

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.

pecting parties in all parts of the world, many of them air-borne. Aerial prospecting crews using a Gulf-developed magnetom-

eter survey hundreds of miles of territory a day.

Science News Letter, October 29, 1949

MEDICINE

Active Despite One Lung

► A 21-YEAR-old girl who had one lung removed when she was a child is now a champion gymnast.

A 19-year-old boy, also with only one lung, is doing construction work at 4,000 to 5,000 feet above sea level. At this altitude the low oxygen of the air makes many a two-lunged person puff and pant on a short walk.

These two young persons were cited at the American College of Surgeons meeting in Chicago as examples of the outcome of removing an entire lung in a child. They are among 22 children who underwent this operation at Barnes Hospital, St. Louis. Studies of the present condition of the survivors were reported by Drs. R. M. Peters, A. Roos, H. Black, T. H. Burford and E. A. Graham

Of the 22, five died immediately after the operation. One lived eight years but died in an accident. Two are too young for satisfactory evaluation and four cannot be located. One has extensive disease in the remaining lung, which makes physiologic evaluation valueless.

The remaining nine include six girls and three boys. Their ages at the time of lung removal ranged from three to 14 years. Conditions for which the lung was removed were bronchiectasis, lung abscess, a granuloma, or tumor, of unknown cause, and the chronic infection actinomycosis.

These nine young people are all now leading a normal life, some having been operated on as long ago as 13 years. None has any significant curvature of the spine or other cosmetic deformity.

"One of the most striking and provocative findings from our studies," the doctors reported, "is that the best performance on all tests was found in the two most active patients, the gymnast and the construction worker, both of whom had made a concerted effort to overcome their handicap."

Children whose parents did the most to keep them from activity seemed to be the poorest performers.

Science News Letter, October 29, 1949

MEDICINE

Skin Burns from X-Rays Preview Atomic Exposures

► TREATING the common and dangerous skin burns caused by exposure to radiation gives doctors a preview on a small scale of what they will be called on to treat in the event that the atom bomb is used in another war.

These burns are at present most prevalent in doctors who use X-rays and fluoroscopes for treating patients, but this hazard is expected to decrease in this group, Dr. James Barrett Brown of Washington University School of Medicine, told the American College of Surgeons meeting in Chicago.

The burns are chronic, caused by repeated small exposures, and became progressively worse. It may take five to 25 years but cancer will eventually develop, Dr. Brown pointed out, if the burns are not removed by surgery.

If treatment is given early before the

ulcerated infected stage is reached it is effective and brings immediate relief of pain. It is necessary to cut out the burns deeply so that only healthy tissue is left and then repair the area with skin grafts.

Dr. Brown said that this type of burn will probably be seen on a mass scale we have another war in which the atom bomb will be used. But surgeons will be able to combat the destructive power of the weapon with the knowledge they have gained in peace time.

Science News Letter, October 29, 1949

SCIENCE NEWS LETTER

VOL. 56 OCTOBER 29, 1949 No. 18

49,300 copies of this issue printed

The Weekly Summary of Current Science, published every Saturday by SCIENCE SERVICE, Inc., 1719 N. St., N. W., Washington 6, D. C., NORTH 2255. Edited by WATSON DAVIS.

Subscription rates: 1 yr., \$5.50; 2 yrs., \$10.00; 3 yrs., \$14.50; single copy, 15 cents, more than six months old, 25 cents. No charge for foreign postage.

Change of address: Three weeks notice is required. When ordering a change, please state exactly how magazine is now addressed. Your new address should include postal zone number if you have one.

Copyright, 1949, by Science Service, Inc. Reproduction of any portion of SCIENCE NEWS LETTER is strictly prohibited. Newspapers, magazines and other publications are invited to avail themselves of the numerous syndicate services issued by Science Service. Science Service also publishes CHEMISTRY (monthly) and THINGS of Science (monthly).

Printed in U. S. A. Entered as second class matter at the post office at Washington, D. C. under the act of March 3, 1879. Established in mimeographed form March 18, 1922. Title registered as trademark, U. S. and Canadian Patent Offices. Indexed in Readers' Guide to periodical literature, Abridged Guide, and the Engineering Index.

Member Audit Bureau of Circulation. Advertising Representatives: Howland and Howland, Inc., 393 7th Ave., N.Y.C., Pennsylvania 6-5566 and 360 N. Michigan Ave., Chicago. STAtE 4439.

SCIENCE SERVICE

The Institution for the Popularization of Science organized 1921 as a non-profit corporation.

Board of Trustees—Nominated by the American Association for the Advancement of Science: Edwin G. Conklin, Princeton University; Karl Lark-Horowitz, Purdue University; Kirtley F. Mather, Harvard University. Nominated by the National Academy of Sciences: Harlow Shapley, Harvard College Observatory; R. A. Millikan, California Institute of Technology; L. A. Maynard, Cornell University. Nominated by the National Research Council: Ross G. Harrison, Yale University; Alexander Wetmore, Secretary, Smithsonian Institution; Rene J. Dubos, Rockefeller Institute for Medical Research. Nominated by the Journalistic Profession: A. H. Kirchofer, Buffalo Evening News; Neil H. Swanson, Baltimore Sun Papers; O. W. Riegel, Washington and Lee School of Journalism. Nominated by the E. W. Scripps Estate: H. L. Smithton, E. W. Scripps Trust; Frank R. Ford, Evansville Press; Charles E. Scripps, Scripps Howard Newspapers.

Officers—President: Harlow Shapley, Vice President and chairman of Executive Committee: Alexander Wetmore, Treasurer; O. W. Riegel, Secretary; Watson Davis.

Staff—Director: Watson Davis. Writers: Jane Stafford, A. C. Monahan, Marjorie Van de Water, Lydia Schweiger, Ann Ewing. Science Clubs of America: Joseph H. Kraus, Margaret E. Patterson. Photography: Fremont Davis. Sales and Advertising: Hallie Jenkins. Production: Priscilla Howe. In London: J. G. Feinberg.

Question Box

AGRICULTURE

How is a new barn designed to permit cattle to feed themselves? p. 274.

ETHNOLOGY

What discovery points to a vanished people in the Arctic Circle? p. 283.

MEDICINE

How does a new device for aiding heart surgery function? p. 275.

What chemicals are bringing improvement to victims of leukemia and tumor diseases? p. 274.

Photographs: Cover, Smithsonian Institution; p. 274, Rutgers University; p. 275, Gulf Research & Development Co.; p. 277, Westinghouse Electric Corp.; p. 279, National Research Council.

What kinds of lives do people with a removed lung live? p. 276.

What treatment may prevent crippling and nerve damage in the future? p. 279.

METEOROLOGY

Why is a strict watch of the weather urged? p. 278.

POPULATION

What has been suggested as a way out of Britain's economic plight? p. 285.

PSYCHOLOGY

How are strikes preventable? p. 277.