BIOTECHNOLOGY

EDITOR

Douglas K. McCormick

MANAGING EDITOR

Jennifer Van Brunt

RESEARCH EDITOR

Harvey Bialy

SENIOR EDITORS

Mark Ratner (New York)

John Hodgson (London)

ASSOCIATE EDITOR

Pamela Knight (New York)

CONTRIBUTING EDITORS

Bernard Dixon (London)

Jeffrey Fox (Washington, DC)

Kazuo Terakado (Tokyo)

ART DIRECTOR

Lou Pippo

ASSISTANT ART DIRECTOR

Edna Thomas

EDITORIAL ASSISTANT

Lantz Miller

PUBLISHERS

Andy Sutherland

Helen Hodgson (Europe)

ADVERTISING SALES MANAGERS

Pat Moloney

Angela Kays (Europe)

CIRCULATION DIRECTOR

James Skowrenski

FULFILLMENT MANAGER

Bruce Shriver, Jr.

PRODUCTION MANAGER

Estelle Selzer

NEW YORK

65 Bleecker St., New York, NY, 10012

Tel: (212) 477-9600. Fax: (212)505-1364.

LONDON

4 Little Essex St., London WC2R 3LF

Tel: (071) 872-0103. Fax: (071) 240-2408

TOKYO

c/o Newton, Shinjuku Horai Bldg.,

20 Nishishinjuku-1 chome

Shinjuku-ku, Tokyo 160,

Tel: 03(344)4862. Fax: 03(348)6744

SCIENTIFIC ADVISORY BOARD

George Poste, SmithKline Beecham

Ken-ichi Arai, DNAX Research Institute

Teruhiko Beppu, University of Tokyo

Ronald E. Cape, Cetus Corporation

Jean-Pierre Changeux, Institut Pasteur

Mary-Dell Chilton, CIBA-Geigy

Nam-Hai Chua, Rockefeller University

Rita R. Colwell, Maryland Biotechnology Institute

Arnold Demain, Massachusetts Institute of Technology

J. Lawrence Fox, Abbott Laboratories

David Goeddel, Genentech

Leroy Hood, California Institute of Technology

Morio Ikehara, Protein Engineering Research Institute

Ernest Jaworski, Monsanto Company

Irving Johnson

David Mount, University of Arizona

Victor Nussenzweig, New York University Medical Center

Carl-Gustaf Rosen, Abitec AB

Kendall Smith, Dartmouth Medical School

Yukio Sugino, Takeda Chemicals

Marc Van Montagu, Plant Genetic Systems

Indra K. Vasil, University of Florida

Lemuel B. Wingard, University of Pittsburgh

Wataru Yamaya, Seikagaku Kogyo

THE FIRST WORD

SLOUCHING TOWARDS BETHLEHEM

Never complain; never explain," counseled one or another of the stoic Founding Fathers of American Industry. There is, however, something stimulating about reading attacks on oneself or one's basic beliefs. It gets the blood flowing. (The Finns obtain the same effect via vigorous application of birch branches after a sauna. All the same, the experience can be as uncomfortable as it is bracing, and one is tempted to let out just the tiniest yip of protest.)

First, there is the news from the U.S. National Research Council that we are falling ever farther behind in our efforts to give Americans a basic understanding of biology. The teachers are poorly trained, the textbooks dated and "dumbed-down." So, while some 75 percent of American students do take basic biology, less than a third follow up with fundamental chemistry and physics.

All in all, reports a panel headed by Yale's Timothy Goldsmith, this approach to biology "seems designed to snuff out interest." To recover, Goldsmith has said, "The entire curriculum...needs to emphasize science as a process of understanding—an open-ended game of 'What if?' and 'What else could that possibly mean?'—rather than a stupefying exercise in memorizing terminology."

Also at the beginning of September, we received Peter Spinks's report (in *New Scientist*) on a panel discussion of "What do we really know about public opinion towards biotechnology." *Bio/Technology* contributing editor Bernard Dixon chaired that session at the Fifth European Congress on Biotechnology in Copenhagen. And we sat on the panel, prepared to offer a quick summary of some of the studies done in the U.S. We shrank from the traditional scientist's approach to public opinion: "Teach them and they will follow."

The survey data showed how big that task would be. In aggregate, they showed vast ignorance, a lurking but as-yet-unarticulated dread, and great expectations for personal benefit. By all means, we thought, let's work on the ignorance, but let us also appeal to the public's dreams—let's tell them what we can do for them and their families.

In trying to put this into perspective, we introduced our talk by warning the audience against the tyranny of the survey questionnaire: In all of the studies of public attitudes towards biotechnology, there is just one open-ended question, just one question that doesn't first focus the subject's attention on the dimly understood mysteries of biotechnology. (For the record, Jonathan Miller posed the question to a sample of religious, political, and academic leaders in 1985.) Only a few percent of the respondents mentioned biotech at all; it is clearly a very minor concern. We described those results, but didn't present a slide. We should have, for here is the way it was covered:

"Yet McCormick concerned himself more with producing spectacular graphs [thank you]...than with the rather more fundamental issue of whether the answers to the survey obtained were largely a function of the questions asked and their mode of presentation."

Pique aside, we should note that Spinks is correct: we in the field are in general much too eager to accept as gospel any data at all on public opinions of biotechnology.

And finally, a friend in Washington writes "I have made no secret of my long-standing admiration for your editorial wit and erudition," (uh-oh, here it comes), "but I have also found you to be repeatedly 'soft' on bad science giving bad regulation (and on dumb regulators)." It seems to us, though, that the real problem is not dumbness but lack of leadership: Key Washington posts have stood vacant for months, and the regulators who are there still strive for cotton-battling regulations that admit of no hint of a conjecture of risk—a strategy dictated by fear of retribution from uninformed, ill-informed public opinion.

We all pay a price for this lack of direction. In his feature "Entering a Changing Environment," G. Steven Burrill reports that more than half the CEOs polled felt the turmoil of a leaderless FDA hurt their business.

That may be changing, now that the Bush administration has finally selected nominees for the two key bioscience posts: Bernadine Healy (who for a time headed the U.S. Office of Science and Technology Policy's biotechnology coordinating group) to direct NIH; and David Kessler (a physician and lawyer from the Albert Einstein College of Medicine) to lead FDA.

And so it goes: despite the battering, we move on into a brighter future—if we can just put one foot in front of the other. —Douglas McCormick