MEDICINE

Cancer Antibodies in 25%

➤ ABOUT ONE-FOURTH of the patients who get cancer make in their bodies substances that fight their own cancers. The substances are called antibodies.

This discovery was announced by the American Cancer Society in New York together with announcement of another finding on cancer antibodies.

The second finding is that chemicals resembling those which cause cancer go to the cells in the body which produce antibodies and cause changes in the chemical processes of these cells.

Discovery of the cancer antibodies, with its hint that patients who are producing them may be curable, was made by a husband and wife team, Drs. John and Ruth Graham of Vincent Memorial Hospital-Massachusetts General Hospital, Boston.

In some of the patients, the activity of the cancer antibodies picked up considerably after much or all of the cancer had been removed by surgery. The Boston scientists are trying now to find the kind of cancer chemical that stirs up the antibody reaction.

Atoms of radioactive sulfur and carbon showed Dr. Felix Haurowitz of Indiana University, Bloomington, Ind., that chemicals like those that cause cancer go to antibody factories in the body. He put these radioactive atoms into molecules closely resembling the butter yellow dye that causes liver cancer in rats. Then he bound the radioactive dye molecules to enormous protein molecules and injected them into rats.

Tracing the radioactive chemicals with a Geiger counter, he found that a large proportion went to the antibody-producing cells of the spleen, lymph nodes, liver, bone marrow and tissues under the skin. When the small dye molecules were injected without being bound to the big molecules of proteins like the cancer-causing chemical, only about one-tenth of them went to the antibody-forming cells. The rest were excreted or lost track of.

Dr. Haurowitz's results show that in causing cancer the dyes may somehow change operations within the antibody-making cells generally and may change the protein-making parts of them in particular. This may be the way, it is suggested, that certain cancers of many kinds get their start, by first weakening the body's defenses.

Science News Letter, April 30, 1955

PHYSICS

First Strong Focusing Atom Smasher at Work

➤ THE FIRST atom smasher using the new method of strong focusing is now working, Dr. Robert R. Wilson, director of the Newman Laboratory of Nuclear Studies at Cornell University, Ithaca, N. Y., revealed.

The electron synchrotron, successfully operated at energies of 575,000,000 electron volts, is designed to go to a billion and a half. Electrons are light-weight, fundamental particles of the atom having a negative charge.

Synchrotrons accelerate particles by spinning them around a circular path. Strong focusing keeps the particles on a much narrower path than has previously been possible, allowing scientists to get higher energies with less machine.

The new focusing theory was worked out by physicists at a number of institutions, particularly the Brookhaven National Laboratory, Upton, L. I. (See SNL, Feb. 13, 1954, p. 105.)

The accelerator, built with funds from the Office of Naval Research, measures 26 feet across.

Science News Letter, April 30, 1955

FOCUSING SYNCHROTRON—Cornell University's new atom smasher encircles older, more conventional model. The first one built using the "strong focusing" principle, the new machine is now operating at 575,000,000 electron volts.

AERONAUTICS

Supersonic Delta Wing Fighter Being Tested

See Front Cover

➤ AN IMPROVED model of the nation's first supersonic delta wing jet fighter, the YF-102A, is now undergoing flight tests and according to the Air Force will soon become part of the country's air defense.

The first picture of the plane in flight is shown on the cover of this week's SCIENCE NEWS LETTER.

The all-weather day and night fighter, designed by Convair, has a 37-foot wingspan and is 52 and a half feet long.

Science News Letter, April 30, 1955

TECHNOLOGY

German Fair Sees Electronic Juggler

➤ EVEN A juggler can be replaced by a machine.

While its more serious cousins grind out answers to the ponderous problems of physicists and mathematicians, an electronic "brain," made in the U.S.A., is adding some vaudeville color at the German Industries Fair at Hanover, Germany (April 24-May 3).

The "electronic juggler" quivers, jiggles and jumps until the attached servo-mechanism gives the cue that the three-foot steel rod the "juggler" holds is in perfect balance. He is then ready to begin his "act."

The juggler stands holding the rod in perfect balance without support or connective device of any kind. It can keep this up indefinitely.

Engineers point out that this demonstration of the continuous juggling symbolizes the ability of the computer to perform other automatic control feats for industry. Such devices may free human workers of the future from many tedious and repetitive tasks in the "push-button" factories of the future.

The electronic juggler was designed by Reeves Instrument Corporation, New York, and is part of the U. S. Department of Commerce's exhibit.

Science News Letter, April 30, 1955