

MEDICINE

Radar Enters Cancer Fight

► LIVES, money and many worry-ridden days may be saved by application of an Army-invented radar development to cancer fighting, announced by the National Cancer Institute.

The development consists of the instantaneous processing of radar photographs. It is now going to be used for processing photofluorographic films used to detect stomach cancer in its early, potentially curable stage. The U. S. Public Health Service, on recommendation of the National Cancer Advisory Council, is granting \$49,626 to Dr. Russell H. Morgan, professor of radiology at Johns Hopkins University, Baltimore, for this work toward the control of cancer.

Controlling stomach cancer has been one of the toughest jobs cancer fighters have had. This form of cancer kills 60% of its 100,000 victims each year. The start of the disease is so insidious that there is no warning signal to attract either the patient's or his doctor's attention before the malignant growth has advanced beyond the curable stage.

In the hope of making mass X-ray detection studies possible for stomach cancer, Dr. Morgan has developed and tested a spe-

cial camera, the Schmidt fluorographic camera. The unique optical system of this camera enables it to take sharp pictures of the relatively dim image appearing on a fluoroscopic screen. Its efficiency is said to be 10 times that of any photofluorographic unit previously available. The photofluorographs define the internal organs clearly enough to show tumors or other abnormalities without exposing the patient or X-ray operator to a dangerous amount of radiation.

By using the Army's method for rapid processing of radar photographs in combat operations, the photofluorographs for cancer detection can be made without need for darkroom equipment and film storage files. This will cut costs.

In addition, a report of any signs of disease can be had immediately, so that any necessary further check-up or examination can be made while the patient is still at the clinic. This may save lives by cutting down the period between detection of the cancer, if there is one, and operation for its removal. And it will save the person examined from days or weeks of worry while waiting to hear the results of the examination.

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MEDICINE

Pre-Birth Brain Activity

► IF MAN'S development follows the pattern of lower animals, he begins to think, or his brain is at least ready to start thinking, three months before birth.

That this might be true is indicated in researches reported by Dr. Louis B. Flexner at the meeting of the American Philosophical Society in Philadelphia. Dr. Flexner is on the staff of the Carnegie Institution of Washington's embryology department in Baltimore.

Dr. Flexner studied the nerve cells of the gray matter of the brains of guinea pigs at various stages in their pre-birth development. About two-thirds of the way

through the pre-birth period, a series of "abrupt changes" occurred in the nerve cells.

Nerve processes started to grow rapidly. The volume of the nucleus of each cell stopped increasing. An enzyme believed to have a useful energy-yielding activity increased sharply to the adult level of activity. Other enzymes, responsible in part for the combustion of foodstuffs, increased rapidly to the adult level.

At the same period the nerve cells for the first time are electrically active. Electrical potential changes, known to the layman as brain waves, can be recorded from the surface of the brain at this same two-thirds stage of the guinea pig's pre-birth development.

The nerve cells of the guinea pig's cerebral cortex, or brain gray matter, "begin to show functional activity about two-thirds of the way through gestation," Dr. Flexner concludes.

Whether this means that man's brain is ready to start thinking three months before birth cannot be stated definitely for two reasons, he explained. One is that we "don't know what cells we think with." The other is that guinea pigs are born more nearly grown-up than human babies. But man's pre-birth development probably goes

through the same cycle as the guinea pig's, so the studies give an indication of when the change that readies the brain for thinking takes place.

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ACOUSTICS

Very High Sound Waves Kill a Rat but Not a Man

► RATS and guinea pigs can be killed with high frequency sound waves, but man is safe against them because he has no fur, the National Safety Congress was told in Chicago by Dr. Horace O. Parrack of the U. S. Air Force Medical Laboratory.

With the fur-bearing animals the sound energy is turned into heat. They die from high-frequency noise because they get so hot the body proteins coagulate. When the hair is shaved off, sound does not bother the animals much more than it does man. Man, with his much more efficient skin ventilating system, is safe at energy levels 120 times greater than the animals ordinarily are, he said.

Studies being made by Dr. Parrack are concerned with the effect on airmen of jet propulsion and other modern aircraft engines. His investigations do not show that the sound field generated by current aircraft power plants is not hazardous. Jet engine noise fields constitute a serious hazard to hearing organs in that temporary deafness will follow even brief exposures and repeated exposure may result in permanent deafness.

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ASTRONOMY

Plan for Re-Equipment Of India's Observatories

► TWO Indian astronomical observatories will have the most modern equipment when plans discussed by Pandit Jawaharlal Nehru during his visit to Harvard College Observatory, Cambridge, Mass., come to fruition.

The Indian Prime Minister and his sister, Ambassador to the United States, spent part of their Boston visit conferring with President James B. Conant of Harvard and Dr. Harlow Shapley, Harvard astronomer, about a new Schmidt-type telescope for the Allahabad University observatory in north India and a sun-observing coronagraph for famous Mt. Kodaikanal solar observatory in southern India.

This re-equipping of the Indian observatories will give that country the best telescope in Asia and a solar instrument equal to those in America and France. Dr. A. C. Banerji of Allahabad is being sent to America by the Prime Minister to get the project underway and later Dr. A. K. Das will come to work out the solar project. The beginning of the cooperation was Dr. Shapley's visit to India last year.

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The chasm between the intelligent layman and the marvelously growing science of Mathematics is being bridged by the Mathematics Magazine. About 40% of the magazine is devoted to easy reading, 25% to papers requiring some college Mathematics and 30% to advanced topics (mostly expository). For example, a series of "Understandable Chapters on Various Courses in Mathematics," beginning with first algebra, is now running. Vol. 23 No. 1, Sept.-Oct. contains such a chapter on Elementary Number Theory by Prof. E. T. Bell of the Calif. Institute of Technology.

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