PUBLIC HEALTH

UN Asks for Radiation Check in Milk and Fish

➤ THE UNITED NATIONS has asked world governments to report how much deadly strontium 90 is finding its way into both milk and fish from nuclear weapons testing fallout.

The request came from the United Nations Scientific Committee on the Effects of Atomic Radiation, established to make a world-wide study of radiation from medical uses, weapons fallout and industrial applications of nuclear energy.

To obtain accurate fallout information, 88 governments have been asked to standardize their measurements of strontium 90. Samples of materials such as milk ash, bone ash and a mixture of fission products, all safe to handle, are being sent from UN headquarters to participating countries.

Laboratories in each country will measure the radioactivity and other characteristics of the samples and send the information back to the Committee.

Then a cross-check of instruments, lab techniques and measurements registered in various countries will be possible.

Other questions for which the Committee is seeking answers include how much radiation comes from natural sources, how much artificial radiation is caused by medical use of X-rays and isotopes, and how future generations will be affected by all the known sources of radiation.

More than 100 technical reports from 27 governments and several international organizations have been received. They are being analyzed and will be published together with additional information.

Science News Letter, August 17, 1957

PHYSICS

AEC Makes Optimistic Report to the Congress

➤ OPTIMISTIC outlooks for uranium supplies, atomic batteries, fusion power and the nation's radioactive state of health were voiced in the Atomic Energy Commission's 22nd semiannual report to the Congress.

The 257-page document reported on the AEC's many activities during the first six months of this year (1957).

Here are some of the highlights:

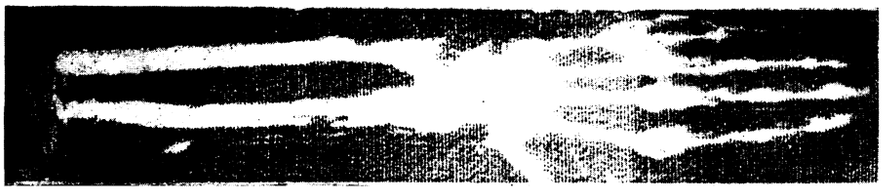
1. The U. S. has reached the position where a 10-year supply of uranium is assured.

2. Five different types of tiny atomic batteries have been developed. One battery, designed to power a wrist watch, uses the radioisotope, promethium 147. Larger models "are expected to power portable radios, hearing aids and equipment in guided missiles and space craft."

3. The design and construction of a multimillion dollar "experimental device" for research into controlled thermonuclear reactions was approved.

4. In genetics research, "experiments have indicated that certain treatments, if applied after irradiation, may modify the amount of genetic damage caused by radiation.

Science News Letter, August 17, 1957



ULTRASONIC RECORDING—Using an ultrasonic scanner developed primarily for the inspection of power reactor fuel elements, Dr. W. N. Beck of Argonne National Laboratory, Lemont, Ill., made this record indicating the location and basic shape of the bones in a hand and forearm. The two-dimensional figure is attained by mechanically scanning an area with a small ultrasonic beam which transcribes a geometric "saw tooth." A helix recorder, writing on electrosensitive paper, was used. (See SNL, May 26, 1956, p. 323.)

PHYSICS

Far Off Radar "Seeing"

A new radar system, similar to the one used to "bounce" signals off the moon, has been developed which promises to be able to detect very weak signals.

➤ RADAR that can detect objects at greater distances with the same amount of power than can present sets has been developed by scientists at Columbia University, New York, working under a U. S. Air Force contract.

The system provides a "lock and key" by which the radio pulse sent out to detect far-away objects, such as jet planes or guided missiles, is tagged. It can then be identified when the signal returns from the target to the receiver.

Present radar antennas can be adapted to use the method, but they would require new instrumentation.

The new radar system is expected to be used in the future wherever the detection of very weak signals is important. It works by trading time for power: fainter signals can be picked up by taking more time to gather the information they contain rather than by using more power.

The increase in effective power was reported to be "many hundreds of times" compared to that of World War II radars.

The "grandfather" of the present development was the radar system used to bounce signals off the moon by the Army Signal Corps in January, 1946. Although most details of the new and much improved version are being kept under security wraps, it is believed the system is based on "c-w," or continuous wave, F-M, or frequency-modulated, radar.

When radar waves were bounced from the moon, the set was operated at its standard frequency of 112 megacycles, or 112,000,000 complete cycles each second. The pulse repetition rate and pulse width, however, were extended much beyond the usual time. Instead of sending out several thousand spaced pulses each second, as the usual radar sets do, the modified radar transmitted a pulse only once every five seconds. The pulse width was increased from a few billionths of a second to as much as one-half a second.

The Columbia scientists working on the development included Prof. Lawrence H. O'Neill, director of the Electronics Research Laboratories, Dr. R. I. Bernstein, associate director, John H. Bose and Sterling Fisher.

Science News Letter, August 17, 1957

PHYSICS

Make Square Bubbles In Lithium Fluoride

➤ SQUARE BUBBLES, while sounding somewhat contradictory, have been made for the first known time by Dr. Peter Senio, working under a U. S. Atomic Energy Commission contract.

Now with the Westinghouse Electric Corporation, Pittsburgh, Dr. Senio made and studied the properties of square bubbles at General Electric's Knolls Atomic Power Laboratory, Schenectady, N. Y.

This is Dr. Senio's method for forming square bubbles:

Irradiate lithium fluoride crystals with neutrons from a nuclear reactor at 86 degrees Fahrenheit, then anneal for 15 hours at a temperature of 1,220 degrees Fahrenheit. When the crystals are examined using a microscope magnifying 150 times, the square bubbles can be seen.

When the cavities first appear, Dr. Senio reports in *Science* (Aug. 2), they have brilliant interference colors. He is puzzled concerning the mechanism by which the thin, square bubbles are formed. They have so far been observed only in lithium fluoride.

Science News Letter, August 17, 1957

● RADIO

Saturday, August 24, 1957, 1:45-2:00 p.m., EDT.

"Adventures in Science" with Watson Davis, director of Science Service, over the CBS Radio Network. Check your local CBS station.

Dr. Roderick Murray, director, Division Biologics Standards, National Institutes of Health, Bethesda, Md., will discuss "The Present and Future of Vaccines."