MEDICINE

Bigger Radioactive Blast For Cancer of Pancreas

➤ A WAY to deliver a bigger radioactive blast at cancer of the pancreas has been developed by Dr. Paul Harper of the University of Chicago.

Treatment of cancer at this site has heretofore been "unsatisfactory," Dr. Harper points out.

His method is to thread a fine, polyethylene tubing around and through the cancer. This is done during a surgical operation in which the abdomen is opened. The ends of the tubing are allowed to project outside the body after the surgical wound has been closed. Then radioactive iodine in liquid form is inserted in the tubing and the two ends are filled with either air or mercury and sealed.

The radioactive iodine can be left in the patient until it loses its radioactivity, which is a period of about eight days. Or it can be withdrawn if further surgery is needed. After the treatment is completed, the tubing can be left in the patient's body since it causes no difficulty.

Four of six patients treated so far have died, but in three of these it was found that the radiation had markedly decreased the size of the cancer. The remaining two patients, treated only recently, are still alive.

With the new treatment, as much as 8,000 or 9,000 roentgens of radiation can be delivered directly to the tumor. This dose is far above the tolerance level for treatment by external irradiation.

Dr. Harper reported his new method to the American College of Surgeons meeting in Atlantic City.

Science News Letter, November 20, 1954

HEMATOLOGY

Simple Blood Test Aids Heart Victims

➤ PATIENTS IN danger of blood clots in the heart's arteries or other blood vessels can now be given anti-blood clotting treatment at home, thanks to a simplified blood test developed by Dr. Benjamin Manchester of George Washington University School of Medicine, Washington.

Home treatment with anti-blood clotting chemicals of 300 patients with the heart disease, coronary thrombosis, is reported by Dr. Manchester and Dr. Boris Rabkin, also of George Washington School of Medicine, in *Circulation* (Nov. 1). This is believed the first report of such a large number of patients getting anti-clotting treatment at home.

Patients whose blood is too likely to form dangerous clots heretofore have been treated in hospitals. The reason is that blood tests must be made every day while anti-clotting medicines are given, to make sure the blood is not getting to a dangerously low clotting stage. In that case, the patient might develop serious spontaneous hemorrhages.

Previous tests for the blood's clotting ability, Dr. Manchester explained, have required about a teaspoonful of blood taken from a vein every day. Most patients could safely spare that amount of blood, but sticking a needle into a vein every day requires considerable skill and even with that, the veins in time may collapse so that it becomes more and more difficult to get the blood needed for the test.

Dr. Manchester's test is made on a few drops of blood from pricking a finger or ear lobe. The blood's clotting time can be determined in 14 to 18 seconds instead of the usual four to six minutes because he adds to the blood from the finger a small amount of the chemical, thromboplastin. This speeds the clotting reaction.

Science News Letter, November 20, 1954

BIOCHEMISTRY

Enzyme Chemical Sought As Nerve Gas Antidote

➤ A MUCH better antidote than atropine to nerve gases and certain highly poisonous insecticides may come from research reported by Dr. Irwin B. Wilson of Columbia University College of Physicians and Surgeons, New York, at the meeting of the National Academy of Sciences in New York.

The antidote Dr. Wilson seeks will reactivate the enzyme chemical that nerve gases put out of action. This enzyme chemical is acetylcholinesterase. It is vital for nerve function. Heretofore, scientists have thought that the enzyme was irrevocably destroyed by the nerve gases and related chemicals.

But, Dr. Wilson said, the development of enzyme theory clarified the mechanism by which the acetylcholinesterase is blocked and suggested a means of reactivating it.

The best reactivators, he said, are compounds such as nicotinehydroxamic acid methiodide that contain a nucleophilic group and a cationic ammonium structure.

So far he has not found any such chemicals that are fast enough to be used as an antidote in case of nerve gas or insecticide poisonings. But the fact that he has got chemicals which work in the test tube, restoring the poisoned enzyme to normal, encourages him to hope that he will be able to find one which can be used as an antidote.

Science News Letter, November 20, 1954

GENERAL SCIENCE

Research Laboratories Serving Industry Listed

➤ RESEARCH LABORATORIES serving industry as "cradles" of new ideas and developments are being listed anew by the National Academy of Sciences and the National Research Council, Washington.

Officials of these organizations are on the search both for new laboratories and for laboratories that might have been overlooked in previous directories.

Science News Letter, November 20, 1954

IN SCIEN

AGRICULTURE

Once Obscure Clover Seen as Useful Crop

➤ A SPECIES of clover, long in obscurity because its bacteria were unable to fix nitrogen, may well become a new and highly useful legume to the United States.

Discovery of nitrogen-fixing bacteria from Turkey to be used with the clover, *Trifolium ambiguum,* was reported to the Soil Science Society of America meeting in St. Paul, Minn., by Dr. Lewis W. Erdman and Ura Mae Means of the U. S. Department of Agriculture.

The Kura clover, as it is sometimes called, has been the object of many years of research in an effort to find the right bacteria to team up with it.

Certain strains of rhizobia, which are nitrogen-gathering, root-nodule bacteria, obtained from Turkey have now been found to be effective.

In the past, the Kura clover had been found with nodulated roots, but the bacteria causing them were found to be parasitic. That is, they gathered no atmospheric nitrogen but merely lived off the plant's roots.

The bacteriologists reported that this new combination will make the clover a valuable addition to the present stock of forage and soil-building legumes.

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PUBLIC SAFETY

Plastics Cause Serious Hand Injury to Workers

➤ WORKERS IN chemical plants that manufacture plastics face a new health danger, that of seriously damaged hands, Dr. Joseph M. Baker of Springfield, Mass., warned the meeting of the American Society of Plastic and Reconstructive Surgery in Hollywood, Fla.

In each of two cases, liquid plastic material being forced into a mold was injected accidentally into the palm of the worker's left hand, Dr. Baker reported.

The material immediately solidified and, although it was possible to remove it, it caused extensive damage to muscles and tendons of the hand. Swelling, numbness, intense pain and loss of motion in the fingers were early results of the injuries.

One patient, Dr. Baker said, was hospitalized for 47 days, with further rehabilitation necessary to restore function before he was able to return to work. The other patient, hospitalized 40 days, was returned later to the hospital for skin grafting, and faces future surgery of bone and tendon grafts before hand function is restored.

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SCIENCE FIELDS

SURGERY

Face-Lifting Results Last Average of Five Years

➤ FIVE YEARS of more youthful appearance is what the average aging person gets from a face-lifting operation, three plastic surgeons reported at the meeting of the American Society of Plastic and Reconstructive Surgery in Hollywood, Fla.

The three are Drs. Gustave Aufricht of Lenox Hill Hospital, New York, Albert G. Davis, associate professor of surgery, Stanford University Medical School, San Francisco, and James B. Johnson, assistant professor of surgery at the University of Southern California, Los Angeles.

The plastic surgeons call the face-lifting operation "cosmetic meloplasty." They call it beneficial for aging persons with "legitimate economic or social reasons for seeking to appear more youthful." But they warn that patients should be chosen with care and that those who are unstable emotionally should be avoided.

Best results are obtained in persons with too much skin on the upper neck and upper eyelids, the surgeons said.

Besides the temporary nature of the results, the operation has the following limitations: It cannot remove all lines and wrinkles on the aging face. Horizontal forehead lines and perpendicular lines on the lips cannot be removed. Wrinkles in cheeks cannot be completely removed because radical tightening of the skin produces a fixed, pulled expression.

The patient undergoing face-lifting will be in the hospital for three days and absent from work probably for two weeks. A general anesthetic is given for the operation. The fine line scars of the operation are unnoticeable or hidden by the hair.

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ENGINEERING

Pipelines to Carry Gasoline in War

➤ TEMPORARY PIPELINES laid over mountains, valleys and streams with speed and low cost will carry the oil and gasoline needed in future military operations or war, Maj. Gen. Paul F. Yount, U. S. Army chief of transportation, predicted at the American Petroleum Institute meeting in Chicago.

The use of pipeline in the combat zone is a tremendous asset to mobility, Gen. Yount said. As the attack advances, supply lines lengthen.

Supplies move forward mainly by rail, supplemented by truck and, to a certain increasing degree, by air. Convoys crowd the highways. Freight cars are usually in short supply. Pipelines relieve the highway pressures, reduce rail car shortages, and thus help to keep the other modes of transportation fluid.

A pipeline uses little labor, he explained. Only 10% of a pipeline operation cost is due to personnel, commercially, while on the average 60% is charged to personnel costs in railway operations.

A pipeline, unlike any other transportation, is relatively indifferent to weather. It gives little difficulty with terrain. And if well camouflaged, it is less vulnerable to enemy action. Roads and rails cannot be effectively hidden from sight, but pipelines can carry their cargo with the greatest of secrecy and security.

In case of withdrawal, a pipeline is the easiest type of transportation line to destroy, Gen. Yount said. It takes something to wreck a highway and mangle a rail line when you move out, so the enemy will not be able to make use of it.

With the pipeline, no explosives are necessary. It carries with it its own means of destruction.

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ZOOLOGY

The Taming of the Shrew May Help in Virus War

➤ THEY ARE trying to tame the shrew at the University of Malaya in an effort to breed this squirrel-like animal for use as a laboratory host for experiments with human virus diseases.

A colony of tree shrews from the Federation of Malaya and Thailand are now being maintained and bred at the University, Prof. J. R. Hendrickson of the zoology department reports in *Nature* (Oct. 23).

Both the Institute for Medical Research, Kuala Lumpur, Malaya, and the U. S. Army Medical Research Unit in South-East Asia are interested in the breeding experiments.

The animals are being fed a diet of bananas and papayas together with an "insect substitute" mixture containing high-protein cereal, beef extract, honey, fresh eggs, powered milk, dog biscuits for roughage, cod liver oil, vitamin E, calcium lactate and salt. Tree shrews normally feed on soft fruits and insects.

Prof. Hendrickson observed that in no case has it been possible to keep two male shrews in the same cage.

A male and one or more non-pregnant females live in reasonable harmony. The female, however, has proven more dominant despite her smaller size.

Pregnancy has produced marked anti-social aggressiveness in the females observed. An aggressive attitude toward another individual, once started, appears to remain fixed and often leads to a fatal feud.

The breeding experiments have not produced many young to date. This has been attributed to the female shrews' refusal to mate, sterility, spontaneous abortion, litter killing and neglect of the young.

A litter of two, born on Aug. 20, is now being weaned.

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TECHNOLOGY

"Waste Basket" Furnace Reaches Jet Temperature

See Front Cover

➤ FIERCE HEAT, over 2,800 degrees Fahrenheit, has been produced in a furnace the size of an ordinary waste basket.

The small oven, designed by General Electric engineers, can simulate the intense heat in the combustion chamber of jet engines. It is shown on the cover of this week's SCIENCE NEWS LETTER.

The device is being used to calibrate sensitive iridium thermometers for the first time in such high temperature ranges.

These special thermometers, called thermocouples, will permit accurate measurement of temperature changes in jet engines at the company's Aircraft Gas Turbine Development Department in Evandale, Ohio.

A small electric current and a six-inch coil of iridium, one of the most precious metals, generate a fiery white dot of heat used for the tests. Iridium, a very brittle, silvery white metal of the platinum family, is used because it is one of the few elements that can withstand such high heat.

Until recently, the supply of the rare metal which costs $175 an ounce was insufficient.

The thermocouples used in the experiments are probes made of iridium and iridium alloy.

The high temperatures are measured by noting the electric potential generated by the action of heat on the dual-metal probe.

Science News Letter, November 20, 1954

VETERINARY MEDICINE

New Jersey Fowls Dying Of Mysterious Disease

➤ CHICKENS IN New Jersey are succumbing to a mysterious disease of the liver and the death toll has been as high as 40% in some flocks.

Characterized by red flecks in the liver, the new disease was described by the American Veterinary Medical Association, Chicago.

The disease has been noted only in chickens eight weeks old or older. Symptoms are lowered egg production, a blue discoloration of the skin and droopiness. Pullets of laying age have been attacked most frequently in outbreaks, but the Association reported that hens and cockerels may be attacked too.

Losses may persist in a flock for several months, but usually subside after two to four weeks.

Cause of the disease is unknown. It may occur in one pen of pullets without appearing in an adjacent pen where the feeding and management are the same. Treatment has not been successful and recoveries often happen without change in either feed or management.

Science News Letter, November 20, 1954