

MEDICINE

Hope Fades for Penicillin As Arthritis Remedy

► THE HOPE that "many physicians and a host of rheumatic patients" have had that penicillin would prove an effective remedy for rheumatoid arthritis is dispelled by a report from Maj. Edward W. Boland, Capt. Nathan E. Headley and Lieut. Col. Philip S. Hench, of the Army Medical Corps (*Journal, American Medical Association*, Nov. 25).

These officers gave large doses of penicillin to 10 soldiers with arthritis at the Rheumatism Center of the Army, Army and Navy General Hospital, Hot Springs, Ark.

The results of the treatment were "essentially negative," they report. In seven of the 10 cases, there was no improvement that either physician or patient could detect. One patient felt worse but did not seem to be in worse condition than before treatment. Another patient thought he was better but the doctors could find no signs of improvement. In one other patient there was moderate improvement, noted by patient and physician, in some but not all of his rheumatic joints. The doctors do not believe this was related to the penicillin, since rheumatoid arthritis is a "capricious" disease, with occasional periods when the patient seems better, no matter what kind of treatment he may be getting.

The results of this trial of penicillin also seem to show that rheumatoid arthritis "is not caused by any of the bacteria known to be rapidly affected by penicillin," the medical officers point out. This includes the hemolytic streptococci which have been most under suspicion in recent years.

In the trials, the doses of penicillin given each patient were known to be enough and perhaps more than enough to affect severe infections with streptococci, staphylococci and other germs.

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PUBLIC HEALTH

Watch for Malaria On Return from Tropics

► MANY CIVILIANS as well as men in the armed services have been exposed to malaria in the course of construction or other jobs in tropical areas during the war. They should be alert to the possibility of developing an attack of malaria within a few days or weeks after their return home. Any sign of sickness, even if it appears to be only a cold, should be

the signal to these persons to consult a doctor at once. The patient, or a relative if the patient is confused as may be the case in some forms of malaria, should tell the doctor that the patient has been in a tropical area so the doctor will be alerted to the possibility of the illness being malaria and will examine the patient's blood.

Three cases, two of them fatal, in which the malaria attack masqueraded as a cold or gripe, and others in which stomach and intestinal symptoms were misleading, were reported by Dr. Harry Most and Dr. Henry E. Meleney, of New York University College of Medicine (*Journal, American Medical Association*).

In one case the man returning to America from Africa by airplane had a chill on his arrival at Miami, but continued his trip to New York. Two days later he consulted a physician for what seemed to be a cold. His temperature was normal and he was given treatment to relieve the cold symptoms. The next day he had a severe chill and could not recognize his wife. He was taken to the hospital and the illness diagnosed as malaria the following day. Intensive quinine treatment was started but it was too late to save him and he died eight days after his first chill.

When a falciparum malaria attack starts with symptoms of a stomach or intestinal upset, with pain, nausea, vomiting and diarrhea, conditions requiring an operation such as intestinal obstruction may be suspected. If it is known that the patient has been in the tropics, such symptoms, especially the diarrhea, are particularly misleading because they suggest bacillary or amebic dysentery. First step in such cases, the New York physicians advise, is to examine the blood to see whether or not the patient has malaria.

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MILITARY SCIENCE

Carrying Bombs in Wings Helps Streamline Bombers

► AN INVENTION designed to improve the streamlining of dive-bombers is the subject of patent 2,362,345, issued to Edward M. Bertrán of Jackson Heights, N. Y., assignor to the Brewster Aeronautical Corporation. Most dive-bombers mount their bomb racks beneath the wings, but in Mr. Bertrán's design the bombs are contained within the wings, each with its own small bomb-bay doors. Selective releases permit the dropping of any or all of the bombs at the pilot's will.

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BIOCHEMISTRY

Hormones Sprayed on Plants Retard Bud Development

► THE CHEMISTRY of living plants is concerned in patent 2,363,325, granted to Dr. A. E. Hitchcock and Dr. P. W. Zimmerman of the Boyce Thompson Institute for Plant Research at Yonkers, N. Y. They have found a surprisingly long-enduring effect in retarding bud development in plants sprayed with "delay-action" hormones such as alpha-naphthaleneacetic acid and some of its chemical relatives. Sprays applied during the summer, before the buds have become dormant, will cause a delay of a couple of weeks or more in their unfolding during the following spring. Useful applications of this discovery are in the holding back of flowering and fruit formation until after frost danger is over, and the checking of undesired foliage growth when shrubs and trees have to be transplanted late in the season.

Rights in the patent are assigned to the Boyce Thompson Institute.

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AERONAUTICS

Daniel Guggenheim Medal Awarded to Lawrence Bell

► THE DANIEL GUGGENHEIM medal has been awarded to Lawrence D. Bell of the Bell Aircraft Corporation for achievement in aeronautics, particularly for achievement in the design and construction of military aircraft, and for outstanding contributions to the methods of production.

Mr. Bell is one of the few aeronautical pioneers still actively engaged in the industry. Since early life he has been in aircraft development work, becoming, after years of service, general manager of the Glenn L. Martin Company and later general manager of the Consolidated Aircraft Corporation. He organized his own company seven years later and since then has specialized in fighter planes.

The award is made by a committee appointed by the American Society of Mechanical Engineers, Society of Automotive Engineers, and the Institute of the Aeronautical Sciences.

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CE FIELDS

ORDNANCE

Bearings for Torpedoes Given Exacting Tests

► **TINY BALL BEARINGS** used in torpedo gyros that stabilize the expensive torpedoes and direct them accurately toward enemy targets are given exacting tests before they are put into service.

The bearings are first inspected by an electronic device that determines if they are out of round more than six millionths of an inch. A millionth of an inch is about the thickness of the layer of moisture left by your finger on the blade of a silver table knife when you touch it.

Next, the bearings receive microscopic examination to detect surface scratches and pitting which may affect the accuracy of the torpedo in action.

Finally, the balls are rolled over a 24-inch strip of plate glass to determine whether or not they will run true. The glass is tilted at an angle of five degrees and coated with a fine oil film. The balls are placed one by one at a point on the high end of the slab and roll slowly over the oil film to a point at the low end exactly opposite the point where they were started. If the path of the ball is not straight, it is discarded.

These tests, conducted at the Pontiac torpedo plant, are typical of the exacting accuracy required in the production of many items which go to make up the American war machine.

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CHEMISTRY

Jellied Gasoline Resembles Raspberry Gelatin

► **JELLIED** gasoline, food for flame-throwers and fire bombs, looks like raspberry or orange gelatin but is deadly despite its looks. It is made to order at the battlefronts by stirring a secret white powder into ordinary motor fuel.

Developed through a cooperative research program under the direction of the War Department and the Office of Scientific Research and Development, the incendiary material has already proved a potent weapon against the enemy. The jellied gasoline and the two weapons that use it were developed as a result of the serious shortage of magnesium, the white metal formerly used

for incendiaries. The new materials are as effective as the magnesium bomb, and can be produced in mass quantities with readily available materials.

Characteristics of jellied gasoline are that it maintains an intense flame over a period of 8 to 10 minutes and it sticks to its target, igniting any substance that will burn, such as wood or cloth, at temperatures as low as 40 degrees below zero Fahrenheit.

Buildings and machinery shattered by explosives are often rebuilt, but those razed by fire are frequently destroyed beyond repair and are therefore abandoned. For this reason Army Air Force bombers have increased the proportion of incendiaries carried on each operation until today some operations carry up to 50% jellied gasoline oil bombs.

Flamethrowers spit streams of the jellied gasoline into enemy fortifications, such as pillboxes, and into moving tanks. The range of these powerful blowtorches is so long that operators can shoot flames from beyond the practical range of enemy small arms.

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CHEMISTRY

Treated by New Process, Tin Cans Resist Rusting

► **TIN CANS** resist rusting in outdoor exposure in hot humid weather when treated by a new process developed at the Battelle Institute in Columbus, Ohio. The process is the result of research in the United States and in England to develop full protection for food for fighting men in parts of the world where ordinary treatment is not sufficient.

In the new method, after the cans are filled, sealed and processed, they are dipped momentarily into a hot solution of alkaline salts. This cleans the surface and produces an invisible film over the tin. No lacquer or enamel is used on the cans, as in present protective processes.

Lacquering tin plate to prevent rusting involves expensive and inconvenient operations in the manufacture of cans, it is explained. The hot alkaline process is readily adaptable to production lines in canneries. Protection against corrosion may not be quite as good as lacquers under some conditions, but it appears to be adequate for most purposes.

The mechanism of the new process is not definitely understood as yet. However, tests show that pinhole corrosion is effectively delayed and the cans stay bright and clean after weeks of outdoor exposure.

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WILDLIFE

Pheasants Scatter Seeds Of Own Food Plants

► **ADVANTAGE** should be taken of the pheasants' capacity to disseminate seeds of food plants in places they frequent in order to reduce the amount of planting needed to establish adequate food and cover for the birds, Wendell G. Swank of the University of West Virginia suggests.

Seeds that have passed through the digestive tract of the pheasant sprout more quickly than ordinary seeds, the author stated, because they have been worn down by abrasive action in the digestive tract. In the case of poison sumac, 70% of the seeds found in an unbroken condition in bird droppings germinated whereas only 20% of the untreated seeds grew.

Ring-necked pheasants distribute the hard-coated seeds of plants such as grape, Virginia creeper, black locust, poison sumac and many others in a good condition for growing. Of the seeds of this kind eaten by pheasants, approximately 6% are passed through the digestive tract in a viable condition, Mr. Swank reports. (*Journal, Wildlife Management*). These are dropped in locations frequented by the birds and, if germinating conditions are favorable, valuable food and cover plants are thus disseminated.

Seeds for food plot mixtures should include some easily digested seeds, but also others that are not. By planting a few hard-seeded perennials in spots where pheasants will find and utilize them, the seeds might easily be scattered abroad, Mr. Swank stated.

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CHEMISTRY

High-Temperature Method Removes Iron from Tin

► **A DIFFICULT** means of chemical separation, important in the present emergency, is covered by patent 2,363,127, obtained by R. H. Graves of Westfield, N. H. It is on a method for removing iron from tin during the smelting process; the commoner metal can be a troublesome impurity in tin during its metallurgical handling. The inventor states that he has found that at temperatures higher than those commonly used—925 to 1472 degrees Fahrenheit—a dross of tin-iron compounds is formed on the molten metal. If this is skimmed off, the remaining tin is left pure.

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