews revealed that Japan was working on its own version, and would have used it on us if it were ready.

EDWIN G. ROOS, New York, N.Y.

FRANK CHIN, Brookline, Mass.

LOUIS R. DEMARKLES, Hyannis, Mass.

A BALANCED SERIES

Congratulations on your magnificent special issue, “The Atomic Age at 50” (*TR August/September 1995*). When today’s instant experts pass judgment on issues that they know nothing about, it is refreshing to read an authoritative and well-balanced set of essays on many facets of this awesome subject.

From a pragmatic viewpoint, two indisputable facts emerge: World War II stopped shortly after “the bomb” and no major wars occurred in the ensuing half-century. From a speculative viewpoint, your writers could have projected a scenario in which Japan was the ultimate victor. Hard to believe, but possible. I would have dropped not two but ten bombs to guard against that eventuality.

ITALO S. SERVI
Winchester, Mass.

Congratulations on your August/September issue. I thought you did a superb job of presenting various viewpoints on the bombings of Hiroshima and Nagasaki.

As one of those who was saved from an invasion of Japan by the use of the bomb and an observer of two blasts at Bikini in 1946, I have my own opinion. It is summed up in the following 14 lines of iambic pentameter:

The Road Not Taken

We travel down this road of life, and rest
At forks where one must pause to pick and choose.
A choice is made for what we hope is best,
Or oft, perhaps, on what we fear to lose.
At times these forks are seen both clear and bright;
They stretch across a flat and level plain.
Then others wind down valleys without light.
We know not where they end, in joy or pain.

So Hiroshima came, and we could peer,
But where it led was not for us to see.
One path was picked, its end is still not clear,
But knowledge of the other path will never be.
So fret not for these woes we see so clear.
The other’s woes, perchance, were twice as dear.
JACK C. PAGE
Dallas, Tex.

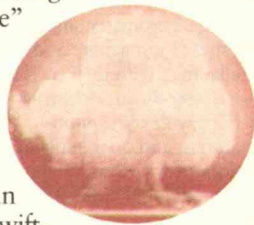
GENERAL CONVERSION

As a World War II veteran, I was appalled at the ignorance of history that editor Steven J. Marcus displayed in “Transforming a Superpower” (*First Line, TR May/June 1995*). He should also apologize for extolling a “Saturday Night Live” skit about the Nazis.

The editor’s assertion that Germany and Japan “ultimately won World War II” denies history. Japan and Germany moved swiftly into civilian pursuits because the United States provided them with long-term military protection in lieu of their own military power. U.S. generals, who quickly converted to peace (as did the rest of us), were excellent postwar statesmen. Gens. Lucius Clay and Dwight D. Eisenhower prevented France, the Soviet Union, and England from turning Germany into an agrarian nation. Gen. Douglas MacArthur guided Japan along the track to democracy and prosperity. Europe’s progress since the end of World War II depended heavily on the (Gen. George) Marshall Plan.

If the editor had acknowledged the U.S. military’s contribution after World War II, he would not have suggested that gender influences problem solving. A solution can simultaneously employ “competitiveness, battle, dominance, and well-defined movement toward singular solutions” and “collaboration, emphasis on process and growth, and a gentle, patient and flexible approach.” Forget Superman, Superwoman, and “Saturday Night Live”. They carry images important only for the TV generation.

PAUL M. ERLANDSON, SR.
Stamford, Conn.



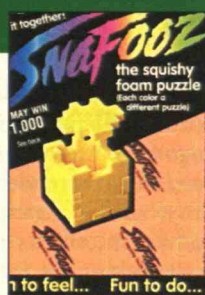
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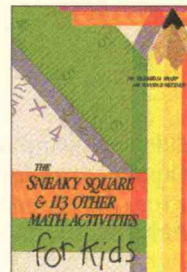
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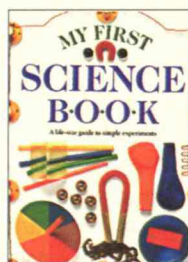


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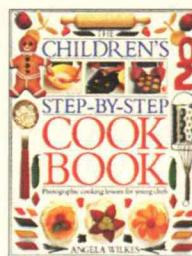


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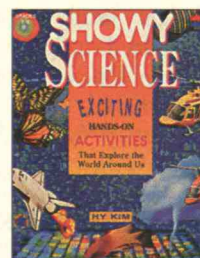
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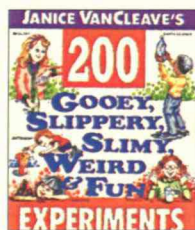
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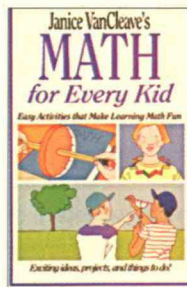


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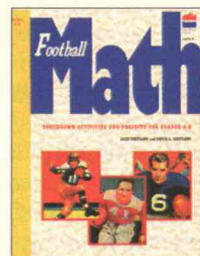
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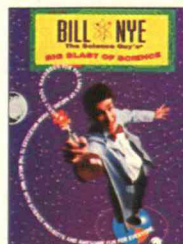


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