

MEDICINE

DDT May Be Useful for Studying Nervous System

► DDT, POTENT insecticide and anti-lice chemical, may have still another use, that of aiding scientists studying the nervous system, it is suggested in a report by scientists of the Food, Drug and Cosmetic Administration (*Public Health Reports*).

The tremors of long duration produced in animals by DDT suggests this use of it as a scientific tool. Both tremors and liver damage in animals following DDT reported by the Food and Drug scientists have also been reported in studies by the U. S. Public Health Service.

The Food and Drug studies were made by Arthur A. Nelson, John H. Draize, Geoffrey Woodward, O. Garth Fitzhugh, R. Blackwell Smith, Jr., and Herbert O. Calvery.

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MEDICINE

Legion of Merit Awarded To Sandfly Fever Volunteers

► LEGION OF MERIT decorations have been awarded to 14 soldiers who volunteered to serve as human guinea pigs in a study of sandfly fever, the War Department has announced. The men all contracted the disease, either through the bites of virus-carrying insects or direct injections of blood from other patients. They have all recovered.

Sandfly fever is a malady with influenza-like symptoms prevalent in warm countries. Technically, it is known to medical men as phlebotomus fever. It is not contagious, and can be contracted only through the bite of a vicious little bloodsucking insect that has previously bitten a human patient. In this it is like malaria and yellow fever.

Fortunately, sandfly fever is not as dangerous as either of these two diseases. The initial fever, which may rise as high as 104 degrees, subsides after two or three days, but the patient remains incapacitated for a week or two.

Two effective repellents have been developed, which drive off attacking sandflies. One is dimethyl phthalate, the other a vanishing cream containing pyrethrum. (See *SNL*, July 15, p. 40).

One of the useful facts learned from studies on the 14 volunteers is that an attack of the variety of sandfly fever prevalent in Sicily will confer immunity against the virus of the fever as it oc-

curs in Egypt. Soldiers who had submitted to an attack of the Sicilian variety were inoculated with the Egyptian virus after recovery, and failed to develop new attacks.

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NUTRITION

Babies Will Be Healthier Through Nutrition Research

► MORE ROBUST health for several million babies in the United States alone may result from some of the scientific studies supported by the Nutrition Foundation in New York, according to the latest report of its scientific director, Dr. Charles Glen King.

The sum of \$1,500,000 has been contributed to the Foundation during the past two years by 42 food and related manufacturers, its president, George A. Sloan, reported. Of this, \$530,040 has been appropriated for 87 research grants.

Primary emphasis has been placed on research of interest to the armed forces, but the studies are also laying "an excellent foundation for improving maternal and infant feeding," Dr. King stated.

"According to the best evidence available," he said, "better food consumption by mothers before infants are born would mean within a single decade in the United States alone, several millions of infants in more robust health. An estimate of the number of infants that might be shifted from a 'poor health' to a 'good health' classification during the first two weeks of life by means of their mothers' eating better food actually falls in the range of 900,000 per year."

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INVENTION

Pivoted Jack Attached Permanently to Car's Axles

► PESSIMISM might be the term applied to the invention on which Juan F. Fanes of Mexico City received patent 2,353,021, for its basic idea is to have a pivoted jack permanently attached to each end of a motor vehicle's axles, ready to be swung down when the inevitable blowout or puncture occurs. Lifting power is supplied by an engine-operated hydraulic system. The lower end of the jack is provided with two small wheels or rollers, so that the vehicle may be towed if repairs on the spot are not practicable.

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IN SCIENCE

CHEMISTRY

Levulose Now Made from Dextrose by Invention

► TURNING DEXTROSE, which is only three-quarters as sweet as cane sugar, into levulose, which is half again as sweet, is the chemical achievement that won patent 2,354,664 for two chemists employed by the Corn Products Refining Company, Dr. Sidney M. Cantor and Kenneth C. Hobbs. They have assigned their patent rights to the employing firm.

Dextrose has long been made in huge quantities by treating starch with dilute hydrochloric acid. The two chemists change the less-sweet sugar into its sweeter twin by putting the syrup containing it over an alkaline catalyst, preferably calcium hydroxide, and then neutralizing it again with a little more acid. Care must be taken, they state, to prevent the formation of another sugar, mannose, which tastes bitter to many persons.

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ORDNANCE

Invention Sets Fuses Within Gun Chamber

► A RADICAL idea for the setting of time fuses on shells is the subject of patent 2,353,816, issued to M. L. Dodge and W. V. Baker of Seattle. On all time shells used nowadays, the fuse is first set in a separate mechanism, usually alongside of the gun, then shoved into the breech and fired. In the Dodge-Baker invention, the fuse-setting is accomplished within the gun itself, cutting down the chances of inaccuracy due to the time-lag involved in separate setting, loading and firing.

The system can be used only with shell set in a metallic cartridge case, for this case serves as part of the setting mechanism. The shell itself is held fixed by seating its rotating band against the bases of the lands in the rifling. The base of the shell, held by the top edge of the cartridge case, can be turned, setting the fuse for the desired time interval. A toothed ring near the base of the cartridge case is engaged by the fuse-setting gear built into the gun breech.

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CE FIELDS

BACTERIOLOGY

Germ-Stopping Substance In Soil Microorganisms

➤ A NEW germ-stopping substance, belonging to the same "family" as penicillin and known as streptomycin, has been identified by a group of four research workers at the New Jersey Agricultural Experiment Station: Miss Doris Jones, H. J. Metzger, Albert Schatz and Dr. Selman A. Waksman.

Streptomycin proved able, in laboratory experiments on embryo chicks, to prevent the growth of several bacterial species that have been found more or less resistant to previously known germ-stopping substances extracted from molds and other microorganisms growing in the soil. Among these were the germs of fowl pneumonia and spontaneous abortion.

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PLANT PHYSIOLOGY

Mold Serves in Testing Plants' Food Requirements

➤ AN EASILY grown mold, a kind of botanical second cousin to the one that is the source of penicillin, has been found to be a good test plant for the food materials needed by crop and garden plants, in experiments carried on at the U. S. Department of Agriculture laboratories at Beltsville, Md.

It has been found that the same mineral elements that are needed by the familiar green plants are also needed by this mold species, with only three exceptions: calcium, silicon and boron. For all the rest, it appears to be able to function in plant nutrition research very much as white rats do in experiments on human diets; because it likes and needs the same things, and at the same time is small, cheap and easily raised, it can be economically used in long series of tests that would be very costly in space and money if they had to be conducted full-scale on the larger organisms.

For example, when the mold was fed on a nutrient solution containing all the necessary elements except nitrogen, it failed 100%. On phosphorus- and magnesium-free diets its failure was quite as complete, and on a "minus-sulfur"

nutrient medium was nearly so—98%.

Experimental value of the mold will probably be greatest in connection with the so-called trace elements—things like molybdenum, zinc and copper, which are needed by plants in only a few parts per million of their total nutrient-solution intake.

The mold belongs to one of the most familiar groups of food- and clothing-spoiling organisms, *Aspergillus niger*.

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MEDICINE

Men Rejected by Army for Syphilis Can Be Reclaimed

➤ NEARLY two-fifths of the men called up for war duty but rejected when blood tests showed them to be syphilitic can be reclaimed by treatment and enabled to pass the entrance tests, statistical studies by the U. S. Public Health Service indicate.

Out of the first 15,000,000 registrants, 720,000 were refused on account of syphilis. Of this group, a large sampling of 182,607 cases was followed through by Selective Service boards, state and local health authorities, and the Army and Navy. It was found possible to trace 93% of all cases.

Veneral disease control programs have already been responsible for the acceptance for duty of 18% of the men under study, and an additional 20% have been declared available for service after follow-up and treatment when necessary. Further treatment was indicated as necessary for 16%.

Of the remaining 46%, there is no chance for acceptance of 16%, either because the disease had progressed too far or because of other physical defects. The rest have either moved, died or are in mental hospitals.

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PLANT PATHOLOGY

Virus Disease Found Attacking Lettuce

➤ BRITAIN's summer salads are endangered by a newly-discovered virus disease that destructively attacks lettuce, B. Kassanis of the Rothamsted Experimental Station reports (*Nature*, July 1). Dead areas appear in the leaves, soon rendering the plants worthless.

The virus has also been found attacking the leaves of common dandelion, which is a botanical cousin of lettuce. The virus is carried by the aphid.

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BOTANY

Wild Fig Leaves May Help The Shoe Leather Business

➤ THREE-QUARTERS of a ton of tannin to help tan the nation's shoe leather, could be squeezed out of the thick, fleshy leaves of one acre of the wild fig-marigold as it grows on the coast of California, (*Plant Physiology*, April).

Resistant to drought, poor soil, and some frost, it would make a good commercial source of tannic acid, suggest Thomas Yort Hum and Robertson Pratt, investigators at the College of Pharmacy, University of California. They found that the leaves of the fig-marigold, or Hottentot fig plant, yield 19.4% tannin, essential in manufacturing drugs and inks as well as leather goods.

These investigations are part of a nation-wide search for a domestic source of tannic acid carried on ever since the chestnut blight in the 1920's in this country. The cutting off of our supply from Spain, Italy, and Greece by the war has made the search more imperative.

Buttonwood tree, mangrove, saw palmetto and canaigre are other sources being considered.

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ENGINEERING

Bituminized-Fiber Pipe May Become Permanent

➤ WARTIME USES of bituminized-fiber pipe for drainage and sewage disposal, as a substitute for critical metals, have proved so satisfactory that such uses will probably continue in postwar days. This pipe is made of coal tar pitch reinforced with an interwoven fibrous structure.

Some of the desirable properties of bituminized-fiber pipe are strength, durability, lightness, resistance to corrosion and low installation costs. It has the ability to bend with shifting earth instead of cracking. This type of pipe has long been used as a protective conduit for underground electric cables.

Commercial standards for bituminized-fiber pipe have been issued by the National Bureau of Standards in recognition of its probable future uses. It establishes construction and performance requirements that the industry believes will insure a satisfactory pipe for many drainage purposes.

Science News Letter, August 12, 1944