

MEDICINE

Remedy for Hemophilia

Wartime research which gave us plasma, albumin and other useful substances from human blood may bring a remedy for "bleeder's disease."

➤ A REMEDY for hemophilia, hereditary disease whose victims are always in danger of bleeding to death from a slight cut or scratch, may be coming from wartime research that gave plasma, albumin and other useful substances from human blood.

Promising results in controlling hemorrhage in hemophiliacs with one of these substances were reported by Dr. George R. Minot and Dr. F. H. L. Taylor, of Harvard Medical School and Boston City Hospital, at the meeting of the American College of Physicians. A much greater trial with patients, they cautioned, will be necessary to determine the full usefulness of the material.

Hemophilia afflicts only men who inherit it through their mothers. Their blood lacks a substance necessary to make blood clot when it is shed. It is probable, the Boston physicians stated, that the antihemophilic property of normal plasma may be concentrated in a few milligrams of material. This might mean as small an amount as a pinch of salt. The material is a protein, known as globulin.

With the use of this material and another substance from blood, thrombin, patients with hemophilia can now have teeth pulled and other operations performed without danger of hemorrhage. Amputations and skin grafting have been done without serious complications. The thrombin, spread on or impregnated into sterile gauze, fibrin foams or absorbable cellulose, is applied directly to the bleeding point at operation. It clots blood in a matter of seconds.

An ultimate aim of the researchers is preparation of the antihemophilic material from normal plasma in a small enough volume so that hemophilia victims might use it prophylactically. They might be able to give themselves a daily dose, as diabetics take insulin, to keep their blood clotting at the normally rapid time. They would then be protected against serious hemorrhage in case of accidental injury, from the little bumps and bruises of everyday life to more severe ones.

Dr. Edwin J. Cohn, the Harvard chem-

ist whose fundamental researches led to this and other developments in the use of blood substances, was awarded the John Phillips medal, highest award of the American College of Physicians.

Specific globulins which combine reversibly with iron and presumably transport it to the tissues of the body have been separated from other constituents of plasma, he reported. Other substances he has separated are globulins which dissolve water-insoluble fatty substances such as cholesterol in large amounts; fatty vitamins such as vitamin A and fatty hormones such as the female sex hormone, estrogen; and globulin enzymes which split proteins and other complex chemicals. Albumins separated from the blood have been found to combine selectively with organic metal complexes such as mercurials and the sulfa drugs as well as with water-insoluble

organic molecules such as quinones and long-chain fatty acids.

A more exciting phase of study of disease and exploration of unknown territory in its treatment are opening to doctors as a result of these studies, Dr. Charles A. Janeway of Harvard pointed out.

Albumin, developed for treatment of shock during the war, has already proved extremely valuable, he reported, in treatment of all types of reduced protein in the blood but particularly in the acute form seen often in patients after operation, in diseases of the liver and in kidney disease.

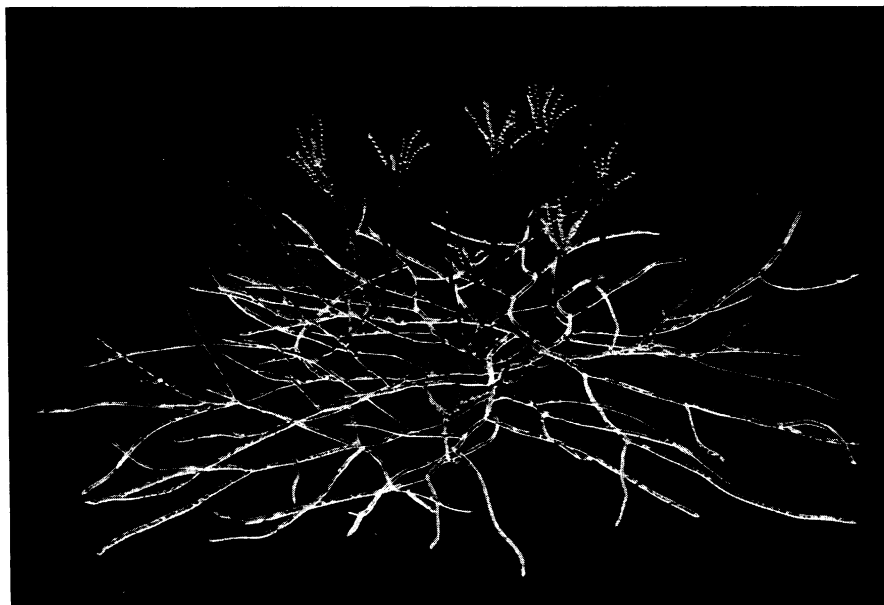
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MEDICINE

Weapon Against Botulism Forged Through Research

➤ A BETTER weapon against botulism, dangerous kind of food poisoning, can be forged as a result of biological warfare research carried out in greatest secrecy under the special projects division of the U. S. Army's Chemical Warfare Service.

The weapon would be a more effective toxoid providing better immunity to this disease. Such a weapon might have been



PENICILLIUM MADE VISIBLE—Model of a pinpoint fragment of the blue mold *Penicillium notatum* as seen magnified 400 times under the microscope. Note the spores on the upright filaments—it is these which impart the blue color to the fungus organism from which Sir Alexander Fleming first extracted the antibiotic substance. Photograph from the *Chicago Natural History Museum Bulletin*.