C. Holden

David Goldfarb: *Former refusenik microbiologist at New York's Columbia-Presbyterian Medical Center.*

Milgrom: "The situation one finds oneself in here provides one with a wonderful opportunity to become the real master of one's destiny, and to feel these great privileges a man is granted by the feeling of inner freedom and independence from the chaos outside."

Even outside prison, once one becomes an outcast from Soviet society, it may be that only the toughest survive. Neurologist Lev Goldfarb, who emigrated last year and now works at the National Institutes of Health, reported at a seminar at AAAS that "the refuseniks are much more sick people than the Russian population on average," suffering high levels of mental and physical illnesses from the stress. Goldfarb, who acted as a physician for refusenik families during his 6-year wait for a visa, said that being stripped of their professional identities and subjected to a "life of grim isolation" is particularly hard for scientists, who "lose more and suffer more than any other refuseniks, being out of their labs." He himself found it "unbearable" to be falling behind in his field.

Microbiologist David Goldfarb (not related to Lev), who is now being treated at New York's Columbia-Presbyterian Hospital, believes that refuseniks "really suffer more as scientists than as Jews." Goldfarb, talking to *Science* with the aid of his son Alex, an assistant professor at Columbia University, said "the problem is not predominantly that they cannot leave the country. It's that they cannot work. They completely destroy the scientist." But he believes there is an attitude among some Americans that they do not merit special consideration of the scientific community because they are Jewish.

Goldfarb, 68, hopes to move to a New York apartment with his wife after being treated for lung cancer and complications from diabetes. He is careful to point out that he was not a dissident but an "ordinary refusenik" until the Daniloff affair sucked him into the limelight. (It was revealed after the release of kidnapped journalist Nicholas Daniloff that his friend Goldfarb had been prevented from emigrating in 1984 after refusing to set Daniloff up for arrest.)

Goldfarb, like the other emigrés, emphasizes that Western scientists can best help beleaguered Russian colleagues by being persistent and explicit in their demands. He says the moratorium on sending bacterial strains to Russian scientists that was imposed by Westerners to protest his treatment was very effective. In fact, he says that when KGB charges against him were lifted the KGB asked him to stop the boycott because it was having a damaging effect.

Goldfarb says that for outside pressure to be effective, it must entail constant harping on specific names and specific cases. He says it is "very important" to have field- and subject-oriented pressure. He and others say scientists should be firm in professional matters—such as insisting that replacements not be sent for scientists invited to meetings. Publicity is also very important, since the Soviets are sensitive about their image not only in the West but among their satellites and in Third World countries.

Goldfarb is moderately optimistic that the apparent liberalization going on under Gorbachev has some reality to it. The Soviet leader is "starting to call a spade a spade," he says. He is encouraged by the new openness about publicizing bad news, ranging from infant mortality figures to news about official corruption. But, like his fellow emigrés, Goldfarb is not particularly impressed with the recent flurry of released dissidents and refuseniks, pointing out that the Soviets are reaping a public relations bonanza at very small cost. ■ CONSTANCE HOLDEN

RAC Recommends Easing Some Recombinant DNA Guidelines

A series of changes to simplify regulations governing the conduct of laboratory research, field experiments, and industrial operations involving genetically engineered organisms has been adopted by the Recombinant DNA Advisory Committee (RAC) of the National Institutes of Health. The group's actions, which still must be approved by NIH director James B. Wyngaarden, primarily affect rules governing research funded by NIH. But they also may influence research regulations at other federal agencies.

The committee recommended that, in most cases, experiments and field tests that are approved by another federal agency need not be reviewed by RAC. For example, Steven Lindow's proposal to test a frost-inhibiting strain of *Pseudomonas syringae* on potatoes in California would require only Environmental Protection Agency approval. Both EPA and RAC reviewed Lindow's proposal, which involves bacteria that have a simple gene deletion.

The committee also reaffirmed a recommendation it made last September that most field tests of organisms derived from gene deletions be exempted entirely from regulation. Moreover, it recommended that rearrangements and amplifications within a single genome, and the transfer of extrachromosomal DNA from one organism to another, should also be exempt. NIH previously delayed a decision on adopting RAC's September proposal pending completion of an environmental assessment.

While it is not clear how other federal agencies will react to these proposals, Sue A. Tolin, the Department of Agriculture's nonvoting representative on RAC, says the committee's changes "are going to be very important." RAC is saying, Tolin notes, that researchers such as Lindow should be free to test organisms based on single base changes or gene deletions when there is no proven risk. This position runs counter to the claims of ecologists who argue that there often are insufficient data to predict the behavior of modified organisms.

The committee also endorsed part of a Food and Drug Administration motion to relax physical containment requirements for recombinant organisms deemed to pose little risk. Commissioner Frank E. Young had argued that the existing containment requirements for such organisms—*Escherichia coli*, *Saccharomyces cerevisiae*, and *Bacillus subtilis*—are "expensive, unwieldly, and unnecessary" when taken beyond the fermentation tank.

Current regulations require that the organisms be deactivated before being removed from a fermentation tank. For large-scale fermentation research and commercial operations, this is cumbersome for downstream processing. And containment in downstream operations—even at the lowest laboratory levels that are currently required—is costly. RAC agreed that containment provisions "generally" need not be greater than those required for an unmodified host organism. Containment rules for

laboratory experiments would remain in effect.

Alan Goldhammer, of the Industrial Biotechnology Association, says RAC's decision will greatly facilitate the production of recombinant pharmaceuticals such as human insulin and human growth hormone. To date, he notes, manufacturers have voluntarily adhered to NIH's containment standards for production of these drugs.

For NIH-funded researchers, which currently are required to seek RAC approval for field testing genetically engineered organisms, the committee has clarified its definition of "deliberate release into the environment." It defines it "as the planned introduction of recombinant DNA-containing microorganisms, plants, or animals." Such releases would be exempt from NIH notification requirements if conducted under "accepted scientific practices in which there is adequate evidence of biological and/or physical control." Standards defining what constitutes "adequate evidence" are to be set out in a series of appendices for plants, animals, microorganisms, and vaccines.

This recommendation was criticized as premature by RAC member Frances Sharples because only the appendix for plants now exists. Said Sharples, "We are being asked to approve changes in the guidelines which reference documents that don't exist. I think that is really questionable. . . . "

A majority of the board, though, sided with Gerard J. McGarrity, a consultant to RAC. "From a practical standpoint," McGarrity said, "it is much better to have the superstructure and the mechanism approved." He noted that RAC likely will have three or more months to work on the appendices before Wyngaarden acts on RAC's recommendations. ■ **MARK CRAWFORD**

. . . German Moratorium Urged

A German parliamentary commission has recommended a 5-year moratorium on all experiments involving the environmental release of genetically engineered viruses and microorganisms, to allow time for further research on the potential ecological side effects.

The commission has also suggested a ban on all experiments on human embryos that are still capable of achieving full maturity, as well as on the genetic screening of newborn babies for diseases that cannot be treated, although it welcomes prenatal screening for diseases where medical intervention could be beneficial.

The proposals have been made to the government following a 2-year study of the potential social consequences of genetic engineering by a committee made up of representatives of each of West Germany's four main political parties, as well prominent members of the scientific, religious, and industrial communities.

The commission's broad conclusion is that, in general, the potential benefits of genetic engineering are likely to outweigh the social and environmental risks. And it gives its support to a wide range of applications, suggesting that in agriculture, for example, these could lead to safer and more efficient food production.

Its broad endorsement was rejected by one member of the commission, the representative of Germany's environmentalist party, the Greens. This opposition had been widely expected following the party's decision last year to oppose all industrial applications of such techniques, and to demand stringent controls on their use in other areas, such as antenatal surgery (*Science*, 4 April 1986, p. 13).

However, the commission's recommendations would require the government to strengthen its current regulations. For example, it suggests that the voluntary guidelines covering research in the private sector should be made binding.

They would also require the government to take a tougher line on agricultural experiments. Revised research guidelines issued last summer place a general ban on experiments that involve the environmental release of microorganisms, but add that exemptions to this ban can be granted by the federal safety committee.

The 5-year moratorium on all such experiments has been recommended "because we do not currently know enough" says Klaus Schmölling, the executive director of the commission. "During the delay there would be the possibility of doing a lot of research, and [then] we will be in a better position to decide what to do next."

It is expected to be several months before the government publishes its response to the commission's report. It is already caught between two strong and conflicting pressures. On the one hand, several research groups and their industrial sponsors are arguing that West Germany is well placed because of its strong chemical industry to exploit the agricultural applications of genetic engineering. On the other, the strong showing of the Greens in last month's federal elections, where they increased their representation in the German Parliament by more than 50%, suggests that public sensitivity toward issues such as the environmental release of genetically engineered organisms is far higher in West Germany than elsewhere in Europe. ■

DAVID DICKSON

Briefing:

Minnesota Gets Institute for Theoretical Physics

A Minneapolis lawyer and real estate developer, who has been interested in physics ever since he read about it in the encyclopedia as a boy, has given the University of Minnesota $1 million to create an institute for theoretical physics. William I. Fine has guaranteed that once the institute is founded he will provide at least another $1 million. The university intends to match his gift, and expects additional support from grants and contracts. A search committee is looking for someone to become the director of what will be one of the few institutes in the country devoted to theoretical research in physics. Two others are at the University of California at Santa Barbara and at Princeton University. ■ **B.J.C.**

Comings and Goings

Lawrence E. Shulman, whose research has focused on rheumatic diseases such as lupus and scleroderma, has been named first director of the new National Institute of Arthritis and Musculoskeletal and Skin Diseases at the National Institutes of Health. The arthritis institute was established after a long battle within the Administration and on Capitol Hill over the virtues of adding a new institute at NIH. Although NIH officials argued that a new institute would create needless administrative expense, proponents of a separate arthritis institute persuaded Congress that the field is ripe for a concerted research attack on this disease that afflicts millions of citizens. Shulman, who was head of arthritis research at Johns Hopkins before joining NIH in 1976, has been acting director of the new institute since it officially came into being last April. ■ **B.J.C.**