CYTOLOGY

Study Fused Cells

➤ SINGLE-CELLED PROTOZOA, each smaller than a flyspeck, are being fused together in cancer research by Dr. Vance Tartar of Nahcotta, Wash.

Cancer cells, just as these tiny protozoa, are rugged individuals, unspecialized for any cell community activity. Dr. Tartar hopes by fusing the protozoa together to find out what makes cells specialize.

The American Cancer Society, which supports his work through a grant administered by Dr. Arthur H. Whiteley of the University of Washington, Seattle, says Dr. Tartar has in effect "built a giant single-celled animal" by clumping several protozoa together.

He gashes the sides of the barely visible, pear-shaped protozoa, *Stentor coeruleus,* and lets them grow together at the gashes.

In this manner, he has fused as many as 80 protozoa in a proto plasmic mass. Some specialization occurs in large clumps but complete specialization has been achieved only with a few fused cells.

The giant cell specializes, or differentiates, shortly after fusion. A head forms, and whip-like cilia sweep food-laden fluids inside the new mass. If this "head" is chopped off, another will grow to replace it.

Dr. Tartar has attempted to weld two strains of the protozoa, one blue and one green, together. He has succeeded in creating a patchwork of green and blue cells that survive for a little while.

Dr. Tartar is also adding cancer-causing chemicals to cultures of protozoa. He will attempt to determine whether these chemicals rob the cells of their ability to do specialized work and cause them to grow wildly, as they do when applied to animal tissues.

Science News Letter, November 28, 1953

MEDICINE

One-Second X-Ray

➤ THE TIME required to make an X-ray picture has been cut to one second. When X-rays were first discovered 58 years ago, pictures frequently took an hour.

A feature of an exhibit tracing the history of X-rays prepared by the Medical Museum of the Armed Forces Institute of Pathology in Washington is a life-size X-ray of a woman taken in one second by Arthur W. Fuchs of the Eastman Kodak Company.

The exhibit was given a preview showing in the national's capital before a conference of X-ray technicians. After six weeks at the museum, it will be sent on a tour of key cities in the nation.

Contrasting with the modern one-second picture is a set of glass plates showing the complete bone structure of a man taken by Dr. Dayton C. Miller in 1896 at the Case Institute of Technology in Cleveland, Ohio. In the first years of X-ray development, exposure times usually ranged between 30 minutes and one hour.

The scientific discoveries that contributed to Dr. Wilhelm C. Roentgen's discovery of the X-ray in 1895 in Wurzburg, Germany, are outlined in the exhibit, and the progress since then is traced.

The history of the use of X-ray equipment by the U. S. Armed Forces from the Spanish-American War to the Korean War is also a part of the exhibit. In the display is a portable unit built by the Picker X-Ray Corporation of New York for use at the front in Korea. This machine utilizes a Polaroid film processor to develop X-ray film in one minute.

A collection of early hand-blown tubes is included as well as a replica of a Crookes tube that was used by Dr. Roentgen.

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AGRICULTURE

Insecticides and Crops

➤ SOIL APPLICATIONS of the insecticides toxaphene and aldrin do not deposit residues of the chemical in vegetables that might be eaten by the public.

Drs. M. W. Stone, F. B. Foley and D. H. Bixby of the U. S. Department of Agriculture have reported that no detectable residues of these insecticides were found in lima beans, sweet potatoes and potatoes following three annual applications of the chemicals to the soil.

They discovered that 45% of the toxaphene remained in the soil 10 months after the second application, and 62% after the third application.

In addition to this aspect of their tests, they found that yields of tomatoes, peppers, cabbage, cauliflower, spinach, lettuce, beets, peas, sweet potatoes and Ventura lima beans were not affected by the insecticides. This part of the testing included chlordane and ethylene dibromide. The four insecticides are used primarily to control soil pests such as wireworms and other root feeders.

Following the second or third applications of toxaphene, a trend toward lower yields of Fordhook lima beans, celery and carrots was noted. After three applications of toxaphene, potato yields were reduced substantially. The yield of onions was reduced after the third application of ethylene dibromide, but this was due primarily to the discarding of much of the crop because of fusarium rot, they reported.

Tasters checking the vegetables for insecticide effect on flavor were unable to detect any off-flavor in green lima beans or tomatoes grown in soils treated with aldrin, chlordane and toxaphene, but they found potatoes to be significantly off-flavor.

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