annual death rate from lactic acidosis in this country by extrapolating from the number of such deaths in 2 years at the 400-bed Beth Israel Hospital in Boston. Although Davidson concluded that the rate of lactic acidosis is "not susceptible to quantification," he recommended that the phenformin ban should remain in effect.

Donald Kennedy, current FDA commissioner, had to make the final decision, and in November of 1978 he decided to uphold the phenformin ban. This decision and the entire administrative proceedings are being appealed by the CCD. This group was formed 10 years ago in order to contest the controversial UGDP (*Science*, 9 March, p. 986). The CCD, which retains Boston lawyer Neil Chayet, maintains in its appeal that "the Secretary did not meet the statutory conditions for suspension. He failed to recognize the depth of the controversy over the very existence of an undue safety hazard with phenformin and the degree to which information he cited was seriously impeached or grossly unverified by his agency."

The CCD and other opponents of the phenformin ban say that the dangers of the drug are greatly overexaggerated and that the drug is important for overweight adult-onset diabetics who do not respond to sulfonylureas. Of course, these opponents say, overweight diabetic patients should be urged to diet. Weight loss alone can usually control their diabetes. But many of these patients find it extremely difficult to change their eating habits.

In its argument that phenformin is an unnecessary and toxic drug, the government said that if overweight diabetics fail at dieting and if they don't respond to the sulfonylureas, there is always insulin to relieve their symptoms. But, critics argue, insulin is not such a benign drug. Not only is it emotionally difficult and inconvenient for many patients to inject themselves, but the drug may also have undesirable effects. Many medical scientists suspect it causes atherosclerosis. It also may cause weight gain, thereby aggravating the patient's diabetes.

The decision to remove phenformin as an imminent hazard, then, was hardly clear-cut. The American Medical Association criticized Califano's move, and recently the ban was criticized by Charles Edwards, who was FDA commissioner when the UGDP results were first accepted by that agency in 1970. Edwards told the *Medical Tribune* that he finds Califano's action "logically and semantically unintelligible. Imminent hazards are very clear-cut things. When you have a soup contaminated with botulism, that's an imminent hazard. The thalidomide episode posed an issue of imminent hazard. But how can anyone, on the basis of any available evidence, assert that phenformin was an imminent hazard to life? And to do so in the face of scientific controversy about the very nature of the evidence?"

FDA officials argue that Califano's action is not without legal precedent. In three cases involving pesticides, the courts interpreted an "imminent hazard" to include a "substantial likelihood that serious harm will be experienced during the year or two required in any realistic projection of the administration process." Thus, even though the phenformin ban may well have seemed logically and semantically unintelligible, it was not legally so.

Ironically, as many as 3000 patients are still taking phenformin. The drug is now available free of charge to doctors who file an investigatory new drug (IND) application for each patient. Henry Dolger of Mt. Sinai School of Medicine, for example, has 263 patients (out of a total of about 1000 diabetic patients) taking a combination of phenformin and a sulfonylurea. Dolger fills out so many IND forms that the FDA suggested he photocopy his own. He says he has never seen any toxic effects from the drug because he is careful to control the dose. He uses phenformin for patients who no longer respond to sulfonylureas alone. Calling phenformin an investigatory new drug is the FDA's way of restricting its distribution, Finkel says.

The only countries besides the United States that have banned phenformin are Canada and Norway, and these countries allow on the market another similar drug for patients who do not respond to sulfonylureas.

Critics of the phenformin ban say that it was a completely political decision. On the other hand, Kennedy argues that the adverse reaction data on the drug are very clear, that the manufacturers of phenformin are not contesting the decision, and that the University of Pennsylvania, Yale, and Emory University had already stopped using phenformin before the ban. The CCD and the Joslin Clinic in Boston are the only ones still pro-phenformin, Kennedy says.

At this time, the issue is, or seems, dead. The drug is off the market and there is very little chance it will come back on. But, Merrill says, the importance of the phenformin ban is that the FDA is now convinced that the imminent hazard provision is a tool it can use.

—GINA BARI KOLATA

Yankee Know-How and the Oil of Olé

One well-publicized outcome of President Carter's recent 3-day visit to Mexico was the agreement between countries to start negotiations on the price of oil and natural gas. Yet more than that came out of Mexico City. Carter and Mexican President José Lopez Portillo also struck a series of agreements giving Mexicans freer access to Yankee technology.

According to Benjamin Huberman, assistant Director of the White House Office of Science and Technology Policy (OSTP), one set of agreements will cover energy. Included will be the exchange of conservation techniques and of research findings on fossil, nuclear, solar, and geothermal energy sources. Projects will range from prospecting for uranium by satellite to the use of the *Glomar Explorer* for deep-sea oil exploration.

Another set of agreements will cover the development of arid lands and the control of desertification—a common problem over vast areas of the U.S.-Mexican border. Still another will give Mexicans access to U.S. research and development work in the industrial sector (including programs of the U.S. Bureau of Standards), work on railroads, and work on new agricultural products.

One such product with potential for both countries, says Huberman, is made by jojoba (*Simmondsia chinenis*), a desert bush that produces a wax that can substitute for sperm whale oil—an important ingredient of perfumes. Another is the desert shrub guayule (*Parthenium argentatum*). It produces a natural rubber that can be used for airplane tires and radials, and it grows in both Mexico and the United States. Congress recently passed a bill that would sink some $30 million into guayule research and development (*Science*, 27 October 1978). The U.S.-Mexican accords, says Huberman, would make that research a joint venture.

Responsibility for carrying out the accords will fall mainly to the U.S. Institute for Technological Cooperation, an agency proposed by Carter that will, when established, aid in the movement of U.S. technology into de-

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veloping countries. In addition, a U.S.-Mexican commission has been set up and will meet at the end of April in Washington to hammer out details.

It may seen new, but technology exchange between the countries is an old issue. In 1972, President Nixon and Mexican President Luis Echeverria signed an Agreement on Scientific and Technical Cooperation. Concrete results were few, however, and many wrote it off as mere politics. Then came Mexican oil. Huberman says the new agreements will pack punch, even though they will be run as extensions of existing programs and will not receive additional funding. "It doesn't take huge sums of money," he says, "just the serious commitment to share."

Save the Bureaucracy or the Sea Turtle?

It took more than one-half million dollars and 2 years of bureaucratic bickering to decide who was going to save the sea turtle.

The Department of the Interior's Fish and Wildlife Service (FWS) wanted all the glory. But so did the Commerce Department's National Oceanic and Atmospheric Administration (NOAA). In the end, it took a compromise to make everyone happy—everyone, that is, except possibly the sea turtle. FWS now watches over the endangered reptile while it is on shore, and NOAA while it is in the ocean.

This bureaucratic bungle could have been avoided, according to the White House, by President Carter's proposed Department of Natural Resources (DNR). The superagency would house all of the Interior Department (55,000 employees), NOAA (12,800 employees), and the Agriculture Department's U.S. Forest Service (22,000 employees). According to the White House, this consolidation, along with the creation of a credit assistance program from various departments, will save $110 million and cut 2100 jobs from the federal payroll.

Not unexpectedly, Vice President Mondale, who described the proposals at a recent press briefing, said the moves would be likely to see some resistance. "Reorganizing the government is like cutting the federal budget," he said. "Everybody is for it in general as long as it doesn't affect them specifically."

And, indeed, not everyone is happy with the proposals. Senator Herman E. Talmadge (D-Ga.) and Representative Thomas F. Foley (D-Wash.), both chairmen of large congressional agriculture committees, said they would do everything in their power to defeat the President's plans.

"This is a classic case of bureaucratic box-shuffling by naïve planners, academic theorists, and other assorted dreamers," Senator Talmadge said. "Assigning two of the Agriculture Department's well-established, solid, and best-run activities (the U.S. Forest Service and the Rural Development Business and Industrial Loan program) to a new bureaucratic jungle flies in the face of every concept of government efficiency. It is a flagrant case of false economics."

To improve its chances for passage, according to officials at the White House, the DNR proposal has already been watered-down. Carter scrapped a controversial proposal for joining four agencies in the new DNR that are involved with water resources planning.

The DNR is being proposed under the President's reorganization authority, which means that Congress will be given 60 days to block the plan. If neither house acts, the plan automatically goes into effect.

Lab at Memphis State Hit by Xylene Killer

"We got the pathology report back yesterday," said James C. Carter, 47, chairman of the chemistry department at Memphis State University.

"It didn't tell us anything, except that they were dead, which anyone could tell by looking at them. My guess is that they died by asphyxsiation, rather than by drinking the stuff or eating the bedding that was soaked with it. I can't comprehend who would do this. Maybe it was a psychopath."

The killer in question struck last 23 January with xylene, a solvent often used for cleaning microscope slides and lenses. The following day, a lab assistant came upon the scene of the slaughter. The locked room was thick with fumes—and 240 white mice lay dead, their cages soaked with xylene. The mouse massacre brought Carter's cancer research project to a halt. For the past 5 years, he had been transplanting tumors into mice, labeling the tumor with an isotope of boron, and then saturating the tumor with radiation. This caused the boron to excite and fire off subatomic particles, which wrecked the molecular machinery of the cancerous cells. The mice were then killed and examined for remissions.

The interruption of his research does not bother Carter as much as the strangeness of the slaughter. "If they were concerned about the mice," he says, "they could have just turned them loose. I've always enjoyed a prank, but this goes too far."

It took 1 month for Carter to get replacement mice for his project. And getting new plastic cages, many of which were melted by the xylene, will bring the total cost of the episode to $3000 or $4000. Carter says his National Cancer Institute contract has no disaster clause that covers rodents. The replacements are being paid for out of a slush fund at Memphis State, and he is almost ready to begin research again.

But he is worried. "University security now comes through the building on a very regular basis, and we've talked about re-keying the building. But with five floors and who knows how many doors, you're talking about $10,000 to $20,000—even if our own lock shop does the work.

"We are very concerned about what the encore might be. Since it was an illogical act to begin with, the next one, if it comes, may be even more bizarre."

Beyond suspicion are his laboratory assistants, says Carter. They have no motive, and they were with him in class on the afternoon of the killings. Competitors in other labs have been ruled out. "I really don't think there are too many people who are urgently pursuing this type of research." Could it be a cult killing? "I doubt it. Memphis is a conservative city. In religious ways they are pretty fundamentalist. I've really given a lot of thought to who it was, and, unfortunately, I have no idea."

William J. Broad