

## PUBLIC HEALTH

# Report Radiation Harm

Studies of records of patients who have been exposed clinically to radiation show a significant increase in the number of persons developing cancers.

► THE DANGER of the development of cancer several years after clinical exposure to radiation was outlined in reports presented at the International Cancer Congress in London.

Studies of the danger, however, are affected by atomic energy and fallout stimulating radiation which are known to affect the production of cancer and genetic abnormalities. The evidence presented is sometimes contradictory and, to date, inconclusive, since many latent effects of non-clinical exposure to radiation are suspected.

Therefore, one doctor pointed out, clues that indicate cancer development from clinical exposure to radiation have to come from the records of patients who had received radiation treatment many years before atomic energy and fallout.

Dr. William B. Looney, now at the University of Cambridge, England, studied the records of patients given thorotrast, thorium dioxide suspension, which was widely used in diagnostic radiology from 1930 to 1945. The records showed a high percentage of the patients developed liver neoplasm. Fifteen grams of thorium in 75 cubic centimeters of thorotrast is equivalent to 2.1 micrograms of radium.

Since skeletal sarcomas occurred in patients who had had comparable amounts of radium, the scientist looked for tumors in patients who had received thorotrast. The organs where thorium deposits would be expected to be found, the spleen, liver, bone marrow and lungs, were examined. Nine cases of liver neoplasm were found.

Only 25 of these extremely rare liver

tumors have been previously reported. Dr. Looney concluded the liver cancer was predominant for thorotrast patients as skeletal sarcoma was for radium patients. The mean latent period before cancer development was 15 years during which time the patient's liver was exposed to radiation.

Similar tumors were also produced experimentally in animals by thorium radiation.

These experiments were carried out in a joint National Naval Medical Center and University of Rochester study by Dr. Looney and Drs. J. B. Hursh, M. Colodzin and L. T. Stedman.

Two similar cases of liver cancer found 12 to 15 years later were reported by Prof. Charles M. Gros of the Anti-Cancer Center, Strasbourg, France.

One patient's liver was sufficiently radioactive to emit alpha particles 15 years after treatment.

Radiation treatment of children's thymus glands is suspected as the cause of a high incidence of thyroid cancer and other malignancies that developed later. This evidence is based upon a followup study of 2,300 children from three cities by Dr. C. Lenore Simpson of Roswell Park Memorial Institute in Buffalo, N. Y.

A mail questionnaire traced 85% with a median followup period of 14 years. Nine of those treated died of leukemia, 21 had nodular thyroids, 11 of which were cancerous, and four others had malignant tumors. There were only six malignancies among a slightly larger number of siblings, Dr. Simpson reported.

This increase among treated children is statistically significant compared with the statistics of malignancies among the siblings and the expected cancer incidence of the local population.

In addition, the thyroid tumors were not evenly distributed. Most of them occurred in the group that received the largest amount of radiation, while none occurred among children who had received less than 200 roentgens.

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## ROCKETS AND MISSILES

## Jupiter Nose Cones Recovered Twice

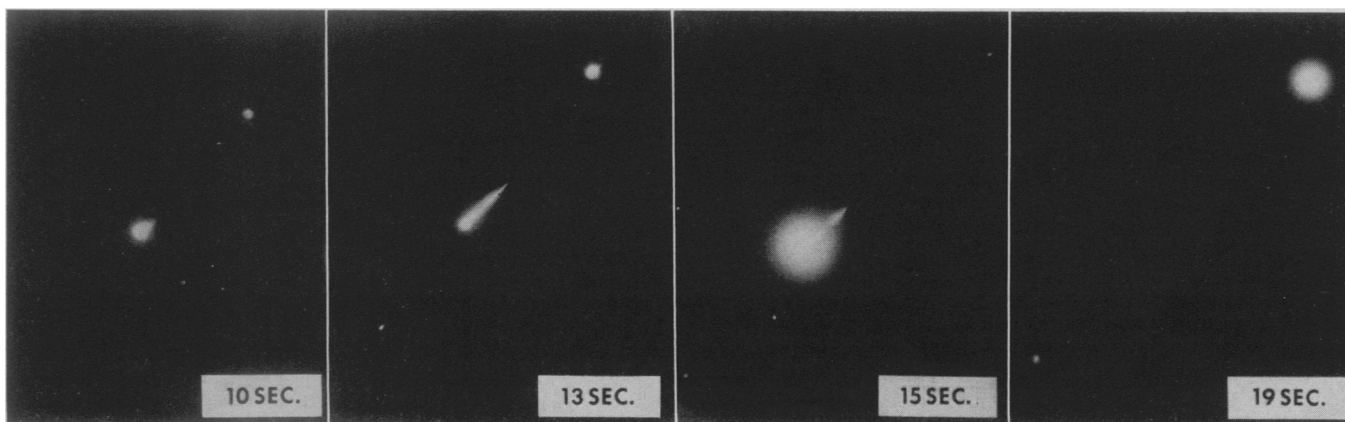
► TWO SUCCESSFUL recoveries of the full-scale Jupiter IRBM nose cone from outer space have been made. This nose cone is capable of containing a nuclear warhead and protecting it from destruction by aerodynamic heating in the atmosphere.

The first recovery was made following the firing of a Jupiter missile from the Cape Canaveral, Fla., launching site at 1:06 a.m. on May 18. Fifteen minutes later, 1,500 miles away at a point northeast of Antigua, scientists tracked the missile as it re-entered the atmosphere at a speed of 9,000 miles an hour.

On July 17 a second Jupiter missile nose cone was recovered "intact from the Atlantic," the Army Ballistic Missile Agency in Huntsville, Ala., announced.

Photographs of the first re-entry were taken by the Barnes Engineering Company, Stamford, Conn., a firm selected to perform spectral and radiometric measurements on the re-entering bodies of the missile. A meteor-type spectral camera, using a cluster of six aerial reconnaissance cameras equipped with spectral gratings was used, along with motion picture cameras. Other instruments used included a number of specially designed radiometers, held by hand. Radiation from the missile was so intense it saturated some of the instruments.

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**JUPITER RE-ENTRY**—Four frames from motion pictures taken of the re-entry of the Jupiter IRBM into the earth's atmosphere show the rocket body, nose cone and instrument package. At ten seconds, the rocket body (larger object) and instrument package are visible; at 13 seconds, the nose cone, (smallest object) has become visible, and the glow of rocket body has elongated; at 15 seconds, the instrument package has disintegrated, the rocket body flared up; at 19 seconds, the instrument package (out of the picture) has burned out completely, and the distance between the nose cone and rocket body has increased rapidly.