

average citizen is to recount the story of the so-called "Case of the Frozen Pig." The incident occurred as a result of a packaging error associated with a 6-ounce capsule of ordinary industrial radioisotopes and caused AEC, DOT, the New England Nuclear Corp. (the receiver in Boston), and many individuals to devote 2 weeks to arduous cleanup efforts.

The frozen pig incident was described in detail by Charles B. Killian, of New England Nuclear, at the Charlottesville conference. The cask or "pig" which shielded the isotopes weighed 1200 pounds and had been packed underwater in a canal beside a reactor in California in February 1968.

Some residual canal water inside the "pig," Killian said, froze when the shipment arrived in Boston after its weekend wait in the air terminal and before the truck it was on began deliveries. "The resulting pressure . . . pushed out the spigot" and caused a steady drip of highly contaminated water inside the delivery truck which, that day, made 28 deliveries. The leak was only discovered after the pig had arrived at New England Nuclear Corp. The human error involved appeared to be that the pig was not drained before shipment.

When a chemist at New England Nuclear reported the dripping, contaminated, spigot water, New England Nuclear telephoned the supplier, the trucking company, the AEC in New York, and DOT in Boston. The bewildered truck driver was called in and immediately examined for radioactivity. Up to 20 milliroentgens per hour was found on his clothing and in his body; as much as 5 roentgens per hour was found in areas on his truck.

"Officers of the trucking company were on hand to pass on our instructions to the driver. . . . This cooperation aided tremendously . . . in getting the driver to do what was necessary without question. Each voucher handled by the driver to transfer the packages was contaminated and had to be handled with protective gloves. . . . This situation became difficult. . . . How do you explain radioactive contamination to a nude truck driver?"

Mr. Killian gave another description of what had happened when surveyors visited a private home to which the driver had delivered three parcels from the contaminated truck. The surveyor reported: "I arrived at the B home and spoke to Mrs. B and told her I would

like to see the packages that were delivered to their home for the purpose of determining if the packages were contaminated. I told Mrs. B that I would like to retrace the steps taken by the truck driver in the delivery of the three packages. Mrs. B told me that her husband was a salesman and had left that evening with two of the packages for Portland, Maine. . . .

"Mrs. B then took me to the driveway where I made readings and found that the driveway did show some contamination. The back porch and basement utility room of the house were both contaminated by the packages as they were moved from the truck. The one remaining package was on a living room rug.

" . . . I instructed Mrs. B that the package should not be touched or moved by anyone, and that it was advisable that no one stay in the room with the package. Mrs. B is pregnant. . . . Mrs. B's mother told me that her 4-year-old son had been playing in the room where the package was and that in the early part of the evening her son started to run a temperature and felt ill. I told her I did not believe there was any connection between his illness and the package but asked her to get me the clothing that the boy was wearing. I checked the clothing for contamination and found them to be clean."

Mr. Killian said that there were problems in getting the home cleaned because "each party involved (the trucking company, the supplier, and the receiving company) didn't want participation interpreted as their assuming full responsibility for the accident. With this in mind an outside firm was hired. . . ."

Another problem arose when the driver's deliveries were traced to an industrial warehouse. "Seventy cases of pocketbooks had been delivered there for the Easter market. The receiving platform, a long conveyor belt, numerous pallets, personnel clothing, and floors were all contaminated. . . . Visits were made to the homes of the workers to put them at ease. Later in the week all items were removed from the warehouse to an isolated floor at New England Nuclear. New England Nuclear now had 3000 pocketbooks—and the warehouse director said he didn't want them back."

By official standards, as well as by the Patterson classification system, the so-called frozen pig incident was a

"harmless" accident. It did not violate the government's boast that no big packages have failed. The only failure was human error. But nonetheless it involved and frightened many citizens and occasioned expensive tracing and cleanup procedures. It is a type of accident—ultimately harmless but "pretty spooky"—which will occur more and more frequently in the future.—DEBORAH SHAPLEY

## RECENT DEATHS

**Adam Abruzzi**, 55; professor of industrial engineering, Georgia Institute of Technology; 7 May.

**Frank Blood**, 60; professor of biochemistry and associate professor of pathology, Vanderbilt University; 31 January.

**Edward P. Dozier**, 55; professor of anthropology, University of Arizona; 2 May.

**Irving P. Gellman**, 48; chairman, sociology department, New York University; 1 May.

**James W. Hughes**, 54; chairman, sociology department, Millersville State College; 29 April.

**Icko Iben**, 71; co-founder, American Water Resources Association; 10 March.

**Harold W. Manter**, 72; professor emeritus of zoology, University of Nebraska, Lincoln; 15 April.

**Georg K. Neumann**, 63; associate professor of anthropology, Indiana University; 13 April.

**Dewey H. Palmer**, 72; physicist and retired director of medical engineering, Becton, Dickinson & Company, East Rutherford, New Jersey; 14 May.

**John R. Paul**, 78; professor emeritus of epidemiology and preventive medicine, Yale University; 6 May.

**Milo B. Sampson**, 62; professor of physics, Indiana University; 10 April.

**Westbrook Steele**, 82; president emeritus of The Institute of Paper Chemistry; 11 May.

**Leon M. Stephens**, 89; professor emeritus of farming and agronomy, State University of New York Agricultural and Technical College, 11 May.

**Karl T. Waugh**, 91; former president, Dickinson College; 9 May.

**Carl F. Wittke**, 78; dean emeritus, Graduate School of Arts and Sciences, Case Western Reserve University; 24 May.