

MEDICINE

Surgery on Beating Heart

Surgical repair of defects in the heart will be aided by the development of an artificial half-heart, which will take over the functions of the right side.

➤ AN artificial half-heart, announced to the American College of Surgeons in Chicago, will give surgeons a better chance to cut open the heart itself for surgical repair of defects.

In order to operate on the "open heart," it is necessary to have some means of keeping blood circulating through the body and also of continuing to get oxygen into the blood.

To meet this problem, William H. Sewell, Jr., and Dr. William W. L. Glenn of Yale University School of Medicine devised the artificial half-heart.

A pump takes over the functions of the entire right side of the heart. This is the side to which blood that has circulated through the body is returned by the veins. Before going into the left heart, to be pumped back through the arteries to the rest of the body, this blood from the veins is pumped through the lungs. There it picks up vital oxygen.

To use the new device, the surgeon cuts into the jugular vein on one side of the neck. A tube of polyethylene plastic is in-

serted through this vein into the big vein which brings blood back from the head, neck, arms and chest. The same polyethylene tube is run down this big vein into and through the right side of the heart and into the big vein that delivers blood from the trunk and legs.

Holes are made in the part of the tube that will lie in the two big veins but the part that is in the heart has no opening. All the blood being returned to the heart by the veins can be drawn through this double-holed tube into the artificial half-heart, or pump. By changing the pressure in the glass cylinder around the pump from negative to positive, the blood is driven through another tube into the artery leading to one lung. From there on it follows its normal course, picking up oxygen and returning to the left side of the heart to be pumped back into the body.

The artificial half-heart was used on two dogs for one hour and for one hour and three-quarters, respectively. Both dogs recovered completely and are alive now, several months after the experience. In a third dog, the heart stopped because of a

technical error with the artificial respiration machine.

Blood pressure did not change after the artificial half-heart was in operation. When it had been in operation for an hour or more there was sometimes a fall in blood pressure and a decrease in blood flow.

Science News Letter, October 29, 1949

MEDICINE

Plastic Balls Substitute For Heart Valves

➤ HOLLOW lucite balls can be used as substitutes for valves in the heart and at the entrance of the main artery, or aorta, to the heart, Dr. Charles A. Hufnagel of Harvard Medical School told the American College of Surgeons in Chicago.

The lucite valves have functioned well for prolonged periods of time in the aorta of dogs, without causing blood clots and without eroding. These substitute valves have been inserted into the hearts and aorta of 20 animals with no deaths due to failure of the valve or to the operation of inserting it. One dog has even gone safely through pregnancy and delivery of her young.

Development of the lucite valves followed earlier work in which methyl methacrylate plastic was used to replace successfully and permanently parts of the aorta in the chest.

Science News Letter, October 29, 1949

ENGINEERING

Predict New Energy Sources At Laboratory Dedication

➤ HUMANITY will be faced with catastrophe within a period of a few centuries through exhaustion of our fossil fuels, oil and coal, unless science can come forth with fundamentally new discoveries, Dr. Paul D. Foote, Gulf Oil research director and vice-president, declared at the dedication of the Leovy Geophysics Laboratory, at Har-marville, near Pittsburgh.

These new discoveries will be made if research is adequately supported, Dr. Foote declared. Any moratorium on science and technology would be fatal to economic security, he said, and "the only opportunity for continually improving our standard of living is the most intensive development of science and technology." He predicted discoveries in the production and utilization of energy surpassing anything we know today.

Named for Frank Adair Leovy, Gulf Oil Corporation pioneer in scientific oil exploration who died in June, the new laboratory is the world's largest building devoted to research on oil prospecting.

Four producing oil wells are struck by geophysical methods to every one found by unscientific oil prospecting.

Over half of the new building's 126 modern rooms are devoted to interpreting prospecting data from more than 500 pros-



SEARCH FOR OIL-BEARING ROCKS—These women are plotting information gotten by magnetic surveys which will help Gulf geologists decide if a given area has prospects of being an oil producer.