RADIOLOGY

Fallout Countermeasures

➤ COUNTERMEASURES can be taken to reduce dietary intake of at least one cancer-causing element of fallout from nuclear weapons tests, a radiobiologist reported in testimony before a joint Congressional atomic energy subcommittee holding hearings on fallout and radiation standards.

"If ever necessary," substitution of powdered milk and other processed dairy products for fresh milk will "effectively" reduce radioactive iodine-131, which causes cancer of the thyroid, Dr. C. L. Comar said.

Use of this countermeasure is supported in the latest report of the National Advisory Council on Radiation (NACOR), submitted to Surgeon General Luther L. Terry of the U. S. Public Health Service early in May and released June 5. Present levels of iodine-131 in milk from U. S. atomic tests do not require such substitution now; nor is there any reason to believe that deposits from further U.S. tests will increase the amount of this isotope to a level requiring countermeasures, PHS officials have emphasized.

Fresh milk is the main contributor of iodine-131 to the human diet. Fortunately the element is short-lived. It has a half-life of eight days. It occurs only during nuclear tests and lasts for about two months.

Iodine-131 tends to settle in the thyroid gland. Since the diet of infants is primarily milk, they tend to be more susceptible to its hazardous effects than any other population group.

The NACOR report also notes that the addition of small amounts of stable iodine to the diet can reduce by about 80% the radioiodine accumulation in the thyroid. The medical administration of thyroid extract also prevents radioiodine uptake.

While something can be done about radioiodine, there are no countermeasures for the long-lived products of fallout such as strontium-90, a known cause of bone cancer and leukemia, the NACOR report states and urges an intensified research effort to develop adequate and practical means for reducing this isotope in food and water. Strontium-90 has a half-life of more than 27 years which means an individual is subject to exposure from this contaminant for a lifetime.

One-third to one-half of the dietary intake of the contaminant may be from liquid milk, about one-quarter from cereals and about four to eight percent from the combination of eggs, fish, meat and poultry, according to the NACOR report. However, since milk and cereals are of substantial nutritional importance, particularly as a source of calcium, elimination of these foods from diet may have a more damaging effect on public and individual health than the strontium-90. However, the report states that strontium-90 can be reduced by dietary substitution of foods low in this isotope and by taking strontium-90 free mineral calcium tablets. It urges the avoidance of independent countermeasure action and recommends that a single authority promulgate countermeasures when this is indicated.

NACOR is made up of 14 experts on radiation, most of them non-governmental. Its chairman is Dr. Russel H. Morgan, radiologist-in-chief of Johns Hopkins University Hospital.

Just prior to the release of the NACOR report, the Administration issued a report by the Federal Radiation Council minimizing the health hazards from fallout from nuclear weapons tests.

Nuclear testing through 1961 has increased only "by small amounts the normal risks of adverse health effects," the FRC report states. The FRC report estimates that the number of cases of leukemia and bone cancer in the next 70 years in the U.S. will increase by 2,000 and 700 respectively. This estimate does not allow for any increase in population. The FRC estimates that the number of gross physical or mental defects in future generations from all previous tests, not including the current U. S. series, will be about 1,000.

The genetic effects of fallout may be of many kinds, the FRC report states, such as minor physical abnormalities, mild diseases, impairment of physiological functions, and reduced resistance to infection.

The FRC has not attempted to estimate the number of such defects; but the report notes that part of this less detectable damage "will result in a lowered probability of survival at various ages." These lesser defects "may cause substantial damage in the aggregate." This is because such mutations persist in the population longer than congenital malformations, blindness, deafness, feeblemindedness, muscular dystrophy, hemophilia and mental diseases.

Dr. H. Bentley Glass, in testimony in Congress, said that evidence indicating a lower genetic hazard from fallout may be balanced off by the fact that the production of carbon-14 in nuclear explosions, now recognized as a genetic hazard, was previously not considered. Observations indicate that radiation, no matter how low the level, increases the risk of harmful genetic effects.

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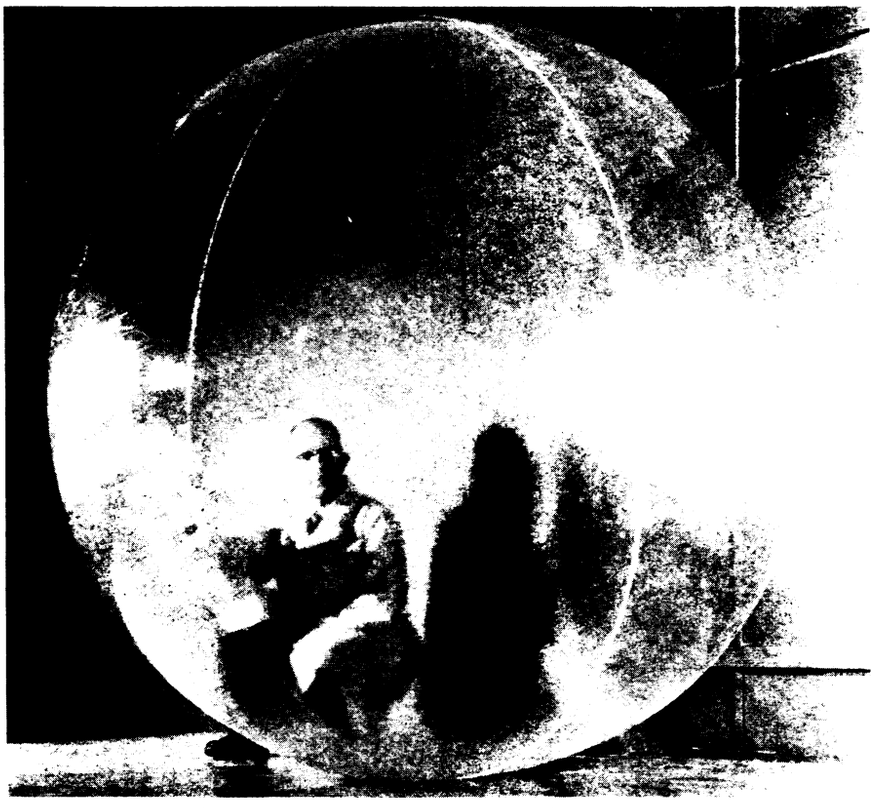

GLOBAL WEATHER WATCH—Experimental one-seam balloon made of polyolefin resin, is of a type which may be used to drift around the world relaying continuous weather information. Holding the balloon is Robert M. Nelson, Dewey and Almy Chemical Division, W. R. Grace and Company, Cambridge, Mass.

SPACE

Balloons to Rise From New Texas Science Site

➤ BALLOONS will soon be taking off with research instruments from a new station at Palestine, Texas, to make observations at high altitudes in the earth's atmosphere. Located so that flights can be made at all times of the year, the new station will be operated by the National Center for Atmospheric Research, Boulder, Colo., with funds from the National Science Foundation.

Telescopes will be lifted by balloons above the clouds and primary cosmic radiation will be measured upon special flights.

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