

GENERAL SCIENCE

Save Cirrhosis Bleeders

Test made by inserting needle into the spleen to measure blood pressure would save lives by detecting in advance the likelihood of bleeding for patients with cirrhosis of the liver.

► A POTENTIALLY LIFE-SAVING test for patients with cirrhosis of the liver who are in danger of bleeding to death has been devised by Drs. Francis G. Jackson and John L. Happel of the Veterans Administration Hospital and the University of Pittsburgh School of Medicine.

The test, made by inserting a needle into the spleen, would save lives by detecting in advance the likelihood of severe bleeding.

Cirrhosis of the liver is marked by destruction of liver cells and an increase in scar tissue in the liver. It may be associated with heart conditions, inadequate diet in alcoholics, and a number of other conditions, Drs. Jackson and Happel said.

Occasionally in a patient with cirrhosis of the liver, the portal vein, which is the main entrance for the passage of blood to the liver, becomes blocked, they explained.

When this happens, the blood backs up and sometimes causes internal bleeding that, without prompt attention, can prove fatal.

In the test devised by Drs. Jackson and Happel, a hollow needle is inserted between

the lower ribs on the left side of the body until it enters the pulp of the spleen, an organ that serves as a storehouse for blood.

The blood is allowed to seep into the needle and the pressure is measured in a manner similar to the method of recording blood pressure in the customary arm test.

Because much of the blood that flows into the liver vein comes from the spleen, any pressure caused by blood backing up from the blocked vein would be reflected in the spleen.

When evidence shows an excessive pressure of blood, a possible hemorrhage may be prevented by disconnecting the liver vein and connecting it with a nearby vein known as the vena cava.

Since the vena cava is the biggest vein in the body, this surgery may relieve the strain of obstructed blood on vessels in the stomach and esophagus, the tube by which food enters the stomach, and thus remove the danger of hemorrhage.

After testing 55 patients at the Pittsburgh hospital, the two doctors believe the test

provides a reliable index of blood pressure in the vital liver vein and can be used to show when danger of hemorrhage exists.

Science News Letter, November 24, 1956

GENERAL SCIENCE

Federal Research and Development \$2.4 Billion

► THE FEDERAL GOVERNMENT spent \$2.4 billion for scientific research and development during the fiscal year ending last June 30, and will spend 12% more, or \$2.7 billion in this fiscal year, a National Science Foundation report states.

The percentage devoted to basic research in this year is about nine percent, but the proportion is increasing. Of the more than 90% spent for what is termed research and development, about a tenth is for plant and facilities.

Eight agencies spent 99% of the research and development budget: Department of Defense; Atomic Energy Commission; Department of Health, Education, and Welfare; Department of Agriculture; National Advisory Committee for Aeronautics; Department of Interior; Department of Commerce, and the National Science Foundation.

The distribution of fields is physical sciences, including engineering, 87%; life sciences, 11%, and social sciences, two percent.

Research performed in the Government's own laboratories accounted for 47% of the funds, 38% by project organizations and 13% by educational organizations.

Science News Letter, November 24, 1956

TECHNOLOGY

X-Rays Explore Metals At Extreme Temperatures

► X-RAY PHOTOGRAPHS of metals have been taken in the Westinghouse Research Laboratories, Pittsburgh, at temperatures as low as 300 degrees below zero Fahrenheit and as high as 3,000 degrees Fahrenheit.

Aimed particularly at understanding the puzzling behavior of iron-aluminum alloys, the powerful crystallographic X-ray machine designed by Dr. Abraham Taylor is able to shorten the exposures necessary for investigations into the properties of the metals. X-ray photographs can be taken in one-fifteenth the usual time.

The short exposure time at the low temperatures allowed the maintenance of accurate temperature control without using excessive amounts of liquid helium to cool the metals.

The X-ray equipment can take snapshots of metals as hot as 3,000 degrees Fahrenheit, according to the characteristics of the metal before it vaporizes or undergoes some chemical change at the elevated temperature. The X-ray machine can also give a beam about a tenth the diameter of a human hair, allowing the study of individual crystals with an exactness not possible with a beam of larger size.

Science News Letter, November 24, 1956



PROBING ATOMIC STRUCTURE—Symbolizing the ability to probe the atomic structure of matter, a powerful crystallographic X-ray machine is seen through an intricate pattern depicting an atomic crystal structure. Designed at the Westinghouse Research Laboratories and used primarily for fundamental research projects, the machine is being operated by R. M. Jones.