

arguing that "There is no level of exposure without risk." The proposal is subject to public comment and is expected to take effect in a year. No other country has proposed such a sweeping ban on asbestos.

According to the proposal, EPA would immediately halt the use of asbestos in roofing, floor tiles, cement piping, and clothing, which account for the major portion of asbestos production. Substances such as fiberglass and other synthetic materials can be substituted for asbestos in these products.

Other products, for which there are no asbestos substitutes available or for which manufacturers need more time to retool, would be phased out over 10 years. These products include primarily brake and clutch linings. According to John Moore, assistant administrator at EPA for pesticides and toxic substances, there are reasonable substitutes for asbestos brake and clutch linings in passenger cars, but the industry needs more time to retool. For heavier vehicles and machinery, good substitutes are still being developed.

A ban on asbestos has been controversial within the Reagan Administration. EPA made a similar proposal 2 years ago, but backed off after the Office of Management and Budget (OMB) raised objections and said that two other government agencies should regulate asbestos. Several federal legislators took OMB to task, including John Dingell (D-MI), chairman of the House Energy and Commerce Committee. Thomas said that OMB has now approved the proposed regulation.

Representatives of the asbestos industry



**Lee Thomas**

EPA administrator says, "There is no level of exposure [to asbestos] without risk."

immediately protested the EPA proposal, saying that their products could be safely used. But Lester Breslow, a professor of public health at the University of California at Los Angeles who chaired a 1982 committee on asbestos and cancer risk at the National Academy of Sciences, said that, in his opinion, "It's appropriate for EPA to take action. It's quite clear that we're exposed to quantities of asbestos in ambient air that are excessive."

Between 1900 and 1980, 30 million tons of asbestos were used in the United States. In 1984 alone, 240,000 tons were used domestically. EPA estimates that exposure to asbestos causes 3,000 to 12,000 cancer cases annually, almost all of which are fatal. About 65,000 people in the United States currently suffer from asbestosis. ■

**MARJORIE SUN**

## **Smelter Pollution Provides Chance for Acid Rain Study**

A new giant copper smelter in Mexico close to the U.S. border is in the process of starting up. The plant, which is located at Nacozari de García, has no pollution controls in place as yet, much to the dismay of several Western states that are upwind.

Mexico pledged last year to install equipment and says it will do so with revenue generated from the plant. The smelter began testing its equipment in January and is expected to be operating at full capacity in 6 to 8 months.

The United States and Mexico have been negotiating the installation of pollution controls on the plant. Officials at the Environmental Protection Agency report that progress is being made. According to David Howekamp, director of air management at EPA's regional office in San Francisco, Mexico has solicited bids for pollution controls and is expected to award the contract in March. Howekamp said that Mexico has asked the World Bank for financial assistance.

While the start-up of the plant without pollution controls has raised concerns among western states, it also provides a rare opportunity to conduct transport studies of sulfur emissions, according to Michael Oppenheimer, a scientist at the Environmental Defense Fund.

Tracking emissions in the United States is difficult because there are too many sources to monitor on the East Coast. As a result, researchers have been trying to develop computer models to study the fate of emis-

sions. In September, Oppenheimer and colleagues reported in *Science*\* that smelter emissions from the Southwest were linked to acid rain hundreds of miles away. Oppenheimer asserts that the impending start-up of the Nacozari de García plant offers a chance to confirm his study and to gather a wealth of empirical data to compare with computer models.

Members of the Senate Environment and Public Works Committee have urged EPA to take advantage of the circumstances. In an 18 December letter to EPA administrator Lee Thomas, 12 senators said that this "is an absolutely invaluable opportunity to add enormously to our store of knowledge on the critical questions of transport and transformation of sulfur dioxide."

Howekamp of EPA said, however, that enough monitors are already in place in Arizona to measure emissions. "We don't have anything [additional] planned right now." ■ **MARJORIE SUN**

\*M. Oppenheimer, C. B. Epstein, R. E. Yuhnke, *Science* 229, 859 (1985)

## **Who Should Have Rights to a Patient's Cells?**

The commercial promise of biotechnology and an unusual lawsuit are generating continued discussion about the rights of patients and the responsibilities of researchers. The issues were taken up most recently at a meeting on 17 January of leading medical ethicists, lawyers, and researchers that was sponsored by the Office of Technology Assessment.

In 1984, the University of California was sued by a patient, John Moore, who asserts that researchers at the Los Angeles campus took advantage of him by developing a cell line from his tissue without his permission. The case is still in litigation (*Science*, 16 November 1984, p. 813).

In 1982, in another case, a professor at the University of California at San Diego and a postdoctoral fellow there became embroiled over rightful ownership of a cell line developed from tissue derived from the postdoc's mother. After lengthy negotiations, a relatively amicable agreement was reached (*Science*, 22 April 1983, p. 393).

The lawsuit and the San Diego case prompted participants at the OTA meeting to ponder a thicket of ethical and legal issues. By the end of the day, they had raised many questions but reached few conclusions. Participants included LeRoy Walters, a bioethicist at Georgetown University; Pa-

tricia King, a lawyer and faculty member at Georgetown; Robert Levine, a physician at Yale; Joseph Perpich of Rorer Laboratories; and Barbara Mishkin, former deputy director of the President's bioethics commission.

The group wondered, for example, whether patients should be informed routinely that their tissue could lead to commercial products. At present, informed consent procedures are designed to explain physical risks of therapy to the patient. But since the chances of hitting the jackpot are remote, the sense seemed to be that informing all patients might be unnecessarily burdensome for the researcher.

The group did agree that patients have a "legitimate and protectable right" to determine what happens to their tissue. And members agreed that, at the very least, a patient who has a unique and potentially important cell line "should be told upfront" about this possibility.

Ivor Royston, the faculty member involved in the UC-San Diego case, suggested that all patients should be asked from the outset to sign waivers to their commercial rights. If they do not agree to sign, then the researcher can either choose not to conduct studies on the patient's tissue or to include the patient in any future commercial benefits. "I don't want to spend my time embroiled in litigation and in discussions with lawyers," Royston said.

Thomas Murray, an ethicist at the University of Texas at Galveston, said, however, that a waiver "doesn't cut much ice ethically." Seeking a waiver seems inappropriate, he remarked, because commercial interests are not the primary concern of patients at that moment. Therapy is, he said. King added that waivers were not very good protection against future lawsuits. "The courts are going to bend over backwards to see if patients were adequately informed. The patient who signed the waiver is a patient who's dependent on the physician."

Many in the group supported the idea that a physician should not be involved with both the research and the therapy of a patient at the same time. The duties should be divided among different individuals to eliminate the possibility that a patient might feel coerced into participating in the research, said Bruce Goodman, an attorney for Damon Corporation, a biotechnology company. Howard Schwartz, a physician at Jewish General Hospital in Montreal, supported the idea and said, "I don't want researchers to be called vultures."

The OTA meeting was held at the request of the House Science and Technology Committee, which held hearings on these issues in November. A report by OTA will be issued this summer. ■ **MARJORIE SUN**

## Zech Named NRC Head



Lando W. Zech, Jr., has been nominated by President Reagan to be the next chairman of the Nuclear Regulatory Commission, replacing Nunzio J. Palladino. He will assume the position on 1 July when Palladino's term expires. A retired Navy vice admiral and former chief of Naval personnel, Zech has been a member of the NRC since mid-1984. He has long been tipped as Palladino's successor. ■ **COLIN NORMAN**

## NBS Plans to Shut Down Source of New Talent

For 30 years the National Bureau of Standards, one of the world's premier measurement laboratories, has recruited some of its best minds through its fellowship program. The postdoctoral positions have been a mechanism for exposing promising young scientists and engineers to the working atmosphere at NBS and for persuading them to accept permanent positions paying less than what private industry offers. The fellowship program also has fed a stream of new ideas into the agency, which has a work force with an average age of 42. But now Office of Management and Budget and Commerce Department officials want to scrap the program.

Raymond G. Kammer, deputy director of NBS, notified the National Academy of Sciences of the decision in a letter received 16 January. Applications for the 1987 postdoctoral fellowships were slated to be reviewed and decided on in February by the National Research Council. NBS has indicated that it will honor pledges for 1-year extensions to fellowships awarded for fiscal

year 1986, which began last October. Kammer cites budgetary uncertainties as the reason for phasing out the program.

"The postdoctoral program is an important part of their recruitment setup . . . and a meaningful part of the bureau program," says William P. Slichter, executive director for research in Bell Laboratories' materials science and engineering division. Besides bolstering the output of NBS, says Slichter, who chairs the NRC board that reviews the agency's programs, the postdoctoral fellows bring strong scientific credentials and are an essential source of fresh ideas and unconventional thinking.

The Department of Commerce will save relatively little by cutting out the program, which represents 1.5 percent of NBS' \$123.9-million 1986 budget. Typically, the fellowships run 12 months with an option for a 12-month extension. NBS usually maintains about 44 fellows, with roughly 22 positions being awarded each year as other fellowships expire. For fiscal year 1986, the total cost of the program is about \$1.9 million—a figure that has not changed much since 1982 when program costs were \$1.8 million. The scientists and researchers who are recipients of the program generally earn \$26,000 to \$28,000 annually during their stay, an income that NBS officials acknowledge is not competitive with the private sector.

Says John S. Toll, president of the University of Maryland, "It's typical of the kind of damage that will be produced by hasty decisions resulting from the Gramm-Rudman-Hollings legislation."

The decision to drop the fellowship program is not a result of the new budget-balancing law's automatic cutback provision. That will only kick in if Congress and the President fail to settle on a plan for reducing the FY 1987 deficit to \$144 billion by next October. Nevertheless, the Administration is submitting a budget plan on 4 February that meets the Gramm-Rudman target. NBS officials refused to discuss the decision to kill the fellowship program prior to the release of the President's 1987 budget plan. But it appears that their action reflects deeper cuts within the agency, as well as hard times for some other science programs and nonscience activities that depend on federal funds.

Although dumping the postdoctoral program may have been done in the name of salvaging other NBS programs, Toll thinks the Commerce Department's priorities are misplaced. "It's foolish to cut out the fellowships. They have been an outstanding success." He likens the proposal to the farmer who sells his seed corn. ■

**MARK CRAWFORD**