

MEDICINE

Blood Plasma Given To Burn Victims

► THE SULFA drugs and blood plasma rushed by plane to surviving victims of the Boston night club fire are potent medical weapons for fighting the infection, shock and blood-fluid loss which threaten the lives of severely burned persons.

Enormous amounts of plasma may be given. One authority states that a person suffering from burns should get about a quart of plasma daily for each 10% of the body surface burned. This must be given till all signs of shock are gone and no more plasma is being lost from the burned surfaces or is leaking from the blood vessels into the tissues.

Plasma rather than whole blood is given to burn victims because it is the fluid part of the blood, not the cells, which escapes in such cases. Giving whole blood would dangerously increase the concentration of the blood cells.

Latest sulfa drug treatment for burns consists of covering the burned surface with a film of methyl cellulose containing sulfadiazine. Previously, the sulfadiazine alone was sprayed onto the burns. It gave good results in preventing infection, allaying pain and speeding healing. But the film it formed was so fragile and the solution dried so slowly that now methyl cellulose is mixed with the sulfa drug to make a stronger film which can be put on like a bandage.

Science News Letter, December 12, 1942

MEDICINE

Hay Fever Patients Helped by Vitamin C

► DAILY doses of anti-scurvy vitamin C brought great relief to almost all of a group of 25 hay fever sufferers during the last ragweed season, Dr. Harry N. Holmes and Wyvona Alexander of Oberlin College report (*Science*, Nov. 27).

"Apparently there was distinct gain with 88% of the patients," they state.

In the experiments three levels of daily dosage were tried, 100 milligrams, 200 milligrams and 500 milligrams. The normal daily requirement of a moderately active man was set at 75 milligrams by the National Nutrition Conference. On the 100 milligram dosage, five patients made a noticeable gain after one week.

Twelve gained decidedly after a week on 200 milligrams daily, and eight reported remarkable improvement after three or four days at the 500 milligram level.

The vitamin C treatment was tried after it had been observed for several years that the vitamin C level in the body was lowered during hay fever attacks. Other workers had meanwhile developed the theory that histamine, a chemical normally found in the blood, is thrown into the blood stream in excessive amounts during allergic attacks and accounts for some of the unpleasant symptoms. Dr. Holmes found that histamine reacts with vitamin C under certain conditions, suggesting that this excess histamine may be reducing the vitamin C level in patients with hay fever.

Dr. Holmes recommends that pharmaceutical firms prepare 250 milligram tablets of vitamin C, or capsules to be emptied on the tongue in order to lower the cost and simplify the dosage.

"The patient (after consulting the family physician, as was done in our own recorded experiments) would do well to begin with a daily 250 milligram dose and if no decided improvement results after one week, to try 500 milligrams daily until satisfactory progress is observed. After that he might get along comfortably on 250 milligrams or less during the season," he advises.

Irritating effects are rarely observed though one of their patients reported a rash. If the acidity of vitamin C is objectionable, it can be mixed with baking soda. The vitamin, found in such foods, as fresh fruits and vegetables, especially the citrus fruits, tomatoes and cabbage, was given in the form of ascorbic acid in the Oberlin experiments.

Science News Letter, December 12, 1942

PHYSIOLOGY

Experiments Show Vitamin B₆ Needed by Pigs

► PIGS as well as people need their vitamins. Newest need on the porcine diet list is pyridoxine, member of the vitamin B complex, also known as B₆, experiments performed by Prof. E. H. Hughes and R. L. Squibb of the University of California College of Agriculture indicate. Lack of this compound caused a number of distressing (and costly) symptoms, including loss of appetite, poor growth, fits and anemia. Normal health was restored to the porkers by daily doses of a mere pinhead quantity of pyridoxine—five milligrams per hundred pounds of pig.

Science News Letter, December 12, 1942

IN SCIENCE

ZOOLOGY

Freshwater Jellyfish Reported in South America

► FIRST DISCOVERY of a free-living freshwater jellyfish in South America is reported (*Science*, Dec. 4), by Prof. Carlos E. Porter of the National Museum at Santiago, Chile. He found them swimming in a small body of fresh water in the Province of Valparaiso, over 20 miles from the sea. He sent specimens and a sketch to Dr. Waldo Schmitt of the U. S. National Museum in Washington, D. C., who identified them as belonging to a species already known from Europe, Asia and North America, but not previously found under natural conditions closer to Chile than Panama.

Science News Letter, December 12, 1942

ENGINEERING

Future Trains to Have Improved Locomotives

► SPEEDING trains of the future will be powered by diesel-electric locomotives which will far surpass anything that we have yet seen, B. S. Cain of General Electric's locomotive engineering department predicted at the meeting of the American Society of Mechanical Engineers in New York.

Design progress has not stopped despite standardization required by the war, he declared. Instead, war research has produced power plants with greater power in less space with less weight and designed for mass production. When peace comes, locomotive builders are ready to adapt these developments to railroad use, Mr. Cain said.

Production for the duration is limited to existing standard sizes and types best suited to wartime needs and emphasis is placed on the most efficient use of the limited material available.

Use of small diesel-electric locomotives in industrial service has increased tremendously, Mr. Cain pointed out. These high-speed 150 to 500 horsepower engines are not in as great demand for implements of war as the large low-speed machine.

Science News Letter, December 12, 1942

E FIELDS

ZOOLOGY

New Museum Exhibits Show Old Wild West

See Front Cover

► VIVID glimpses into America's old West are given to the present generation, that knows it only as stories that old people tell, by two new exhibits which have just been opened to the public at the American Museum of Natural History in New York. In one, a typical scene from the North Platte river country shows beautifully mounted specimen groups of bison and pronghorn, as they were before white men's rifles, followed close by their even deadlier plows, reduced the bison herds from an estimated 60 millions to a few precariously surviving hundreds. In the other, a group of wapiti or American elk are shown in a typical Rocky Mountain environment of Engelmann spruce, aspen, choke-cherry and Oregon grape, all rich in autumn colors. Actual animal and plant specimens in the foreground have been expertly blended with the painted background.

Science News Letter, December 12, 1942

NUTRITION

More Vitamins from Fish Livers By New Process

► THE COD and other fish whose liver oils furnish vitamins A and D for babies and growing children may be made to yield other vitamins now wasted which could be used for animal or poultry feed or feed supplement.

A patent on a process for recovering these otherwise wasted vitamins has just been issued to Clarence Walter Whitmoyer and William James Moore, of Myerstown, Pa., who assign their patent rights to the Whitmoyer Laboratories, Inc., at Myerstown.

Vitamins A and D are in the oily part of the fish livers, but water soluble vitamins, such as some of the B vitamins and vitamin C, are also contained in animal livers. To save whatever water soluble vitamins the fish livers contain

from being destroyed or discarded when the oil is extracted, the inventors developed a process for mixing the fish livers with a pectin-containing substance. When minced or ground livers are mixed with such a substance, the water in the liver, together with the vitamins it contains, will be held in the pectin-containing substance.

The pectin-containing substances preferred by the inventors for this purpose are such waste by-products as pomace of sweet potato, tomato and citrus fruit.

"Such an end product," they state, "has proved of great value for feeding poultry, since it may be made to contain water soluble and oil soluble vitamins and particularly the vitamins which promote health and growth, as well as carbohydrates, fat, animal and vegetable proteins, organic minerals and the like."

Science News Letter, December 12, 1942

PHYSICS

Infra-Red Rays Dry Fabrics After Dyeing Process

► INFRA-RED rays, invisible waves of energy in its purest and most concentrated form, are now being used to dry textiles after dyeing and finishing processes, George Fisher, of the Infra-Red Ray Equipment Corporation reported at the meeting of the American Society of Mechanical Engineers in New York.

Bombarding fabrics with the rays produces great heat, although infra-red waves themselves are not hot. This property of the rays has been known for some time, but application in the textile industry has only recently been made.

"Use of infra-red rays produced by gas-heated incandescent refractories has passed the experimental stage," Mr. Fisher declared. "Quite a number of such installations are in industrial operation, performing with excellent results."

Since the rays do not heat the surrounding air, the high-speed production of large amounts of heat energy occurs right at the spot where the heat is needed. Operation has proved very economical, Mr. Fisher pointed out.

Steam heat, formerly used, could not be controlled as well as the new method and as a result the fabric was sometimes excessively exposed to heat and baked. Atmospheric burners and other gas-flame units which have been in use, wasted much heat to the surrounding air and had other features which prevented drying as efficiently as by the infra-red ray method.

Science News Letter, December 12, 1942

GENERAL SCIENCE

AAAS Postpones Meeting Scheduled for New York

► THE TRADITIONAL meeting of the American Association for the Advancement of Science in the week between Christmas and New Year's, scheduled for New York this year, has been postponed indefinitely at the request of the Office of Defense Transportation, Dr. F. R. Moulton, permanent secretary of the A.A.A.S. has announced.

Marked with sessions of some fifty sections and affiliated societies, these annual meetings have been a culmination of the year's scientific progress.

Not since Civil War days has an annual Christmas meeting been missed. Annual meetings were dropped 1861-5, and earlier a session scheduled for Cleveland was cancelled because of a yellow fever epidemic in the southern part of the country.

The one Christmas of U. S. participation in the first World War, 1917, saw a A.A.A.S. meeting in Pittsburgh, despite transportation difficulties. The president that year, the late Dr. T. W. Richards, Harvard Nobel in chemistry, did not attend this meeting because he felt that it should have been postponed in the interest of the war.

Last year the annual meeting, coming only three weeks after Pearl Harbor, was held as scheduled at Dallas.

Most of the scientific societies that are scheduled to meet with the A.A.A.S. at New York are expected to cancel their meetings, although some may attempt curtailed business sessions.

Science News Letter, December 12, 1942

GEOPHYSICS

Geophysicists Skeptical About New Telegraph

► GEOPHYSICISTS have adopted a Missourian attitude regarding the claim of a Cuban inventor that he has devised a telegraphic set-up that will operate on atmospheric electricity alone. There are always slight currents flowing between earth and air, and by an antenna arrangement these might be harnessed to a sufficient extent to operate very sensitive instruments over short distances—say a few hundred yards, or a mile or so at most. Unwilling to reject the claims out of hand, the scientists were equally unwilling to accept them without further evidence, especially in the field of long-range communication.

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