

MEDICINE

Surgical Aids for Heart

Cutting off the top of the heart and wrapping the aorta in plastic to prevent its bursting may help in prolonging the life of the patient.

► OPERATIONS in which a piece is cut off the top of the heart and others in which the aorta, main artery leading from the heart, is wrapped in plastic to prevent its bursting, were reported at the meeting of the American College of Surgeons in Los Angeles.

The heart topping operation is designed for patients with rheumatic heart disease who are in danger of having a clot plug an artery of arm or leg. In 90% of such cases the clots come from one of the upper chambers of the heart, particularly from the muscular pouches at the top of these chambers called auricular appendices. Two cases in which this operation was performed on the left side of the heart were reported by Dr. John L. Madden of Long Island College of Medicine and Kings County Hospital, Brooklyn. One of the patients survived, the other died.

The operation gives promise of providing surgeons with an avenue for easier operations within the heart than are now possible, Dr. Walter J. Burdette of Louisiana State University School of Medicine reported. Working on dogs, he found it possible either to remove the auricular appendix or merely to open it safely. Opening it gives greater visibility and consequently easier operation within the heart.

Any piece of heart muscle removed in such operations, Dr. Burdette advised, should be saved for studies which might help clear up some fundamental problems of human heart function and its changes in disease.

Five patients have lived one to three years with their aortas wrapped in one of the modern plastics, a commercial polyethylene film, Dr. J. Carl Poppe of Portland, Ore., reported. He has done the plastic aorta wrapping operation on 10 patients within the past 38 months. The patients each had a sac, called an aneurysm, formed by the dilatation of the aorta in the chest. The condition resulted from syphilis. It causes pulsating, or throbbing, pain in the chest and the patient is in danger of rupture of the big artery and massive bleeding.

Four of the five patients who had this operation from one to three years ago have had enough relief of pain in the chest so that they could make a partial or complete return to their normal activities. One of these five died a year and a half after the operation from rupture of another part of the aorta.

Of the other five patients, two died from progression of the disease within four to eight weeks after the wrapping, two can-

not be traced and are believed to have died, and one has been treated too recently for evaluation of the results.

The good results are due to the fact that the plastic wrapping is a substance foreign

to the body. In reaction to this foreign material, the body develops tough, fibrous tissue. In preliminary studies with animals, Dr. Poppe found that within two weeks after the wrapping the walls of the aorta were markedly thickened as a result of this fibrous tissue reaction, and the dilated bore, or lumen, had become smaller. The reaction was even greater three months later.

DuPont polythene film was found most suitable of all the commercial varieties because it contains dicetyl phosphate. This chemical was found to be the irritating material that caused the healing reaction.

Science News Letter, October 30, 1948

AERONAUTICS-CHEMISTRY

Fluid Cuts Fire-Hazard

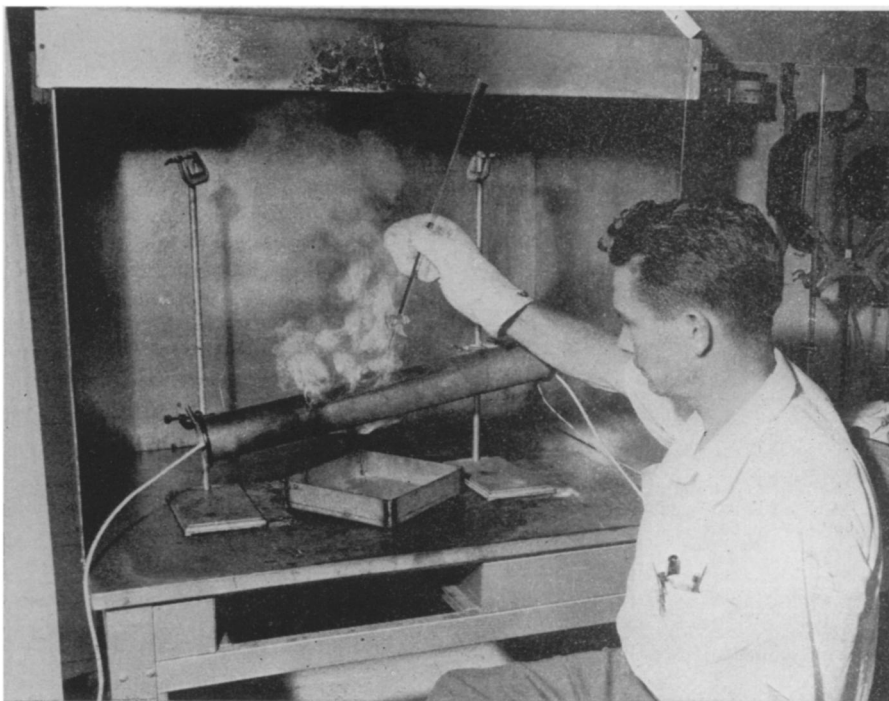
► DANGER OF FIRE in an airplane from leaking hydraulic fluids used to operate essential mechanism is practically eliminated by a new non-flammable type fluid revealed by Monsanto Chemical Company of St. Louis, in whose laboratories it was developed.

This new hydraulic fluid, to be known as Skydrol, is an ester base and contains no halogenated hydrocarbons, salts or water. Chemically, it is virtually inert. It will not attack the structural metals used in an airplane. It is a stable organic compound,

highly resistant to aeration oxidation. In addition, it has high lubricating power.

The hydraulic system of an airplane is operated by pumps, and develops high pressures at high flow rates upward of 3,000 pounds per square inch. The fluid is used to activate the mechanism that controls such devices as retractable landing gear, brakes, wing flaps and even windshield wipers.

It must be oily to lubricate the rapidly moving parts of the pumps, and non-corrosive to avoid attacking the various metals



NON-FLAMMABLE FLUID — Planes will be safer from fire with this new hydraulic fluid. Picture shows Skydrol dripped onto a glowing red tube of stainless steel, which is heated internally to a temperature of 1300 degrees Fahrenheit. It bursts into flame momentarily and then vaporizes.

in the hydraulic system. Also it must not undergo undue thinning at high temperatures and thickening at low temperatures. It should have low specific gravity to avoid undue weight to the plane.

Ordinarily, the hydraulic fluid is completely confined within the hydraulic system, which includes piping extending to

many parts of the plane. Occasionally, due in part to the high pressures used, the system springs leaks. A leak causes the fluid to be expelled as a fine spray. If it is flammable, it may catch fire from exhausts, from contact with the hot manifold, or from sparks from the plane's electric system.

Science News Letter, October 30, 1948

MEDICINE

Insecticide Cures Itch

➤ A PREPARATION made from an insecticide in a vanishing cream base may be the best cure yet found for scabies, popularly called "the itch."

It may also be effective in getting rid of lice.

Complete cures of scabies resulted in 61 patients after one treatment, in 36 patients after two treatments and in three patients after three treatments with hexachlorocyclohexane, Drs. A. Benson Cannon and Marvin E. McRae of Columbia University and the Vanderbilt Clinic in New York, reported in the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION (Oct. 23).

The advantages of this preparation over the older ones such as sulfur and benzyl benzoate are that it produces no irritation or sensitivity to the drug and has proved effective in cases in which the other preparations have failed.

The physicians cite the case of a man who had a widespread persistent eruption of scabies for over four months. He was treated with sulfur ointment and benzyl benzoate without any relief. After one application of hexachlorocyclohexane cream the rash and itching disappeared.

Specimens of the itch mite were obtained from each patient to confirm the diagnosis. This was done by inserting a sharp needle into the beginning of the burrow made by the mite, a painless procedure as the burrow is confined to the horny layer of the

skin, and withdrawing the mite on the needle point.

The procedure then was to rub a thin film of the cream from the neck to the sole of the feet without allowing the patient to wash beforehand. After 24 hours he was allowed to bathe and was asked to use fresh underwear and night clothes and to change the bed linen. Members of his family were also examined and received treatment if they were infected.

Army medical investigators had previously found the drug important in the control of chiggers, ticks, fleas, cockroaches, bedbugs and lice. It was used as a spray on uniforms and in field fumigation.

Science News Letter, October 30, 1948

CHEMISTRY

Clicking Counter Warns of Poison Lead in the Air

➤ A DETECTOR for poisonous lead in the air that clicks madly in warning similar to a Geiger counter affected by radioactivity was announced to the Optical Society of America meeting in Detroit, by Henry Aughey, of the DuPont Experimental Station, Wilmington, Del., and O. G. Koppius of the Philips Laboratories.

Atmospheric contamination by lead is an acute problem in the chemical industry.

The new instrument can be carried about to test air wherever the danger of this accumulative poison exists. It is extremely sensitive and gives an approximate assay of the air in addition to detecting relatively high concentrations of lead, whether combined chemically or in its form as an element.

Suspected air is drawn through a spark discharge, the light from which is caught and split up by a quartz spectroscope. The tell-tale lines of lead are measured in two ways: Photographically or by substituting a photoelectric Geiger counter for the photographic plate. As little as one part in 20,000,000 of lead can be made to register as the warning counter clicks.

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