MEDICINE

24-Hour Recoveries From Severe Strep Throat

➤ PATIENTS with severe streptococcus sore throats start to improve within eight to 12 hours after the first injection of penicillin and are, as a rule, well within 24 hours, a group of Army medical officers found in studies reported in the *Journal, American Medical Association,* (Feb. 17).

Unless the patients continued to get penicillin treatment for six days, however, they suffered relapses.

The greater effectiveness of penicillin over sulfadiazine in throat infections with hemolytic streptococci is stressed in the report by Maj. Norman Plummer, Miss Dorothy Rhoades Duerschner, Maj. Harold Draper Warren, Capt. Francis T. Rogliano and Capt. Ruell A. Sloan.

"It should be used without delay in any serious, progressive hemolytic streptococci infection," they advise.

The most striking finding, they point out, was the disappearance of the streptococci from the nasopharynx within 24 hours. This raises a number of questions such as whether it is possible completely to eradicate the streptococci from the body and what effect this would have on the course of the disease and the development of rheumatic fever or kidney disease as complications of strep sore throat. The study does not answer these questions though it gave "some indication that complications of this disease can be prevented and effectively treated."

Science News Letter, February 24, 1945

INVENTION

Curved Knife Developed To Slit Clothing

➤ ARMY Air Force bombers overseas are now being equipped with a new kind of knife, especially developed to slit clothing, so that aircrews can quickly reach and treat wounds while the plane is still in combat.

Developed by the Aero Medical Laboratory at Wright Field, the new knife looks like a spoon with a short handle and the bowl flattened out, with the edges sharpened. Carried conveniently inside the plane in a leather sheath, the knife is attached to a string, so that it cannot easily be lost.

In case of an accident, the knife can be used to slit through the heaviest clothing, several layers at a time, without cutting into the wearer's body, a danger when other types of knives are used. With the wound thus quickly exposed, treatment can be quickly given.

It is probable that these knives will become standard equipment for hospitals and ambulances, as well as police rescue squads, when getting at the wounds of a man in an accident may mean the difference between life and death.

Science News Letter, February 24, 1945

ENGINEERING

Batteries in Aircraft Protected Against Leaks

➤ CORROSIVE ACIDS from electric batteries cannot spill out and cause battery failure or damage to the plane on batteries equipped with a new valve vent. In combat flying, pilots frequently have to turn their planes upside down, causing battery acids to spill out.

The new valve vent, developed by the Auto-Lite Battery Corporation, seals the cells of the batteries in military aircraft when the plane is in any position but normal, as in a steep bank or upside-down flying. At the same time, it allows for perfect functioning by automatically opening the instant the plane returns to normal position.

Hydrogen and oxygen gases that accumulate while the battery is charging are thus allowed to exhaust without loss of vital battery acid.

Science News Letter, February 24, 1945

AERONAUTICS

New British Spitfire Is Fastest in Its Class

➤ THE SPITFIRE XIV, newest fighter plane of the Royal Air Force, is also the fastest Spitfire in service, attaining a speed of 450 miles an hour over a tactical range of 300 miles. This means that it can fly 300 miles from its base and still have enough gas left to return home.

Equipped with a five-bladed propeller and a 2,000 horsepower Rolls Royce Griffon engine, the plane has been in operation with the R.A.F. since D-Day last June. Only two American planes in the fighter class are equipped with engines of 2,000 horsepower. They are the P-47 Thunderbolt and the P-61 Black Widow.

One Spitfire pilot is reported to have shot down three German fighters in five minutes.

The high speed of the plane does not affect its maneuverability, according to the report from the British Information Services.

Science News Letter, February 24, 1945

IN SCIEN

AERONAUTICS

Helicopters Will Have Two Intermeshing Rotors

➤ THE AIR Technical Service Command is running tests of a new helicopter which at present looks like a jelly-fish with a windmill over its head. It has two rotors that rest in the same plane and intermesh with each other like gears.

Other recent developments in helicopters include an improved oil-cooling system for the XR-6 helicopter, all-metal rotor blades to replace wooden blades now used, and an automatic pitch reduction system. This mechanism operates in response to engine speeds, the pitch of the rotor blades being decreased when the engine drops below a predetermined speed.

Science News Letter, February 24, 1945

PLANT PHYSIOLOGY

Cooling Tomato Plants Boosts Fruit Production

➤ TOMATO PLANTS can be induced to produce most heavily by cooling them off in the afternoon, after their leaves have put in a good morning's work making foodstuffs with the aid of sunlight. This has been revealed by experiments at the California Institute of Technology reported by Prof. F. W. Went (*Science,* Jan. 26).

Many plants are stimulated to produce flowers and set fruit by changing the length of their daily exposure to light. Tomatoes are indifferent to length-of-day changes in light, Prof. Went states, but daily fluctuations in temperature affect them profoundly, no matter what the lighting conditions are. He also knew that so far as food-forming activity is concerned, the tomato plant's working day ends at about two o'clock in the afternoon, solar time.

Prof. Went put tar-paper covers over tomato plants grown outdoors in the California winter, starting after their day's food-forming work was done and keeping the covers on until the following morning. Plants thus treated formed and ripened good crops of tomatoes, while plants left uncovered as controls remained unproductive.

Science News Letter, February 24, 1945

CE FIELDS

MEDICINE

Penicillin Tried as Undulant Fever Treatment

➤ A REPORT of a trial of penicillin in undulant fever has appeared in the *Journal of the American Medical Association,* (Feb. 10). The report was made by Drs. Carl G. Harford, Samuel P. Martin, Paul O. Hageman and W. Barry Wood, Jr., of St. Louis, and covered the use of penicillin in a number of other illnesses. The undulant fever case was that of a 20-year-old butcher in a large packing house in St. Louis. He was treated intensively for a week with penicillin without improvement. His fever continued and the germs continued in his blood.

"Too much significance should not be attached to this one case report," the doctors, however, point out.

Different strains of brucella, the germs that cause undulant fever, are known to vary in sensitivity to penicillin. Dr. Tsun T'ung, working at the Johns Hopkins School of Hygiene, found that eight out of 15 strains were susceptible to penicillin in test tube experiments and that addition of sulfathiazole enhanced the effect of penicillin.

It may be that the mold chemical will be effective in some cases and not in others, depending on the strain of germs that are causing the sickness. The question of whether or not to try penicillin is, of course, one for the patient's doctor to decide.

The layman should remember that while packing house employees, butchers, veterinarians and farmers may get the disease from infected animals or carcasses, it is usually contracted from drinking infected, raw goat's or cow's milk. Pasteurization of the milk is the safeguard against this source of the disease.

Science News Letter, February 24, 1945

METALLURGY

Extremely Hard Tool Steel Made by New Method

➤ HARDER tool steels for faster production of the wares of war and more efficient reconversion to the works of peace, are promised in a new U. S. patent, No. 2,369,211, issued to F. H. Clark of New York City and R. F. Dirkes of Jamaica, N. Y.

Their process is a variant of the now familiar sintering method, wherein metallic powders are molded into the desired form and then heated until they become solid. The Clark-Dirkes steels are made by mixing into powdered iron or steel an excess of powdered carbides of tungsten, vanadium or other hardening alloy metal. When the sintering heat is applied, part of the hardening material blends with the iron, and the rest of the diamond-like particles remain unchanged, firmly embedded and bonded into the mass of the steel.

Science News Letter, February 24, 1945

CHEMISTRY

Undersea Electric Cables May Use Polythene Plastic

➤ UNDERSEA electric cables may, in future days, be insulated with polythene plastic, it is predicted, because this material has excellent insulating qualities, is not attacked by seawater, resists penetration by moisture, and is unusually insoluble and inert to chemical reagents. It may be used also for protective coatings on machinery in or near salt water, to prevent corrosion.

This prediction was made by Dr. J. W. Shackleton of the plastics department of E. I. du Pont de Nemours and Company, at a meeting of the American Institute of Electrical Engineers.

"Polythene has very largely replaced all other materials in the insulation of military wires for high-frequency use," he said. "After the war it is expected that the use of polythene in electrical equipment will continue and expand, and that further varieties and modifications of it will be developed to meet specific needs."

Its good resistance to chemicals points to its utility in chemical equipment as a coating and gasketing material, the speaker continued. Its impermeability to moisture indicates a broad utility in containers and the packaging of foods. It is substantially unaffected at room temperature by concentrated hydrochloric, sulfuric, and even hydrofluoric acids, while nitric acid has no visible effect but does ultimately impair tensile strength and elongation.

Polythene, Dr. Shackleton explained, is the generic name applied by Imperial Chemical Industries, Ltd., who originally developed the material, and adopted by the Du Pont company to designate the "giant molecule" forms of ethylene suitable for use in plastics.

Science News Letter, February 24, 1945

AERONAUTICS

Prefabricated Servicing Shelter for Bombers

➤ A PREFABRICATED servicing shelter in which Liberator bombers and several other types of aircraft can be serviced has been developed for use where permanent hangars or docks are not available. The structure, designed by Consolidated Vultee Aircraft Corporation, provides shelter for both ground crews and vital parts of the airplane itself, thus making possible more efficient work than when it is necessary to service aircraft in the open.

The side third section of the dock is curtained off. The curtains are raised to receive the front half of the airplane, then are drawn around the plane to make possible the servicing of the aircraft no matter what the weather outside. While its appearance does not suggest great strength, it is planned for use in all weather conditions and it is reported to be able to withstand winds of hurricane velocity, around 70 miles an hour.

The complete dock is prefabricated ready for shipping to any part of the world and is so designed that eight men can set up the building in 72 hours.

Science News Letter, February 24, 1945

ORDNANCE

Self-Propelled Gun Has 360-Degree Traverse

➤ A NEW high-speed, highly agile self-propelled mounting for Bofors antiaircraft cannon and similar light artillery has been designed by Horace D. Stevens of Akron. His patent, No. 2,367,837, is assigned to the Firestone Tire and Rubber Company.

The gun is mounted on a turntable which gives it a 360-degree traverse. It is carried on the bed of a truck or, preferably, a half-track vehicle to give it greater cross-country maneuverability. In march order, the muzzle of the gun projects forward through a notch in the windshield, and the crew are protected by walls of light bullet- and splinter-proof armor. In action, these fold downward, giving utmost freedom of action.

When it stops for firing, the vehicle is lifted on jacks and braced by outriggers, for greater steadiness. Chutes are provided through the floor, to get the empty cartridge cases from under foot and to drop them clear of the half-track mechanism.

Science News Letter, February 24, 1945