

PHYSIOLOGY

Glass Doubles for Bones to Permit Growth of Marrow

WITH glass apparatus doubling for the bones of the body, human bone marrow has been grown in the laboratory for the first time in quantities sufficient to permit studies of the blood and metabolism.

The complicated apparatus for growing this important human tissue outside the body is described by Dr. Edwin E. Osgood and Alfred N. Muscovitz, of the University of Oregon Medical School, Portland (*Journal American Medical Association*, May 31). The report of their work recalls the fact that it is not quite a year since Dr. Alexis Carrel and Col. Charles A. Lindbergh reported their experiments at the Rockefeller Institute, New York, in which they devised a glass apparatus for growing living glands outside the body.

The apparatus for growing bone marrow gives promise of solving important problems concerning changes in the blood and bodily tissues. The red marrow of bones produces the red blood cells, so it is likely that the new apparatus may aid in the study of anemia in which there is a breakdown in red blood cell production.

Construction of the marrow-growing apparatus is complicated; the parts are chiefly of glass. Most important of the features is a semi-permeable membrane separating the culture from the main

volume of medium. This membrane permits nourishment from the surrounding medium to reach the culture and allows waste products to diffuse out as they accumulate. Because of this equilibrium, analysis of the outflowing medium gives a good indication of conditions in the culture.

"The method appears to offer sufficient promise to justify a preliminary publication with the hope that other investigators may aid us in realizing as rapidly as possible its full potentialities," Dr. Osgood and Mr. Muscovitz declare in describing the invention. A grant from Eli Lilly and Company, Indianapolis, aided the venture.

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MEDICINE

Electric Counter-Shock Saves Man From Death

PHYSICIANS and surgeons are viewing with profound interest the report at the American Institute of Electrical Engineers' convention that an Italian, stabbed in a fight and about to die on an operating table, was brought back to life when the surgeon applied a counter-shock previously given animals in experiments to revive them after suffering an electric shock.

Dr. William B. Kouwenhoven, Balti-

more, Md., assistant dean of the school of engineering, Johns Hopkins University, told how a surgeon, while sewing up the Italian's heart, saw from the fibrillation of the organ that he would die, and gave him an electric counter-shock.

The surgeon had previously visited the Hopkins laboratory. It took two days for the researchers there to convince him by experiments on animals that counter-shock is effective in reviving the fibrillating heart.

The surgeon, whose home city and name were not disclosed, previously skeptical but convinced by actually making experiments in the Hopkins laboratory, is believed to be the first man to apply the counter-shock principle to reviving a human being.

The Italian's slashed heart started to flutter when the surgeon commenced to sew the wounds. The touch of the needle had started ventricular fibrillation. The regular heart beat ceased and circulation stopped. There was but one way for the surgeon to save the man. Without hesitation he shocked the patient. The reaction was similar to that of experiments on animals shocked and counter-shocked. The large current locked the muscles of the heart and when the circuit was opened the heart started to beat in regular rhythm, the fibrillation completely gone.

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OCEANOGRAPHY

Eighteenth Century Castle Now Devoted to Science

CHARLOTTENLUND Castle, 18th century royal residence near Copenhagen, is to become the headquarters of the International Oceanographic Research Commission. Modernizing the castle for this purpose will cost about 350,000 crowns, or \$78,000. The Danish government will contribute 60 per cent and the Carlsberg Foundation the rest.

The main building, in three stories, will be used for laboratories and the stable building (which is more like a villa) will serve jointly as an exhibition hall and rooms for the scientists connected with the Institute.

Private initiative is also planning the building of a large aquarium in connection with the Institute. Money for this purpose has been donated by the Danish engineer, Mr. Hojgaard. The aquarium, as well as the large private park surrounding the castle, will be open to the public.

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CASTLE OF RESEARCH