Third, U.S. specialists say that if the most seriously exposed workers were being treated in this country, they would not be handled on an outpatient basis. They would be kept in the hospital in "reverse isolation." This aims to prevent exposure to microbes which can be deadly for people with radiation-weakened immune systems. However, not all hospitals are equipped to provide this kind of protection, and nearly all hospitals harbor drug-resistant bacteria.

Although this may be the worst, it is not the first spill of its kind. Hübner says that similar but better confined incidents have occurred in Algeria and the Republic of China. In another Mexican case in 1962, a child found a gamma source—probably used in radiography—lying in the street. He brought it home and kept it in a cookie jar. Except for the father, who visited on weekends, the entire family died.

More recently, in February 1983, a foundry in Auburn, New York, discovered that the new molten steel coming out of its furnace was radioactive. As in Mexico, the problem was discovered accidentally. Workers noticed one day that the steel thickness gauge, which operates on a cesium-137 source and a detector, was misbehaving. When a repairman came, his Gieger counter began to register radiation the moment he walked in the door. The New York health department investigated and concluded that about 25 curies of cobalt-60 had been included in the scrap for melting. Fortunately, the scrap never left the plant. But neither did anyone learn the origin of the cobalt-60.

The impact of the Juarez accident has not registered as yet. But one activist, Robert Alvarez of the Environmental Policy Institute, believes it could affect plans for replacing the pesticide EDB with food irradiation chambers. Alvarez says that the food irradiation scheme would require deploying huge quantities of cesium-137 on the Mexican side of the border, where a growing quantity of produce for the U.S. market originates. As Alvarez says, "They don't have the same safety standards we have, and Mexico has had a history of severe accidents involving radiation sources."

Federal agencies like the NRC have not yet decided on policy recommendations as a result of the accident. They are still working on the immediate problem. But the NRC's Lubenau says "people are talking about changing export regulations" so that reactor by-products may be shipped only to people licensed to receive radioactive material.

—ELIOT MARSHALL

Soviets Drop Farther Back in Weapons Technology

The latest annual report issued by Richard DeLauer, the Pentagon's top scientist, does not flatly say that the United States is militarily superior to the Soviet Union. That would contradict statements by Defense Secretary Caspar Weinberger that the purpose of the present U.S. military buildup is to "catch up to the Soviets" or "to restore the military balance."

DeLauer does, however, state that the United States leads the Soviets in virtually every basic technology that influences military capabilities, including sensors, optics, life sciences, materials, micro-electronics, propulsion, radar, robotics, signal processing, guidance, navigation, manufacturing, and telecommunications. He also says that most U.S. weapons systems are superior to those of the Soviet Union, and suggests that the distance between the two countries is widening, not narrowing.

Since last year, for example, the Soviets have lost their lead in conventional warheads, and the United States has improved its lead in computers, software, and submarine detection. Despite having spent double what the United States did for strategic weapons over the last decade, the Soviets remain inferior in bombers, submarines, and submarine-launched missiles, equal in land-based missiles and superior only in antiaircraft missiles. According to the report, the Soviets spent $100 billion more than the United States in the last decade on weapons procurement for its conventional forces, yet the United States remains equal or superior to the Soviets in 17 of 18 tactical weapons systems.

Responsibility for these deficiencies may lie in what DeLauer calls some "inherent weaknesses" in the Soviet Union's weapons research effort. "Equipment and instrumentation shortages plague most Soviet R & D efforts and R & D organizations are often compelled to design and manufacture their own instruments," he says. "Computer services are in especially short supply. The U.S.S.R. also tends to follow the United States in technology because Soviet rewards are for maintaining schedule rather than technical innovations that win contracts. Although the Soviet Union annually graduates around three times the number of engineers graduated in the United States, there is widespread underemployment. Soviet engineering manpower is used inefficiently and is frequently overspecialized."

Elsewhere in the report, DeLauer documents the continuing movement of defense research away from universities, in-house laboratories, and contract research centers and into private industry. Despite considerable publicity regarding the militarization of academic campuses, only 3.2 percent of the Pentagon's research is now conducted at universities, down from 3.9 percent 2 years ago.

—R. JEFFREY SMITH

Better Living Through Chemistry?

An exhaustive study by a committee of the National Research Council has concluded that although the number and uses of chemicals are voluminous, very little is known about their hazards.

Of the 53,500 commercially important chemicals, "only a few have been subjected to extensive toxicity testing and most have scarcely been tested at all," stated the committee.*

The committee found that no toxicity data are available for about 80 percent of 49,000 chemicals in commerce, a category which included thousands of industrial chemicals but excluded pesticides, cosmetic ingredients, drugs, and food additives. Toxicity information about chemicals in these latter categories is lacking as well even though they are more heavily regulated. Toxicity data were either inadequate or nonexistent for 64 percent of the 3400 pesticides and inert ingredients examined in the survey, 74 percent of 3400 cosmetic ingredients, 61 percent of 1800 drugs, and 80 percent of 8600 food additives. (Proprietary information from industry was not included in the study.)

The committee found that even when testing was performed, the

**Toxicity Testing: Strategies to Determine Needs and Priorities* (National Academy of Sciences, Washington, D.C., 1984). $22.50.