By a small rubber tube that is fed through a vein up into the heart and out an artery into the lungs, the radioactive gold or zinc particles carried in dextron or pectin can be directed accurately into one lung only, Dr. Muller stated. The radioactive material can even be "shot into one particular lung lobe."

The method, now also under study in England, offers "quite interesting possibilities," Dr. Muller said, for treatment both of cancer starting in the lungs and of cancer that has spread to the lungs from other parts of the body.

Encouraging results in use of radioactive gold to treat another form of cancer, that of the ovaries, were reported by Dr. Muller in some detail.

For this treatment the gold is injected into the abdominal cavity. There, Dr. Muller has discovered, it is picked up by the body's scavenger cells and taken to lymph nodes, or glands as the layman would call them. Since these lymph nodes frequently are seeded with cancer cells spread from the original cancer, the localization of the radioactive gold in the lymph system is especially important.

Since 1950 Dr. Muller and Dr. E. Held have given this radioactive gold treatment prophylactically to 21 patients with cancer of the ovaries in whom a radical operation for removal of the cancer was possible. Two patients died of other conditions, but 18 are now alive and well and free from symptoms of ovarian cancer, some for as long as four and a half years. The cancer has not come back in a single patient in this group, Dr. Muller states.

In patients with advanced ovarian cancer and extensive spread, only palliation can be achieved. This has been accomplished in 59% of the patients, Dr. Muller reported.

Atoms Against Leprosy

➤ HOW MAN'S modern weapon, atomic energy, is being turned against a very ancient disease, leprosy or Hansen's disease, was reported to the conference.

A synthetic sulfone drug, known as DDS, extensively used and effective in over 80% of leprosy patients, has been tagged with radioactive sulfur, Drs. P. R. Saraiya, V. R. Khanolkar and A. R. Gopal-Ayengar of the Government of India's Department of Atomic Energy and Indian Cancer Research Centre, Bombay, announced.

The aim is to trace the drug's path through the body to see whether DDS shows any preference for nerve tissue. Studies by Dr. Khanolkar and associates had previously shown that Hansen's bacillus, the germ that causes the disease, seems to follow nerve fibers. The Indian scientists speculate on whether it is in this respect like neurotropic viruses, such as the polio virus.

The radiosulfur tagged sulfone has been given by mouth to six patients and at various times afterwards bits of tissue have been removed from their bodies for study.

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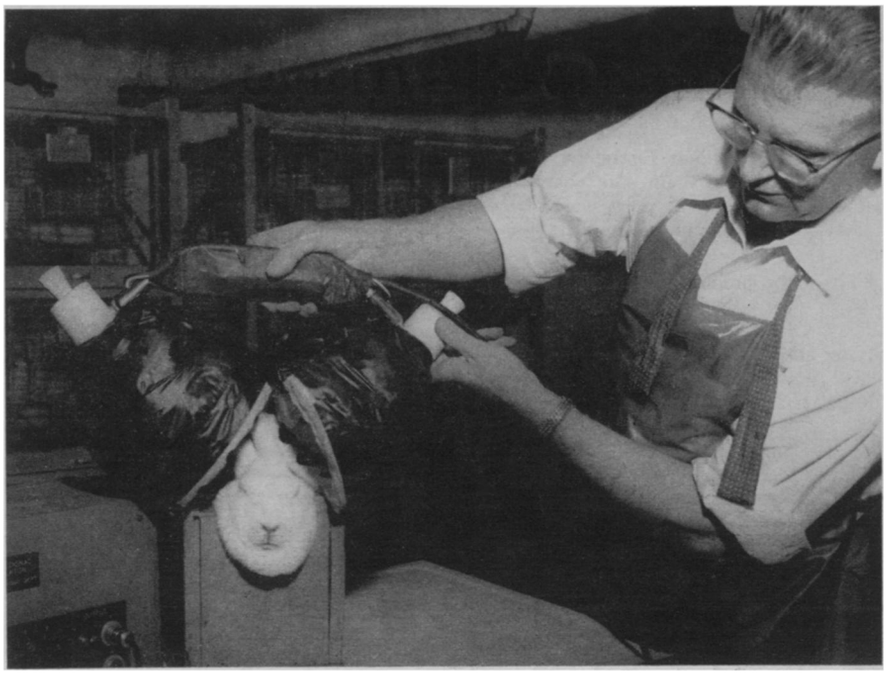

VISION TESTED—Live rabbit is exposed to light source in studies of vision by Dr. Phil S. Shurrager, chairman of the department of psychology at Illinois Institute of Technology, Chicago. The investigations, sponsored by the Air Force, may result ultimately in a defense against blinding flares and explosions in warfare.

PHYSICS

Many Atomic Devices

➤ BY-PRODUCTS of atomic reactors, consisting of exploding atoms of many artificial chemical elements, are giving civilization new devices, including:

1. Lamps made of self-luminous phosphor materials, kicked into brilliance by electrons from polonium, tritium, strontium 90 and cesium 137 isotopes. These will shine without renewal and can be used to mark dangerous spots with a low-level illumination.

2. Batteries giving very small amounts of electricity over a long period of years without renewal. These radioisotope batteries convert radioactivity into feeble but usable current. Although they will not replace usual batteries, they are useful in electronics devices.

3. New chemicals produced by radiation smashing bonds between molecules in materials, changing them without introducing impurities. Plastics, synthetic rubbers and many other chemicals, including blood plasma extenders, are being remodeled by such radioactive polymerization.

4. Sterilization of food and drugs so that they will keep fresh for a long time. Radiation in large doses can destroy harmful bacteria and enzymes in material without significantly raising the temperature.

5. Measuring thickness of materials by finding out how radiation beamed through them is affected. Thickness gauges can operate upon substances in containers and can be applied to thick sections and ink-thin impressions on paper equally well. They are expected to be particularly important in automation processes.

6. Tracing where materials go by injecting a little of a radioactive substance. Successive shipments of petroleum products through cross-country pipelines can be marked precisely and switched automatically by changes in radioactivity.

7. Detecting leaks of gas or liquid, by spotting tell-tale tracer amounts of radioisotopes.

8. Determining wear and corrosion. When a material has been made radioactive, how much and how fast its surface wears down can be measured.

9. Labeling chemicals by introducing into their molecules radioactive tracer forms of their atoms. In this way new facts about chemical processes in industry, biology and medicine are being discovered.

10. Using radioactive materials to trace insects harmful to health and agriculture, to discover how plant foods are used in crops, and where and how such substances as insecticides do their work.

These uses of radioisotopes were explained to the Geneva conference on peaceful uses of the atom by Prof. P. C. Aebersold of the U. S. Atomic Energy Commission.

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