

Technology Review

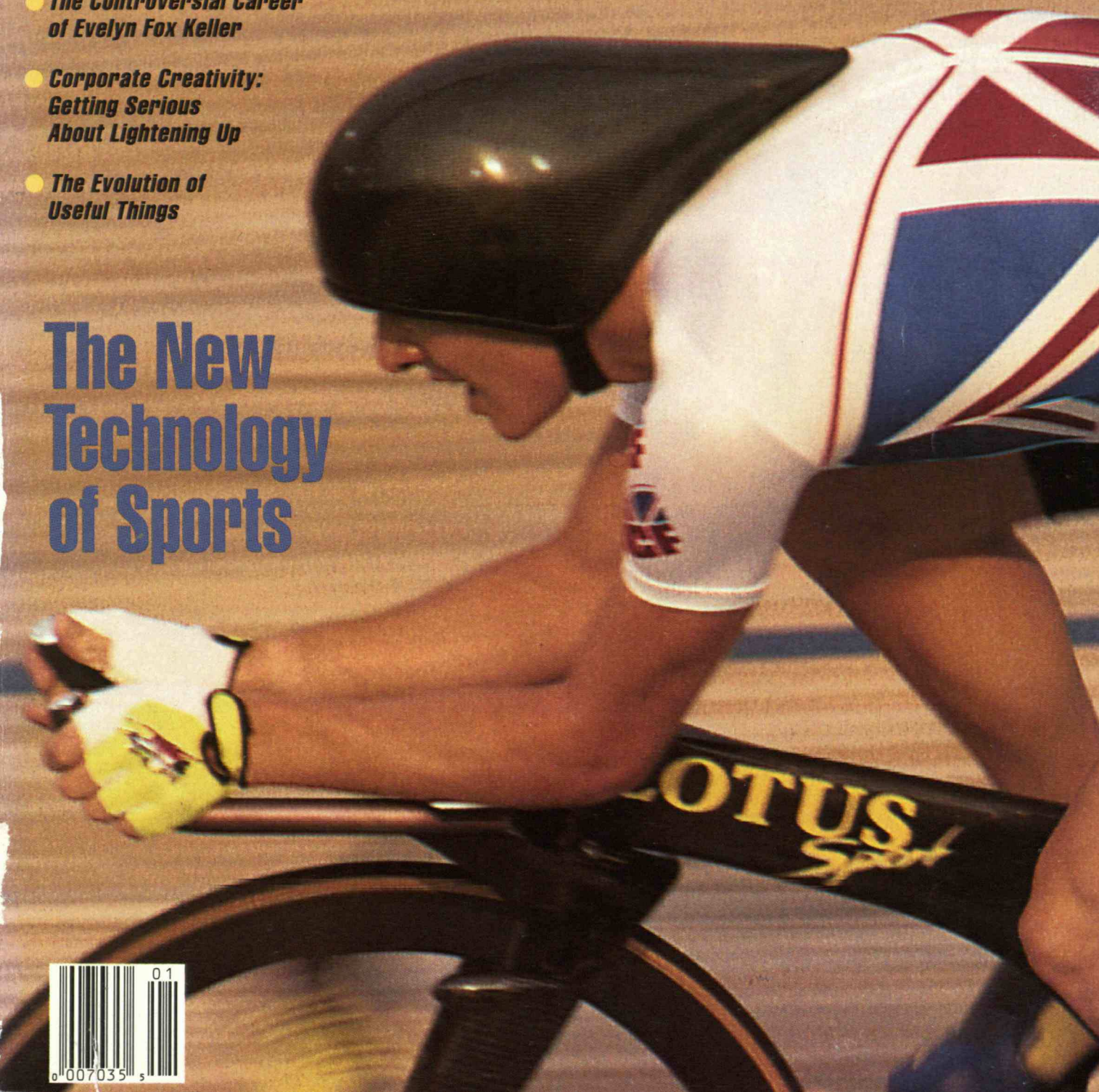
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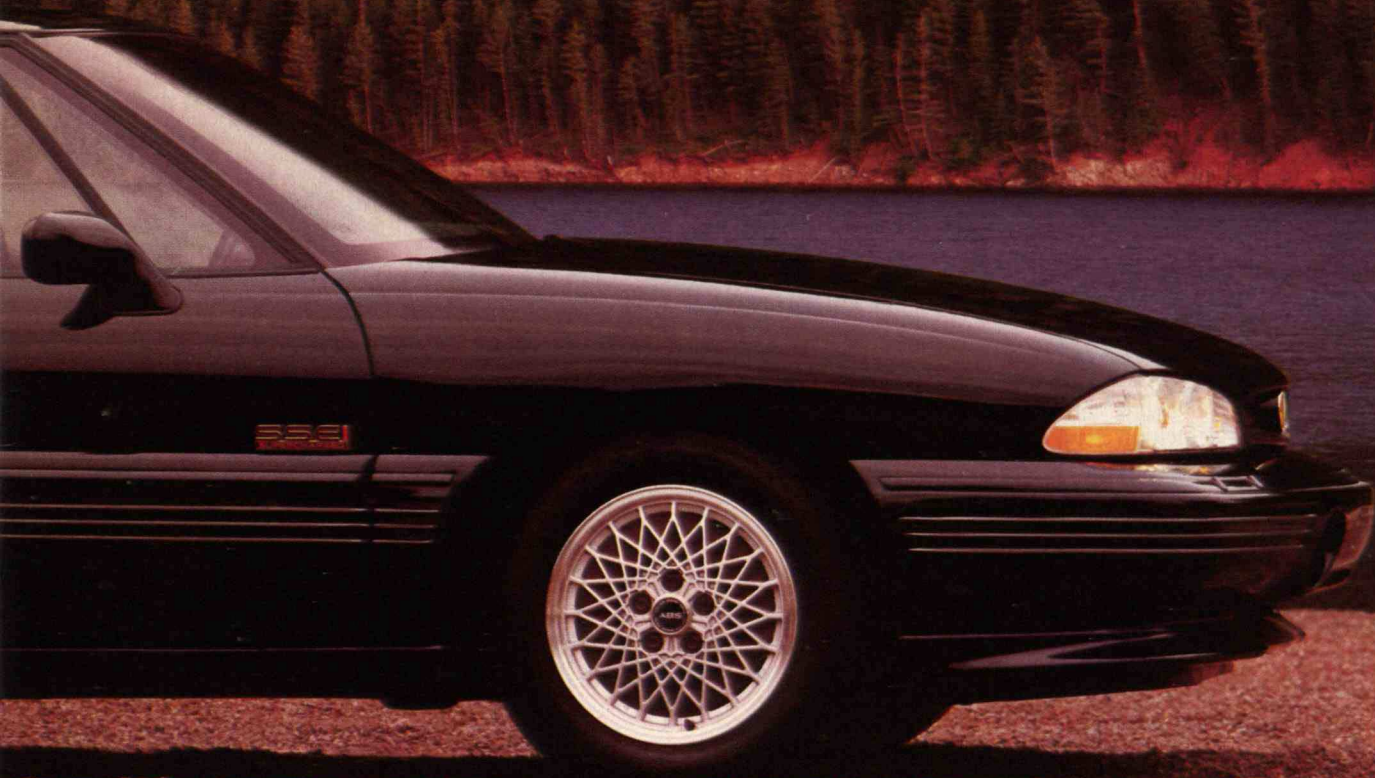


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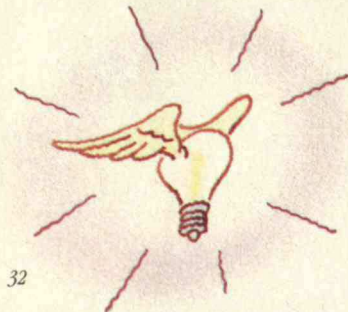
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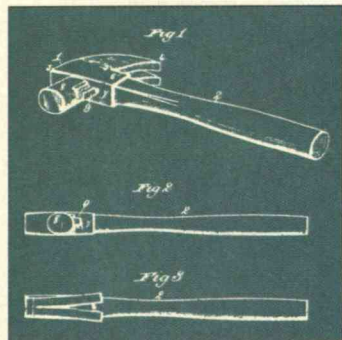
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A multitude of new approaches from both the public and private sectors can turn visions of well-run cities into a humane reality.

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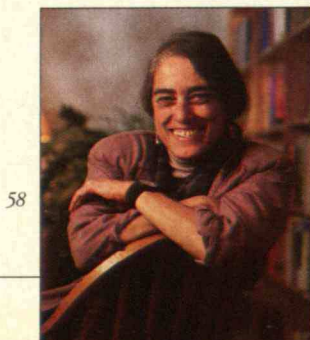


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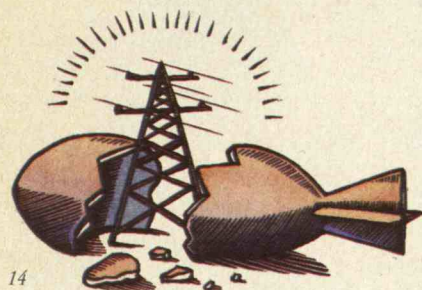
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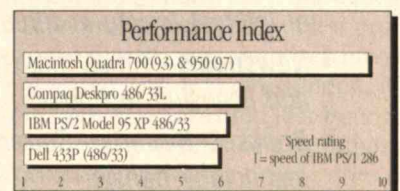
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The Best Way to Protect the Cows

I recently completed what I've come to call my annual NOVA marathon. In preparation for the yearly meeting of the science program's advisory board (on which I'm privileged to serve), my VCR and I run through all the shows of the past season. This ritual has evolved not only because of a well-deserved mistrust of my memory—even with detailed notes, it's difficult to revive impressions in October of shows that were aired in January—but because by viewing them in quick succession I can better see the season's patterns.

This year I observed a welcome trend: less “gee whiz,” more realism and human drama. NOVA filmmakers depicted scientists and engineers not as seekers of arcane knowledge or builders of miraculous machines—no demigods in white coats—but simply as people on the job. We could watch them work together pretty much as all humans do—with frequent agony and occasional ecstasy, and with behaviors ranging from the petty to the profound. Viewers could appreciate that science and technology are social endeavors, little different from any other.

Yet this viewer couldn't help but be reminded as well that we mortals, despite our shortcomings, have much to be proud of. Common to virtually all the interactions depicted in NOVA's past season were admirable human qualities such as competence, dedication, persistence, compassion, bravery, humor, and strength.

Developers, engineers, and tradespeople from ironworkers to bricklayers collaborated to build a New York City skyscraper, their technical skills complemented by street-wise savvy in overcoming a steady stream of obstacles both physical and procedural. In a heartrending odyssey through Saudi Arabia and Kuwait in the aftermath of Iraq's invasion/expulsion, a wildlife biologist combined his veterinary abilities with

insights into bureaucracies to rescue some of the conflict's most innocent and oil-soaked victims. Submariners in the U.S. Navy showed know-how and selflessness during an 80-day mission under the sea. Amid the infernos of oil-well fires, rough and tough teams—a kind of Hell's Angels in service to society—encountered numerous setbacks but stayed cool enough to get the job done.

In these and other NOVAs, no single group—whether scientists or nonscientists, whether trained at the Ivy League

*Most human endeavors
require many hands,
diverse minds, and
mutual respect.*

colleges or at the school of hard knocks—had a monopoly on determination, courage, and skill. And it was clear that all kinds of knowledge and abilities, each occupying a critical niche and each worthy of respect—were needed to accomplish any particular goal.

Recent articles in *Technology Review* have been making similar points. In the November/December issue, Langdon Winner analyzed the “participatory design” movement in industry, wherein workers do not passively receive new technologies but actively collaborate with other experts in shaping them. Barry Bluestone and Irving Bluestone advanced that concept further in “Workers (and Managers) of the World Unite,” in which they described the growing “empowerment” of all employees—notably at GM's Saturn plant—to participate in critical decision making. Such workplace democracy, which begins with process design but could ultimately range all the way to long-term corporate strategy, say the Bluestones, serves worker and company alike.

Consider the present issue as well. In “The Idea Makers,” Tom Kiely describes how U.S. companies are stimulating creativity and fostering communica-

tion throughout the ranks to abet professional growth—and to better compete.

Clark Wieman's article on infrastructure notes how cities save money and improve services when, “rather than add layers of oversight, [they] push power down the bureaucratic ladder and give project managers and resident engineers the authority to do their jobs.”

And Beth Horning's engaging profile of Evelyn Fox Keller reveals how the scientist/historian questions “the deeply rooted popular mythology that casts objectivity, reason, and mind as male, and subjectivity, feeling, and nature as female.” Such stereotyping and rigidity hamper the realization of scientists' goals, Keller believes; they must be replaced by a healthy pluralism that accommodates “diverse conceptions of mind and nature, and correspondingly diverse strategies.”

Simplistic male/female characterizations recall the more subtle Eastern notion of yin and yang—the complementary opposites such as up/down and positive/negative that are intrinsic to the universe—where no one attribute exists in isolation or is more important than its complement. Such egalitarianism certainly applies to matters technological and economic, from the humblest projects to the ship of state, and should serve to enlighten our next presidency. As Gary Chapman lamented last issue in his analysis of the major campaigns: “Workers are viewed as beneficiaries of the elites . . . rather than as real participants in the development of technology and the strengthening of the economy.” But he also expressed the hope that this “rule of the meritocracy” be reexamined “to serve the full range of human aspirations.”

Perhaps we can move into the next administration more productively by heeding the wisdom of the past. An old French maxim tells us, *chacun à son métier, et les vaches seront bien gardées*: if we each do our best and contribute in our own way, the cows will be well protected. ■

—STEVEN J. MARCUS

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Letters

HUMANITY IN MEDICINE

My hat is off to *Technology Review* for including a brief glimpse into the humanity that still exists in modern medicine ("The Importance of Being Nurses" by Suzanne Gordon, *TR* October 1992). As a former firefighter and police officer, I have spent many long hours with nurses who were caring for the wounded, the sick, and the victims of violent crime. I have also sustained injuries myself, some of which resulted in lengthy hospitalizations. In all these experiences, I have found that nurses have served selflessly.



I was particularly moved by the story of little Amy in one of the sidebars to the Gordon article ("Sharing a Father's Grief" by Denise Maguire). It reminded me of a brief happenstance in my past. I had responded to a sudden preterm birth—the child was so small that she seemed to fit in the palm of my hand. I tried to administer mouth-to-mouth resuscitation by lightly puffing through a gauze bandage, and then after the fire-department paramedics arrived, I drove to the hospital to complete my report. There I was met by an emergency-room nurse who patiently explained to me that the tiny infant would not make it. As I changed from writing an injury report to completing a death report, I began to cry. The nurse thoroughly discussed the medical problems of such an early birth and told me how lucky the baby was to have been held by me at the end.

I returned to patrol with a new sense of my self-worth and renewed awe for all of those who choose the emotionally arduous profession of nursing. Many may be alive today because of modern

procedures and complex equipment, but it is the human heart that always determines the quality of the care received.

JOHN BURTIS

Derry, N.H.

The knowledge and skill of nurses needs to be recognized by medical colleagues and the public, and Gordon is clearly one person who "gets it."

While the focus of a surgical team is to intervene in treating disease, nurses must concern themselves with illness—the unique human experience of disease. In today's hospitals this nursing practice is crucial. Technology has helped mystify patients, making the hospital environment more unfamiliar and threatening. Nurses take patients and families beyond technology into advocacy relationships that nourish their sense of self and assist healing.

ELIZABETH M. GRADY, PhD, RN

Belmont, Mass.

FORESKIN FIGHTS

"Circumcision Circumspection" by Debra Rosenberg (*TR Trends* July 1992) falls far below the usual high journalistic standards of *Technology Review*. The *New England Journal of Medicine* piece on which it is based does argue in favor of reinstating routine circumcision, but it's not even a regular article. Rather, it's a short essay in an opinion forum.

It is striking that the author of the essay—Edgar Shoen, clinical professor of pediatrics at the University of California at San Francisco Medical School—refers to those who object to circumcision as "foreskin fundamentalists," and that he compares a procedure entailing pain, bleeding, and the risk of infection with the practice of trimming the fingernails. We have learned to reject preventive tonsillectomy and other allegedly preventive forms of surgery, and we have become very cautious in recommending other preventive measures, such as vaccinations. Why, aside from the religious issue, are we arguing about circumcision again?

LEO HERZENBERG

Chicago, Ill.