

SURGERY

Life-Saving "Thimbleful"

A small amount of blood, delivered every minute to critical areas of heart, can prolong lives of those threatened with heart mechanism failure.

➤ AS LITTLE as a "thimbleful" of blood can be lifesaving in some circumstances, it is reported in the *Journal of the American Medical Association* (Nov. 27).

The small amount of blood, delivered every minute to critical areas of certain ailing hearts, is enough to protect them from heart mechanism failure. It is mechanism failure which strikes "a vast segment of our population."

Experiments showing that just a little blood will save these persons and the development of two operations to supply the vitally needed drops of blood per minute are reported by Drs. Claude S. Beck and Davis S. Leighninger of Western Reserve University School of Medicine, Cleveland.

A "small beginning" for prevention of degeneration of the arteries has been made in the experimental laboratory, the two doctors stated. In the meantime, some lives can be prolonged in spite of defects.

The physicians began their work in the revascularization approach to heart disease in 1932.

A follow-up study of 25 patients showed mortality rates were improved and four out of every five patients who survived had complete or marked reduction of pain. They also were better able to work after their operations.

The physicians explained that in occlusive disease (when arteries develop plugging that cuts off blood supply to heart areas), heart failure death is either mechanical or muscular.

In muscular failure, the blood supply shortage causes damage to the heart muscle. In mechanical failure, however, the heart would be capable of functioning but fails because impaired circulation to the conducting mechanism interrupts the coordinated heartbeat.

The operations provide the small quantity of blood which protects the coordinating mechanism and saves life.

In one operation, the heart is stimulated by an irritating agent such as powdered asbestos, and tissue and fat are grafted to the heart surface. In the other operation, a vein graft is connected to a channel leading into the heart and the channel is later pinched in to raise pressure.

The techniques are actually ways of helping the heart in its own attempts at defense against occlusive disease. Diseased hearts ordinarily try to develop additional circulation themselves, but sometimes this development is slower than the progression of the disease. An operation performed before the disease reaches a crisis helps insure the auxiliary blood supply.

For this reason, the operations can be done only on those patients whose vessels have become plugged, and defenses are developing, but in whom an occlusion crisis has not occurred.

Best-suited for the operations are lean persons in their 40's or 50's who have had the disease for a year or so, have pain, but are still able to get around. Patients with heart failure from degenerated heart muscle are not acceptable for operation.

Science News Letter, December 4, 1954

ICHTHYOLOGY

African Fish Eat Only Fish Scales

➤ AN AFRICAN fish has exhibited a very odd diet. It eats only fish scales.

Unlike its American cousin, the sunfish, which will even nibble at white bread small boys often use for bait, this African species turns up its nose at earthworms, fish powder and insects in favor of plain fish scales from other living fish.

The eating habits of several Tankanyika Cichlids were observed and are reported in *Nature* (Nov. 13) by G. Marlier and N. Leleup of the Tanganyika Laboratory at

the Institute for Scientific Research in Central Africa, Uvira, Belgian Congo.

The scientists state that the fish, when it succeeds in attacking another fish, pushes its mouth against the back of its victim and removes the scales. It is hoped that continued study of the fish will solve some of the mystery as to the origin and reasons for his peculiar diet.

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ICHTHYOLOGY

Tropical Knifefishes Give Off Electricity

➤ KNIFEFISHES INHABITING the fresh tropical waters of Central and South America, close relatives of the electric eel, have been found to emit low intensity electrical pulses when moving.

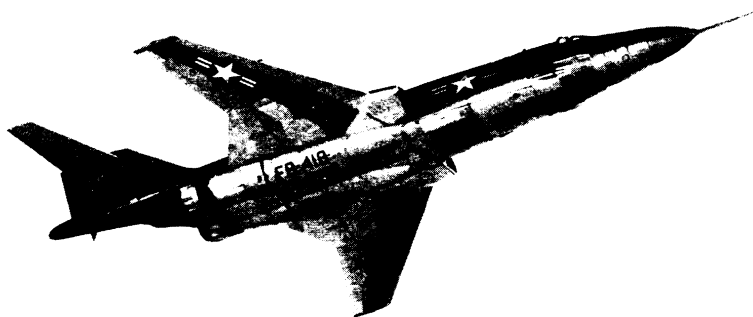
Unlike the eel, which emits single or short bursts of pulses of high intensity, the knifefish emits low intensity pulses continuously and with regularity.

The electricity-producing organ identified by Dr. C. W. Coates of the New York Zoological Society and Profs. M. Altamirano and H. Grundfest of the College of Physicians and Surgeons, Columbia University, is described in *Science* (Nov. 19).

Heretofore, it was thought that the electrical pulses originated in the muscles.

The scientists also found that the discharges are most likely centrally controlled from the brain. When at rest, the knifefish emits no detectable electrical activity. Although the significance of the pulses is unknown, it has been suggested that these discharges serve as the fish's radar, orienting it with regard to obstacles.

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F-101 VOODOO—Believed to be one of the world's most powerful fighter airplanes, the F-101 Voodoo was developed for the U. S. Air Force by McDonnell Aircraft Corporation. It is in the supersonic class and capable of carrying atomic weapons. It can be refueled in flight. The plane will be used by the Strategic Air Command.