PHYSICS-MEDICINE

New Cancer Weapon

X-Ray telescope will give physicians a 500-times clearer view of internal organs. Will aid greatly in diagnosis of stomach cancer and heart ills.

➤ A NEW weapon for fighting stomach cancer, cause of nearly half the cancer deaths in the nation, has been developed by Dr. John W. Coltman, physicist at the Westinghouse Research Laboratories, Pittsburgh.

The new anti-cancer weapon is an "X-ray telescope." Used with standard X-ray fluoroscopic equipment now in hospitals and doctors' offices, it will give doctors a 500 times clearer view than ever before of their patients' internal organs.

One of the biggest blocks to the conquest of stomach cancer is the difficulty of diagnosing it in time for successful treatment. The new "X-ray telescope" is expected to aid in this important field.

Better diagnosis of heart ailments and other diseases may also come with the aid of the new instrument.

The X-ray telescope consists essentially of an electronic tube with a chain-like reaction going on inside it. In the chain-like reaction, the X-rays passing through the patient's body first produce light rays. These in turn create electrons within the new tube. Then with the aid of powerful electrical forces the electrons are hurled across the tube at a speed of 5,000 miles per second and strike a fluorescent screen producing the image viewed by the physician. The speed-up of the electrons is the chief factor in brightening the final image.

"Greatly increased brightness will make possible a movie-like viewing of all internal organs and movements from any angle, a sharp contrast to the very dim view now possible with the best available equipment," Dr. Coltman explained. "No longer will the physician need long periods to adapt his eyes to darkness before viewing the X-ray screen, and even more important, he will be able to make rapid, accurate diagnosis of internal detail never clearly visible before by fluoroscopic means.

"The 500-fold increase in brightness should put the image well within the range of present-day television pick-up tubes. This means that the fluoroscopic image may be transmitted and duplicated at different points for observation by more than one person or group. It is even conceivable that some day medical specialists hundred of miles from the patient can be consulted and aid in the instant diagnosis of an internal ailment."

The new instrument does not expose the patient or the physician to any greater amount of X-rays than are now used in diagnosis. This is an important safety advantage.

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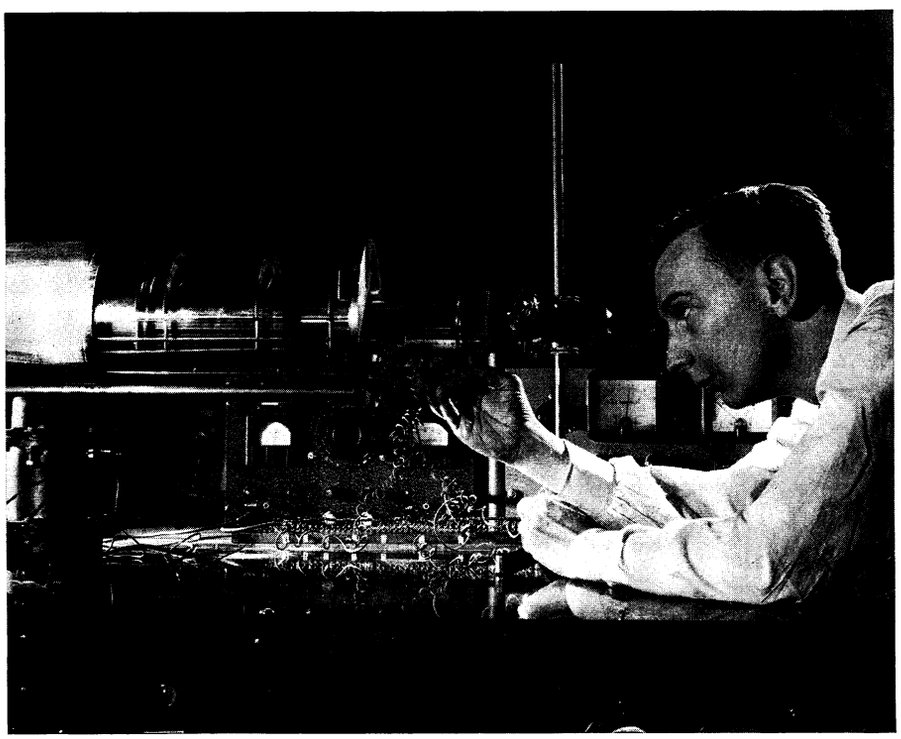

IMAGE BRIGHTENER—This device demonstrates that with a 500 amplification tube it would be possible to brighten X-ray images 500 times.

PSYCHIATRY

Histamine Used to Aid Some Mental Patients

➤ DELUSIONS can be banished and some mental patients can be helped to recovery by histamine, a chemical believed to play a part in hayfever suffering, the American Psychiatric Association was told at its meeting in Washington.

Dr. E. O. Niver of Eau Claire, Wis., described the dramatic recovery from delusions of a 26-year-old man.

The patient had been depressed for some time. His father had committed suicide and the young man was convinced that he suffered from a hopeless condition. He had the delusion that part of his digestive tract was "dead and his food was wasted." This delusion showed immediate improvement when histamine treatment was started and within one week it had cleared up entirely. The patient's judgment, however, was still defective, so that he refused further voluntary treatment.

A stocky, mildly paranoid woman who was beset by suspicions that her husband was unfaithful was also helped by histamine treatment. Her suspicions made her agitated and her inner sense of hostility at times reached a dangerous pitch. After five injections of histamine with psychotherapy she became calmer, gained insight into her problems, and for several months has gotten along very well.

A 45-year-old woman with some tendency to depression came to the hospital because of excruciating, knifelike headaches. These were not due to nervous and muscular tension, nor to migraine. Sedatives failed to relieve them.

She began to improve under histamine treatment. Then, one day, the drug caused her headache to become much worse. At that point she became very hostile and said some of the things she had been afraid to say before. After this her symptoms improved and she was able to deal reasonably with her problems.

The chief value of histamine, Dr. Niver thinks, is that it gives patients an increased sense of self-confidence without lessening their sense of power to control themselves. This makes it possible for them to probe with the psychiatrist into the underlying feeling conflict which is causing their illness. Many mental patients, Dr. Niver pointed out, feel so unstable that they dread any psychiatric treatment. They fear that any "tampering with their psychological defenses" will drive them completely insane. Narcosynthesis helps in some of these cases, but some patients even dread the so-called "truth serum."

Dr. Niver turned to histamine as an aid in such cases because of the mutual antagonism between this body chemical and another, adrenalin, or epinephrine. The latter chemical can activate an anxiety that some psychiatrists say is an actual neurosis. So using its antagonist to help neurotic patients seemed logical. Histamine is a powerful chemical and must be used carefully, Dr. Niver warned.

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MEDICINE

Sulfa Drug For Cholera

Possibly future weapon against cholera, dysentery, and some other intestinal infections, phthalylsulfacetimide has saved lives of 97 out of 100.

➤ A NEW sulfa drug that may be the weapon of the future against cholera, dysentery and some other intestinal infections was announced at the Congress of Tropical Medicine and Malaria meeting in Washington by Dr. Harry Seneca, research associate at Columbia University College of Physicians and Surgeons.

The drug is called phthalylsulfacetimide. It was developed by Dr. Seneca and Dr. Edward Henderson, director of clinical research of Schering Corporation. They were seeking a drug for dysentery and other similar infections that would be safe enough and cheap enough to be sold over the drug store counter like aspirin.

When the cholera epidemic broke out in Egypt last fall, tests of the new sulfa drug had progressed far enough so that the scientists thought it would have value in this disease. Dr. Seneca flew to Egypt in October with a supply of the drug.

Some 500 patients were treated. Because of the chaotic conditions and lack of trained personnel, adequate records could be gotten on only 43. But of these 43, only one died. That gives the new drug a record of saving lives at the rate of about 97 out of 100 in an epidemic in which almost 50 out of every 100 died. The drug's success in cholera, Dr. Seneca said, depends on its being given within the first three days of sickness.

The drug has been given to patients in the New York area suffering from ulcerative colitis and from acute intestinal inflammation. In the latter condition, some patients were relieved of symptoms in one day and all nine were cured on the fifth day. Of the 28 ulcerative colitis patients, 18 improved when given the drug. The drug is not expected to cure this condition, but to clean up secondary infection and give the ulcers a chance to heal.

Success of the drug and its safety are believed due to its unique ability to penetrate the walls of the intestines without being absorbed into the blood stream. It is given by mouth either in pills or in a powder dissolved in milk or water. It is not yet on the market.

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CHEMISTRY

New Glass Developed To Withstand High Heat

➤ A NEW type of glass, which can be heated to 1,800 degrees Fahrenheit and rapidly cooled without breaking, was described to the American Chemical Society by Dr. Richard B. Ellis of the University of Miami. It is particularly suitable for sun lamps and laboratory glassware.

The new glass, called vycor and invented by Dr. Martin Nordberg and Harrison Hood of the Corning Glass Works, consists almost entirely of silica. It is made from a soft, alkaline glass, molded or blown in the conventional way, which is then immersed in hot acid and the alkali dissolved and washed out. When the glass is heated to 2,000 degrees Fahrenheit, the pores close and it shrinks to about two-thirds its original volume.

The final product can be used continuously at a temperature of 1,600 degrees without losing its strength or clearness, Dr. Ellis stated. If heated to more than 1,800 degrees for prolonged periods, it becomes cloudy and opaque upon cooling. The opacity, however, does not affect the strength of the glass.

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