

## MEDICINE

# Surgery for 10 Heart Ills

Development of life-saving operations holds out hope for patients with heart conditions which might otherwise have proved fatal.

► PATIENTS suffering any of 10 diseases of the heart and great blood vessels now have a chance of being restored to health by surgical operations.

The life-saving operations, which include the "blue baby" one, have been developed by a number of surgeons in the United States and abroad. They are being reviewed for doctors, with suggestions for further use of surgery in heart conditions, by Dr. B. Noland Carter of Cincinnati in the *JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION* (Dec. 25). As listed by Dr. Carter the 10 are:

1. Acute suppurative pericarditis, an inflammation of the heart sac with pus often collecting in a groove behind the heart. Without surgery this is 100% fatal, but about half the patients treated by surgical drainage recover. Use of sulfa drugs and penicillin should save even more, chiefly by preventing the condition from developing.

2. Chronic constrictive pericarditis. Removal of part of the thickened, constricting sac around the heart cures or decidedly improves 61.5% of the patients. The disease always kills unless an operation is done.

3. Coronary sclerosis. This is the great killer, responsible for the "vast majority of deaths due to heart disease," Dr. Carter points out. The condition results from reduced flow of blood through the arteries supplying the heart muscle itself. Since 1935 various surgical procedures have been developed to increase the blood supply to the heart by a relinking of healthy blood vessels. Good results in as high as 70% of patients with only a 15.8% mortality have been reported. Dr. Carter urges more research and more use of surgery in this condition.

4. Nonpenetrating wounds of the heart. These come from direct blows over the heart from fists, baseball clubs and in "steering wheel accidents" and from compression by trailer bars, tail gates of trucks and the like. If there is a small rupture of the heart muscle and acute compression of the heart from accumulation of blood, surgery to remove the clots and blood and sew up the tear can be life-saving.

5. Penetrating wounds of the heart. Before 1933, 90% of the patients with gunshot, knife or other wounds of the heart died. Death rates have been reduced to from 22% to 49% and show signs of dropping still more.

6. Retained foreign bodies. World War II gave "one of the most thrilling and spectacular advances in heart surgery" through experiences in removing shell fragments and the like from the heart chambers and

the inside of nearby great blood vessels. From this surgeons learned they can and should remove any foreign body measuring four-tenths of an inch (1 cm) in two directions.

7. Patent ductus arteriosus. In this condition the connection, present before birth, between the main artery from the heart and the main lung artery, fails to close at birth. Most victims die before they are 30 years old. Reports on operations to correct the condition show survival of 40 out of 43 patients, 88 out of 90, 59 out of 61.

8. Coarctation of the aorta, a constriction of the main artery leading from the heart. The operation consists essentially of cutting out the constricted part and rejoining the cut ends.

9. Tetralogy of Fallot. That is the medical name for the congenital heart condition relieved by the famous "blue baby" operation.

10. Aortic ring. This is a general term for defects of the main artery which can produce troublesome and sometimes fatal compression of the windpipe or the gullet. Cures in two patients, the first and only

operated ones so far reported, were obtained by dividing the constricting ring at appropriate points to relieve the pressure.

Science News Letter, January 1, 1949

## ENGINEERING

## Twist Detector Reveals Tiny Changes in Metal

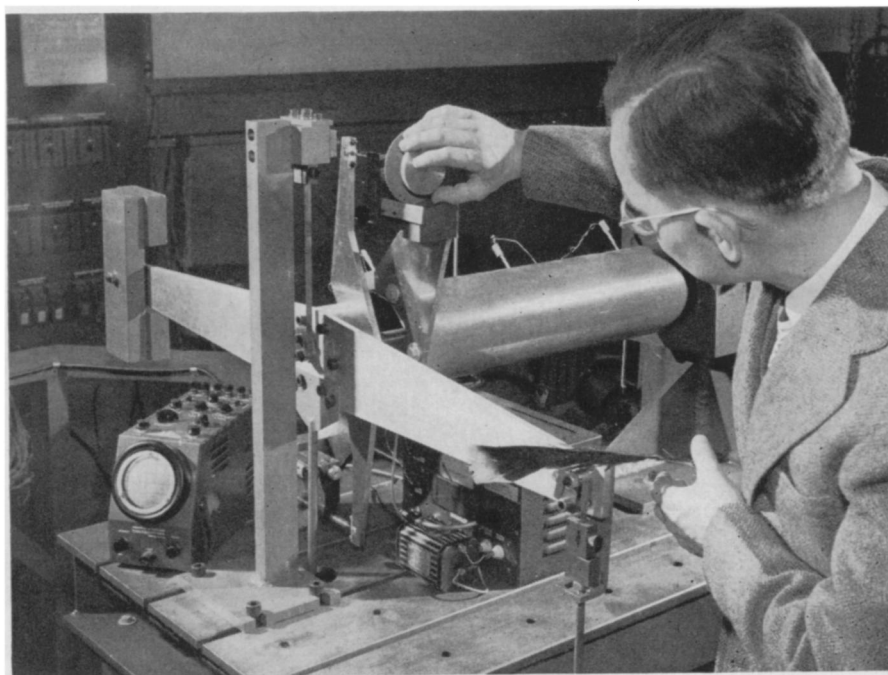
► A TWIST in a steel bar of less than one-millionth of an inch can now be measured. A new twist detector, revealed by Westinghouse, can detect changes in weight as small as one part in 100,000.

This new twist detector, a machine that measures weight by the twist the object gives to a metal bar, is technically an elastic-drift device. It is a supersensitive machine designed to aid in the development of more accurate torquemeters to measure rotation. These torquemeters are used to measure power delivered by airplane propellers, jet engines and other rotating machines.

Torquemeters are very accurate weighing devices in which a metal shaft replaces the springs in ordinary scales. The twist of the shaft becomes a measure of the weight applied. It can be detected electrically or magnetically and transmitted to meters for easy reading.

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The use of *electric razors* during peak radio listening hours would be curtailed in proposed legislation reported from England.



**SUPERSENSITIVE TWIST DETECTOR**—A feather exerts enough force on the crossarm of this machine to twist the steel bar running perpendicular to it.