RADIOLOGY

# No 'Hot' Peril in Tests

**Since nuclear tests in Nevada are now conducted underground, there is little chance of iodine-131 endangering children near the test area—By Walter Wingo**

➤ CHILDREN in Utah and other states near the Nevada atomic testing sites need not fear any longer heavy dousings of radioactive iodine such as they got during last summer's nuclear explosions, according to the Atomic Energy Commission.

With tests confined underground, chances are "very small if any" of more of the hazardous material I-131, getting out of the test area, an AEC expert said.

I-131 is considered especially dangerous to the thyroids of small children.

The AEC statements followed announcement by University of Utah scientists that from July 10 to Aug. 8 of last year, 53,000 Utah children under two were exposed to from twice to 28 times more I-131 than the Government considers safe for an entire year's intake.

The AEC set off four nuclear explosions during that 29-day period. Two were a few feet above ground, another was deep below ground and the other was in shallow ground so that observers far off could see a tower of dirt shoot up. Since July 17, 1962, the AEC has set off at least 25 nuclear explosions in Nevada, all well underground so that most of the radiation is trapped. Such tests are permitted under the limited nuclear test ban treaty.

"We knew before last summer's tests that some iodine would drift into neighboring areas," the AEC expert said, "but we did not anticipate quite as much."

He said the high radiation readings reported by Dr. Robert C. Pendleton and two associates of the University's division of radiological health and radiobiology, were "certainly factual."

He added, however, that the Federal Radiation Council's safe levels are "extra-precautionary." He pointed out a National Academy of Sciences study that shows some children in medical treatments received thousands of times more I-131, without apparent ill effects, than the Utah children may have received.

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SPACE

## Almost Perfect Sphere Required for Echo II

➤ SCIENTISTS at the Naval Air Station in Lakehurst, N. J., are working to ensure that the Echo II satellite balloon, 135 feet in diameter, to be launched later this year, will be as perfect a sphere as possible.

If the reflecting satellite varies from perfect roundness by more than two inches in any direction, it will reflect radio signals in a distorted manner. This would make it useless for most of the communications experiments planned. The new Echo balloon is expected to be visible to millions of persons all over the globe.

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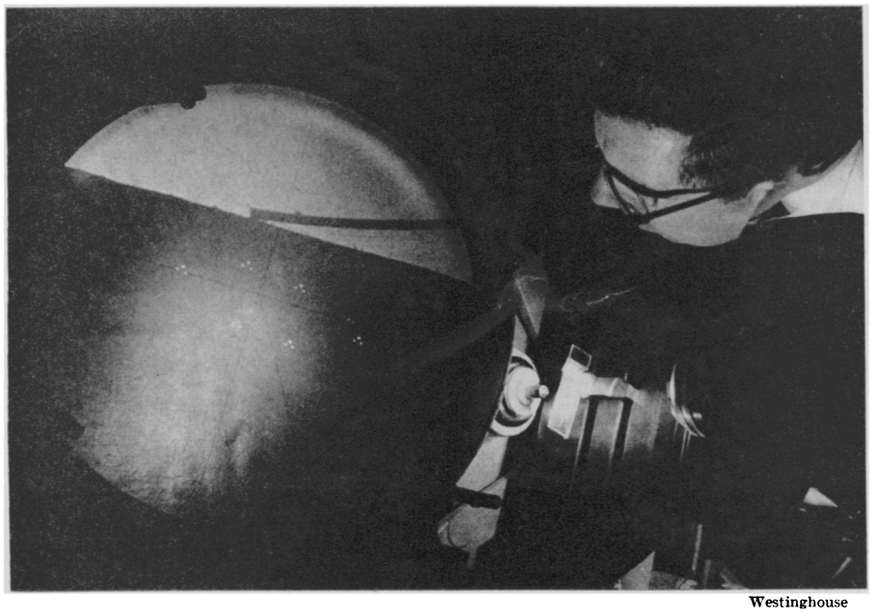

Westinghouse

*DRILLING WITH ELECTRONS—Dr. W. J. Smith of Westinghouse Electric Corporation uses an optical comparator that enlarges objects about 100 times to study the results of drilling, cutting and welding with a beam of electrons. For comparison, a human hair is shown above the tungsten sheet.*

BIOTECHNOLOGY

## Brain Monitor Operates Inside Astronaut Helmet

➤ A COMPACT DEVICE that can be slipped inside an astronaut's helmet or placed on the head of a patient to monitor brain functioning has been developed.

It does not have to be directly attached to the scalp and thus does not interfere with normal activity.

The new brain wave monitor, or electroencephalograph, was designed at the University of California, Los Angeles, under the direction of Dr. W. Ross Adey, Raymond Cado, and U.S. Air Force Maj. Milton DeLucchi.

Key elements of the unit are sponge-covered tin electrodes that pick up brain waves right through the hair, eliminating the need for shaving spots, and a tiny transistorized amplifier. Vibrations or movements of the head do not interfere with reception of the waves.

The unit has been designed to fit into the liner of an astronaut's helmet with no discomfort or interference with normal routine. Brain wave information may be telemetered back to earth or recorded on a special, transistorized tape recorder for computer analysis.

The device has been tested in the laboratory, on Los Angeles freeways and in jet flights at zero gravity. It appears to be at least as sensitive to subtle changes in brain wave responses as conventional electroencephalographs.

Preliminary evidence suggests the new unit may be very useful in diagnosis of such nervous disorders as epilepsy, Parkinsonism and brain tumors. Conventional electroencephalograph electrodes, used for this purpose, must be attached to the scalp and the patient must lie in bed or sit very still in a chair. With the new device he could carry on more normal activity.

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PHYSICS

## Electron Beam Cuts and Drills Tiny Particles

➤ ELECTRON BEAMS, similar to but much more powerful than those making the picture on a TV tube, are being developed for industrial use—cutting, drilling and welding on a microscopic level.

The beams, which can be concentrated on a spot only one-thousandth of an inch in diameter, are used to work on tiny particles of metal smaller than a grain of sand. Because they are highly concentrated, even a small amount of power is sufficient to melt tungsten, the hardest to melt of all metals.

The beam technique is so precise that a microscope must be used to see the results. It will be extremely valuable in the manufacture of microminiature components of the type used in space-flight control systems and computers.

Soon to be ready for general commercial use, the new tool was developed by Westinghouse Electric Corporation at Pittsburgh.

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