

GENERAL SCIENCE

Cancer May Spread in Body By Fragments in the Blood

National Academy of Sciences Meets and Hears of New Hormone, Giant Cyclotron, and Medical Advances

A NEW picture of how cancer may spread by the blood from one part of the body to the other was presented by Drs. A. Gordon Ide and Stafford L. Warren of the University of Rochester and Strong Memorial Hospital at the meeting of the National Academy of Sciences in Rochester, N. Y.

Color moving pictures showed fragments of cancer apparently drifting into a blood vessel in a rabbit's ear. Such fragments of cancer, living and dead, probably drift into the blood in this way in far greater numbers than has previously been supposed, the Rochester scientists said.

The pictures possibly explain one method for the spread of cancer from one organ of the body to another. The blood travels to all parts of the body and is carried a good part of the way through a network of large, thin-walled veins. These thin walls are often broken by very slight injuries. Such a break in a vein as it traveled through a cancer would provide the chance for the cancer fragments to enter the blood and be carried to some distant organ.

Dreaded Feature

This spread of the disease, known medically as metastasis, is one of the most dreaded features of malignant tumors. It is the imperative reason behind the drive for early diagnosis and early treatment of cancer. The surgeon can cut out a single cancer or tumor, can even in some cases remove one entire organ that is cancerous. X-ray or radium treatment can in many cases destroy cancer of one region. When, however, the cancer has had a chance to spread to many organs or to indispensable ones, the outlook for the patient is hopeless.

The pictures which today showed one possible method of this dangerous spread of cancer were made through a transparent double window of cellulose acetate film placed in the rabbit's ear. A fragment of rabbit skin cancer was transplanted under the outer window. Through the window, with the aid of

microscopes, the scientists were able to see the tiny blood vessels grow up, around and into the growing cancer. Twice they observed a large blood vessel with an opening growing at the edge of the cancer. In addition they were able to obtain a color moving picture record of a fairly large blood vessel in such state that blood serum, red blood cells and, apparently, cancer fragments could wash in and out with ease.

Beginning stages of animal life have been successfully grown outside the body of the mother, in a circulating solution

of nutrients, simulating conditions of nature. This new kind of "bottle baby" was described by Prof. J. S. Nicholas of Yale University.

Rat embryos were the materials used in the experiments. Embryonic tissue has been grown in glass vessels many times, but without a circulating medium to bring it food and take away waste products, development is checked. In Prof. Nicholas's experiments the more favorable conditions made it possible for normal development to go on for the four most critical days in the life of an embryo, and at the same time permitted continuous observation by the scientist.

Early stages of life apparently do not demand exact duplication of natural conditions, Prof. Nicholas found. His cultures were not injured by gradual changes in temperatures between 70 and 110 degrees Fahrenheit; they could adapt themselves to changes in the acid-alkali balance of the solution and also to



SOLD—HOUSE AND LOT FOR \$1.75

This bargain was closed back in 1969 B.C., when a woman named Amtia bought a house and lot on a canal bank, in the city of Kish, Mesopotamia, for six and five-sixths shekels. A shekel contains 25 cents worth of silver, by present standards, but in those days it had higher buying power. Richard A. Martin, archaeologist of the Field Museum of Natural History, is shown holding the clay tablet on which the real estate contract was recorded, while he points out to the museum's auditor how Babylonians used to copy the contract also on the clay envelope—handy for filing.