

PHYSICS

TV'ed X-Rays Spot Cancer

Develop instrument that televises X-rays for aid in detecting cancer of "dense" parts of patient's body. It can also be used to test airplane parts.

► EARLY DETECTION of cancer of the gastro-intestinal region will be aided by use of a machine that televises X-rays, now under development in Chicago.

The X-ray-television equipment will give sharp, clear pictures of the "dense" parts of a patient's insides. In order to examine such regions of the body now, doctors have to use X-ray dosages that are about one-eighth of the maximum amount to which humans can be exposed without injury.

Using the new device, doctors will be able to get a clear look through as much as ten inches of body tissue, yet the X-ray dose will be only about one one-hundredth of that now used. Magnification of images up to an order of 100 times has made it possible to blow up the image of a mosquito to the size of a grapefruit.

The X-ray-television combination is equipped with a "memory" tube that will hold any picture for as long as two days, if desired. Or the picture on the memory tube can be photographed.

The instrument, developed by Dr. Robert J. Moon of the University of Chicago's Institute of Radiobiology and Biophysics, also can be used to test airplane parts by X-rays and to keep a permanent record of such tests. Vital parts of airplanes are now X-rayed and viewed on a fluoroscopic screen that must be the same size as the object being viewed.

X-ray-television scanning uses a television-like screen of any desired size and the memory tube allows photographing of the inspected parts.

Dr. Moon uses a beam of electrons from a television-type electron gun known as the Pierce gun. The beam scans a target of wolfram, or tungsten, where some of the electrons are changed to X-rays. A very small number of these X-rays, about one in 10,000, passes through a tiny pinhole and then through the object being examined.

In going through the object, the X-rays are modified, and the changes that have taken place tell the story of whatever is being X-rayed. In Dr. Moon's method, this information is extracted by changing the X-rays to bursts of ultraviolet light. This is done by passing them through a crystal of calcium fluoride about four inches in diameter and over two inches thick.

The pattern of the light bursts is then picked up by a photo-multiplier tube which, working on the same principle as the "electric eye," changes the light pattern to elec-

tric signals and greatly increases their strength. An amplifier further steps up the electric signal before it is passed through a sorter to the television-like screen. On this screen the X-rayed object is reproduced approximately one thousand times brighter than with the usual fluoroscopic screen used now with X-rays.

Dr. Moon is aiming at producing a focal spot about one four-thousandth of an inch in diameter at 125 kilovolts using a current of 100 milliamperes. He has now worked the instrument satisfactorily at currents of 50 milliamperes.

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MEDICINE

Anti-TB Drug for Leprosy

► VICTIMS OF Hansen's disease (leprosy) are now getting treatment with the new anti-tuberculosis drug, isoniazid, the Leonard Wood Memorial (American Leprosy Foundation) announced in Washington.

Barely two months after news of the new drug first broke, 13 patients in Westfort, Pretoria, South Africa, were given their first dose. Another 24 patients there have since been started on this treatment.

It is still too early to say whether the new drug will be as successful in Hansen's disease as it shows promise of being in tuberculosis. A report received at the Leonard Wood Memorial, written at the end of one month of trial of the drug, stated that there was little, if any, change in the patients condition.

Results of use of the drug in this disease, however, would not be expected as quickly as in tuberculosis. Hansen's disease, or leprosy, takes a much longer time both to develop and to respond to treatment.

Reason for trying the new anti-TB drug in Hansen's disease is that the germs which cause it are somewhat like the germs which cause tuberculosis. What stops one may stop the other. Sulfones, originally developed as anti-TB drugs, have proved the best so far for leprosy, though they were not successful in tuberculosis.

Trial of isoniazid for leprosy will also be started shortly, or may already be under way, in the Philippines and in Japan. The Westfort Institution in South Africa, the Eversley Childs Sanitarium in Cebu, and institutions at Aisei-en and Komyo-en, Japan, are cooperating with the Leonard Wood Memorial in trials of various sul-

● RADIO

Saturday, July 5, 1952, 3:15-3:30 p.m. EDT

"Adventures in Science," with Watson Davis, director of Science Service, over Columbia Broadcasting System.

Dr. Alexander Wetmore, sixth Secretary of the Smithsonian Institution, discusses "The Smithsonian Institution."

PALEONTOLOGY

Unearth Fossil Species At Wyoming Reservoir Site

► TWO NEW species, a lizard and an insectivore, were among the fossils collected on the site of the Boysen Reservoir near Shoshoni, Wyo. This area is now being combed for material of scientific interest before it is flooded with water.

The collection was made and specimens identified by Dr. Theodore E. White of the Smithsonian Institution.

Science News Letter, June 28, 1952

phones and some anti-TB drugs, as reported in SCIENCE NEWS LETTER, Sept. 1, 1951. Isoniazid is now being included in these trials in which 960 patients are taking part.

Supplies of the isoniazid have been flown to the Philippines, and it is being manufactured in Japan. The South African trials are being made with supplies of isoniazid from the United States, England and Switzerland.

A conference of the scientists taking part in the trials in all three countries with consultants from the Leonard Wood Memorial is tentatively planned for late this summer.

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ENTOMOLOGY

DDT Less Popular With Farmers Now

► DDT IS losing its popularity with farmers as a means of checking flies, lice, fleas and other parasites of livestock, a committee of the American Veterinary Medical Association reported to the meeting in Atlantic City, N. J.

Chlordane and lindane and other synthetic chemicals are replacing DDT to a considerable extent, the committee found.

Both chlordane and a lindane-rotenone compound give excellent control in treating cattle lice, whereas DDT is not so satisfactory for this purpose.

Benzene hexachloride is now widely used to treat sheep and cattle mange. However, this chemical is poisonous to livestock if accidentally given to them.

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