
Hercules Powder Company

HYPERBARIC CHAMBER—This filament-wound hyperbaric operating chamber designed by Hercules Powder Company has 194 square feet of operating room, more than enough to accommodate a full surgical team and all necessary equipment.

MEDICINE

Rocket Case for Surgery

A space rocket case converted into a pressure chamber will come to the aid of patients suffering from diseases calling for high pressure oxygen treatment—By Faye Marley

➤ A PRESSURE CHAMBER, originally built as a space rocket case, is being converted into a device for treating shock and other ailments, including the disease that killed President Kennedy's baby.

The chamber, similar to smaller cases used to inclose missiles such as Polaris and Minute Man, is the largest that is transportable—13 feet in diameter, 25 feet long. Its glass fiber walls are 1.6 inches thick.

It was built at the Rocky Hill, N. J., plant of Hercules Powder Company to show how big such cases could be if the Government built rockets that size.

Reading that the chamber was about to be scrapped, Dr. R. Adams Cowley, head of the University of Maryland Medical School's division of thoracic surgery in Baltimore, Md., saw its medical possibilities.

The quarter million dollar pressure chamber has now been donated to the university, along with all engineering work necessary to equip it fully for hyperbaric oxygen research.

The word "hyperbaric" was recently used in newspapers to describe the chamber where the Kennedy baby was taken in the hope of easing his breathing. Treatment of hyaline membrane disease, which caused his death, is one of many applications of the rocket case. The word means "having specific gravity greater than that of cerebrospinal fluid."

The Kennedy baby was taken to Children's Hospital Medical Center in Boston in the vain effort to save his life by placing him in the pressurized tank there. Surgery had previously been performed in the tank four times on blue babies—the first under pressure in this country.

The University of Maryland will be the first school to have a completely equipped operating chamber for this purpose. It is the first such chamber to be made of glass fibers.

Dr. Cowley and a team of Maryland surgeons saw "hyperbaric oxygen" surgery performed in Amsterdam. Until recently the technique has been used experimentally with animals, but Dr. Cowley and other research pioneers look forward to the time when pressurized operating suites, and possibly entire wards, will be a regular part of hospital equipment.

The treatment of shock, which is the primary cause of death following accidents, is one of Dr. Cowley's chief interests, and after six years of research on this subject, he says he is convinced that the most promise in the new pressurized chamber lies in this neglected field of medicine.

"There is a great need for the study of shock in man," Dr. Cowley explained, "because human reactions are so different from those of animals, and comparisons often are not valid."

This is the way hyperbaric oxygen therapy works:

When patients breathe oxygen under pressure of two or three atmospheres the blood plasma becomes so saturated with oxygen that it can supply needs of the tissues directly without requiring transport of oxygen by the red blood cells as is normally done.

For this reason the treatment is useful in such conditions as carbon monoxide poisoning, when the hemoglobin is useless for carrying oxygen because it has combined with the carbon monoxide molecule.

Hope for high pressure oxygen treatment is seen for strokes, in cardiovascular surgery, in barbiturate poisoning and in infections involving microorganisms that live in the absence of oxygen.

• Science News Letter, 84:195 Sept. 28, 1963

BIOLOGY

Isolated Brain Kept Alive Outside Body

➤ THE BRAIN can be kept alive outside of the body, a team of Western Reserve University scientists has demonstrated for the first time on monkeys.

Drs. Robert J. White, Maurice S. Albin and Javier Verdura isolated the brains of five rhesus monkeys from their bodies and hooked the brains to outside donor monkeys.

Surgical elimination of all active tissue surrounding the brains plus connecting blood vessels to other animals assured adequate circulation for the brains.

Charts of the waves of the isolated brains, taken by electroencephalographs, showed the brains had retained biological activity, the scientists said. They kept the brains alive for periods of 30 to 180 minutes.

This is the first time the brain of a subhuman primate has survived as an isolated organ, they reported in Science, 141:1060, 1963.

• Science News Letter, 84:195 Sept. 28, 1963

MEDICINE

Reduction Foreseen in Ovarian Cancer Deaths

➤ A NEW TEST for ovarian cancer is expected to cut the high death rate from this type of female cancer in half.

The first medical testing technique designed specifically to detect ovarian cancer is entering its final stages as a result of a $27,000 grant to a researcher at State University of New York at Buffalo.

Dr. John B. Graham, assisted by his wife, Dr. Ruth Graham, both of Roswell Park Memorial Institute in Buffalo, will test about 3,000 women volunteers with the cooperation of Drs. John D. Bartels of General Hospital and Robert Carpenter of Meyer Memorial Hospital.

Local women's clubs are rounding up volunteers, but any woman may phone Roswell Park for an appointment. The researchers already have done preliminary tests on 500 women in work supported by the U.S. Public Health Service.

About 12 women per 100,000 are afflicted with ovarian cancer in the U.S. each year.

• Science News Letter, 84:195 Sept. 28, 1963