

GENERAL SCIENCE

Cancer Treatment of Future May Include Jets of Water

Academicians at Spring Meeting Also Hear Reports In Fields of Physics, Chemistry and Psychology

A JET of water under pressure of 15,000 pounds per square inch, issuing from a tiny hole, may become part of cancer treatment in the future. This method of painlessly forcing water through the skin instead of using a hypodermic needle injection was reported by Drs. G. Failla and T. R. Folsom, Memorial Hospital, New York City, at the meeting of the National Academy of Sciences in Washington.

Cancer yields more readily to X-ray treatment when distilled water has been injected to drown the cancer, as it were, after X-ray bombardment, Dr. Failla has previously shown.

The idea of using a very fine, high-pressure jet of water came from reports of the injuries suffered by workers with high-pressure oils. The injuries were at a considerable depth from the surface of the body. The oil, emerging in a fine stream from a tiny hole, penetrated the body without the worker being aware of it. The method may be used, Dr. Failla suggested, not only for getting distilled water into tumors in conjunction with X-ray treatment but also for injecting radioactive substances into the tissues.

The water jets penetrate the skin an inch or more, preliminary tests have shown. Skin offers considerable resistance to the jet as compared with other substances. The jet can penetrate raw potatoes, for example, to a depth of three or more inches.

Although the water jet can be used to introduce liquids into human tissues, Dr. Failla says no "distinct superiority of the jet over the needle method" has appeared so far.

Science News Letter, April 27, 1940

Hazard to Neutron Workers

SCIENTISTS pioneering with neutron rays, new tool of physics and new experimental weapon against leukemia and cancer, face the danger which injured and killed many early X-ray and radium workers before the dangers of these healing rays were discovered.

The danger to the neutron ray workers appeared in reports presented before the National Academy of Sciences.

A dosage of as little as one-hundredth of an "n" per day of fast neutrons ("n" being the measure of a neutron dosage unit as "r" is the measure of an X-ray dosage unit) "may be unsafe if the exposure continues over a period of about ten years," Dr. Robley D. Evans, Massachusetts Institute of Technology, has calculated.

Scientists have been working with neutrons for seven or eight years, which brings them close to the danger line estimated by Dr. Evans. Although they had the experience of the early X-ray martyrs to warn them, it is possible that in the exciting period of atom-smashing with the cyclotrons and other investigations

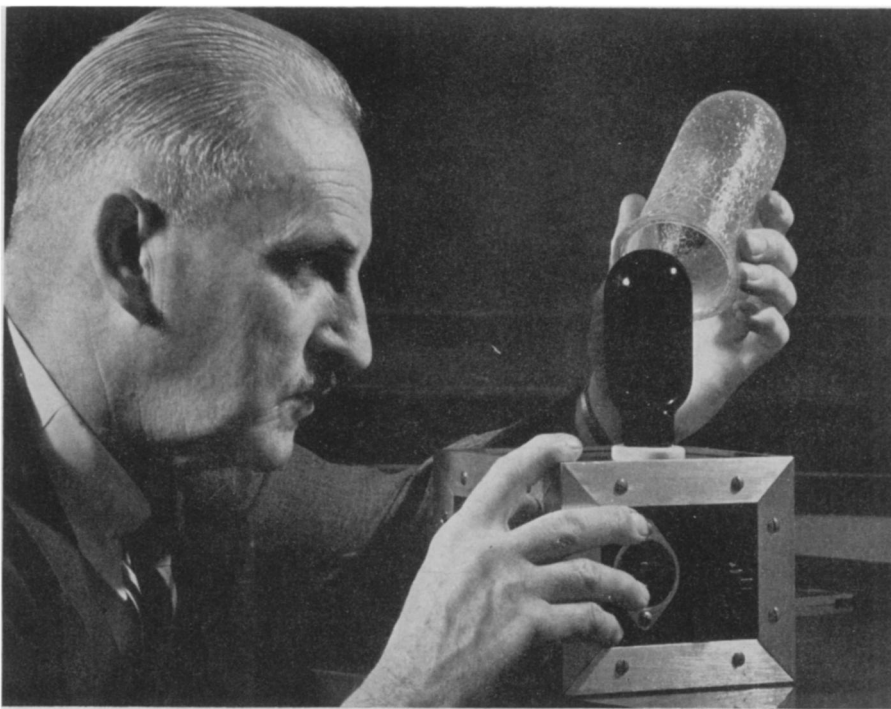
using neutron rays, they may have neglected to take all precautions.

Tolerance of animals to neutron rays cannot be used as an absolute guide for human experience, Dr. Evans pointed out, because "the relative radiation sensitivities are entirely unknown for small doses."

Neutrons produce their effects on living tissues by the secondary recoil rays which they produce in the body by collision with hydrogen, carbon, nitrogen, oxygen and other atoms, Dr. Evans explained. The effect of the neutron recoil rays is closer to that of alpha rays from radium than to any other radiation which has been studied extensively with regard to its effect on living tissues.

The effect of alpha rays on human tissues is known from study of victims of chronic radium poisoning, as in the cases of the girls who painted luminous watch dials, and of the radium mine workers who got lung cancer from inhaling radon. Using facts available from studies of these persons, Dr. Evans arrived at his figure of the limit of safety for exposure to neutron rays.

"In modern laboratories accurate data on the dosage received by each worker should be part of the routine operating records. Only when such data have been



DARK LIGHT IN COLOR

The glass shell for this ultraviolet lamp has been treated chemically to turn the invisible light to visible color. Examining the new development is Dr. Phillips Thomas, of the Westinghouse Research Laboratories.