

PHYSICS

Better Cancer Treatment May Result From Powerful X-Rays

Super-Radiations Will Affect Cancer Cells Leaving Normal Cells Unharmed Because of Immunity Built by Cosmic Rays

WHEN science is able to produce X-rays of 10,000,000 to 50,000,000 volts, these short wave radiations will pick out with more deadly aim the cancer cells and thus be more effective in the treatment of cancer than the X-rays and radium radiation now used.

This was predicted by Dr. Robert H. Millwee, roentgenologist of the Dallas, Tex., Methodist Hospital, at the American Congress of Radiology in Chicago, upon the basis of a theory as to how the normal, relatively old cells of the body have acquired resistance to X-rays and radium.

Cosmic rays which continually plunge through our bodies are credited by Dr. Millwee with developing a hardiness of the normal cells which allows them to go through a bombardment of X-rays without harm, while the cell "up-starts" that compose the dangerous cancerous growth are damaged because they have not developed this resistance.

Dr. Millwee studied the influence of the age of cells upon their resistance to X-rays and radium.

Resistance Developed

"It seems that since a plant or animal will become acclimated or accustomed to a change in physical surroundings, if the change be brought about slowly enough, that a like tolerance would be produced by short wave radiation, provided the radiation be applied in proper quantity and over a sufficient length of time," Dr. Millwee pointed out.

"There is a vast amount of experimental evidence to show that cells develop a resistance to radium and X-rays," he continued, citing research done by himself and other investigators along this line.

"One of the most convincing arguments in favor of the idea that cells remaining for a long period of time on earth, in an unchanged state, have developed resistance to radiation is the fact that, as a class, unicellular organisms are much more resistant to radium

and X-rays than are the cells of multicellular organisms.

"If cells have developed a resistance to short wave radiation, then it is probably important that we know the type of radiation which has produced this resistance. Since cosmic rays furnish such a large part of the short wave radiation reaching the earth it is quite reasonable that cell resistance is created by these very short wave cosmic rays.

Gamma Ray Effect Different

"We have certain clinical evidence and some experimental evidence that the biologic effect of extremely short Gamma rays is different from that of X-rays now in general use or longer Gamma rays. If the biologic effect is different, then a resistance acquired by one probably does not confer a resistance to the others.

"Therefore," he concluded, "if normal cells have acquired a resistance to cosmic rays which the new cancer cell does not possess, then we may find the answer to the question of why the shorter Gamma rays of radium have a selective action on cancer cells, or seem clinically to produce the maximum ef-

fect upon cancer cells with the minimum injurious effect on normal cells, and we may find that X-rays produced by voltages of ten to fifty million may have even a more desirable selective action on cancer cells than our shorter Gamma rays of radium."

Baby X-Ray

The smallest X-ray tube built in this country, a new development of the General Electric X-Ray Corporation, was demonstrated before the Congress. The new device operates from an ordinary light socket, is shock-proof, and may be used in safety by the layman—a long-sought combination of virtues.

The small set was said to be capable of making photographs of the entire human body and of use in fluoroscopic examinations in industrial plants. Customs inspection of clothing and baggage, post office examination of suspicious packages and race track inspection of horses' ankles are suggested uses. The apparatus is expected to replace more cumbersome equipment now in use.

Science News Letter, October 7, 1933

VETERINARY MEDICINE

Fright Disease Cured By Vitamin A Feeding

INCREASING the amount of vitamin A in the diet cured dogs of hysteria, H. D. Walston of King's College, Cambridge, England, found.

This ailment, also known as "fright disease," has become increasingly common in both England and America during the last ten years. The afflicted dog,



DWARF AND GIANT

The smallest commercially useful X-ray tube built in this country is contrasted with a mammoth 800,000-volt bulb recently installed for cancer treatment at Mercy Hospital, Chicago. The baby tube is rated at 58,000 volts and uses ten milliamperes. Its designer, J. B. Wantz is pictured on the right.