CONSERVATION

Russian Farmers Replant Shelterbelts on Steppes

➤ SHELTERBELTS protecting farms on Russia's steppes, systematically destroyed by the enemy during the war, are now being replanted by the farmers, states the USSR Information Bulletin, published in Washington. These tree belts perform much the same function as those on the American plains, which are like the steppes in many respects. They reduce wind erosion, hold snow until it can melt, and check hot winds in summer.

Dramatic evidence of the value of shelterbelts was given in the Odessa region last spring. Fragments of the tree zones that had escaped the havoc of war saved the grainfields in their lee when dust storms raged. Elsewhere, heavy layers of dust smothered the crops.

Science News Letter, June 21, 1947

CHEMISTRY

Thermal Process Fixes Nitrogen as Nitric Oxide

➤ FIXATION of atmospheric nitrogen as nitric oxide (NO) is accomplished without use of electricity, by thermal means alone, in a twin furnace on which Dr. F. G. Cottrell, well-known Washington scientist, has received patent 2,422,081.

The gas mixture is passed through a bed of incandescent oxide "pebbles", further heated in the combustion chamber, then suddenly cooled by being passed into the second chamber and into its bed of unheated pebbles.

When the cooling bed has become entirely hot, the process is reversed, and the now cooled-off first bed is used for quenching. Rights in the patent are assigned to the Wisconsin Alumni Research Foundation.

Science News Letter, June 21, 1947

ELECTRICAL ENGINEERING

Scientists Help Navy Plan Better Lighting for Ships

➤ CIVILIAN illuminating engineers are helping the Navy plan stronger lighting fixtures and better lighting for Uncle Sam's fighting ships.

Normal home and office lighting fixtures cannot stand up under the shock of a ship's guns firing. Wartime substitute fixtures, without glass, did not do as good a lighting job as commercial fixtures ashore.

Twenty civilian engineers are serving in an informal advisory capacity to help the Navy solve the lighting problem. Experiments have been conducted aboard two inactive ships, the USS Phoenix, a light cruiser, and the submarine, USS Permit. Seven of the engineers also went on a cruise aboard the giant aircraft carrier, USS Midway, to study special lighting problems aboard carriers.

In addition to developing more durable shipboard lighting fixtures, the study includes the problem of lighting in relation to the colors of decks, bulkheads and furniture, heat generated by lamps and the effect of salt air on lighting fixtures.

Lighting aboard Navy ships has become more important because portholes, which let in sunlight, are on the way out. During the war, port-holes were sealed and the Navy said none of the newer ships have them. This means shipboard lights must operate 24 hours a day in some cases.

Experimental designs have been developed and some fixtures have been installed for service tests, the Navy reported.

Science News Letter, June 21, 1947

TEXTILES

Rayon Hosiery Yarn Made in Record Time

➤ THE YARN from which rayon hosiery is made can be turned out in two minutes and 15 seconds instead of 60 hours, using an automatic machine developed in Germany.

American investigators studying the German textile industry have reported the development of the Dureta machine and process which speeded the production of German rayon hosiery. As used at the Bemberg-Wuppertal plant at Dormagen, Germany, the machine was expensive to operate and maintain, but the Germans said improvements in it might revolutionize yarn production.

In the process, yarn is produced without being touched by hand. The yarn is described as of high quality, good tenacity and elongation, and up to 80% of the yarn will make first-grade stockings.

The Dureta machine has 204 spinning funnels in three rows of 68 funnels and corresponds to half of a spinning machine. Threads in the machine are processed automatically.

Science News Letter, June 21, 1947

IN SCIENC

BACTERIOLOGY

Germs May Be Bred To Make War on Disease

➤ MORE DISEASE remedies of the penicillin type may be developed by breeding germs to produce chemicals that will fight other germs, Sir Howard Flory, the English doctor who with his wife was first to use penicillin as a remedy, told members of the American Medical Association at their meeting in Atlantic City.

He cited Swedish efforts along this line. No such remedy, made by "inducing" germs to produce it, has yet been developed. But efforts to do this are "clearly worth while," he said, because it might be possible to produce remedies against specific germs.

Hundreds of substances produced by molds, fungi and bacteria which act against germs have been discovered. Only a few, however, are useful in treating disease. Some are too weak in their anti-germ action. Others are too poisonous.

Looking for a new remedy like penicillin or streptomycin is "something like taking a ticket in a lottery," Sir Howard said.

"It is quite possible that there are some tickets with prizes still."

Science News Letter, June 21, 1947

ENTOMOLOGY

Poisoned Peanut Shells Kill Alfalfa Snout Beetles

➤ POISONED peanut shells are the strange Borgian banquet offered to the alfalfa snout beetle, an introduced pest localized in two New York counties. Before the war they got poisoned raisins; now they have to be content to die on cheaper fare. They may not even get the peanut shells, if new spraying and dusting methods now being tried out by New York State Agricultural College entomologists prove effective.

Despite its name, the alfalfa snout beetle does not confine its attacks to alfalfa. It feeds readily on many plants of the pea and clover family, and on several genera as well. Closest possible control, therefore, is desirable.

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E FIELDS

ENGINEERING

Reverse Shot-Tower Makes Very Fine Metal Powders

➤ A MACHINE for making very fine metal powders is covered by patent 2,422,099, issued to Siegfried Hiller of New York. It might be described as a shot-tower in reverse, with furnace attachments. A wheel covered with steel fingers, revolving in a closed chamber, dips into the surface of a pool of melted lead, tin, copper or other metal, flipping fine drops into an opening near the bottom of a cylindrical combustion chamber. The metal spray is blown upward, only the heavier drops falling back into the pool. The cooling metal particles may be drawn off as such, or may be reacted with chlorine or other gases to form compounds.

Science News Letter, June 21, 1947

MEDICINE

Million Dollars Spent To Test Streptomycin

➤ A MILLION dollars is being spent to test upon actual patients the mold chemical streptomycin, so far the most promising drug for chemical warfare upon tuberculosis.

This raises to two million dollars the research grants by pharmaceutical companies to bring the drug from Dr. S. A. Waksman's test-tube to the patient's bedside, John S. Zinsser of Sharp and Dohme, Philadelphia, told the American Drug Manufacturers Association in Hot Springs, Va., in his presidential address.

While leading medical men work with the National Research Council and the Trudeau Society in this streptomycin evaluation, other antibiotics may soon break forth from the laboratory, Mr. Zinsser predicted.

Other antibiotics that are promising include: Subtilin, bacitracin and tomatin. Penicillin is in wide usage. Tyrothricin is in the early stages of clinical testing and limited use.

In addition to such new drugs, medicine will find some of the almost discarded drugs return to new usage because of researches now in progress, Mr. Zinsser also forecast.

The future demand for insulin may outrun the present sources of supply, Mr. Zinsser warned. Due to this drug that controls diabetes, the diabetic now has a life expectancy only slightly less than the average for all citizens, contrasted with only six years of life for a person of 30 in the pre-insulin era.

Scientists and drug manufacturers are seeking new materials, new sources of pancreas from which insulin is extracted, and new processes for getting greater yields from present raw materials.

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CHEMISTRY

New Process Obtains Maleic Acid from Furfural

➤ FURFURAL, that versatile chemical made from such agricultural wastes as corncobs and oat hulls, gets turned into almost everything nowadays. Newest are maleic acid and its kin-compound, maleic anhydride.

They are produced by contacting furfural vapor at moderately high temperatures with a catalyst containing ammonia and its vanadium and molybdenum salts, preferably deposited on metal tubes. Patent 2,421,428, issued on this process to Erik R. Nielsen of Chicago, is assigned to the Quaker Oats Company.

Science News Letter, June 21, 1947

MEDICINE

Lack of Vitamin A Found Related to Tuberculosis

➤ A RELATION between lack of vitamin A and susceptibility to tuberculosis, at least in rats and mice, has been discovered by Drs. A. B. McCoord, C. P. Katsampes, E. Day and S. W. Clausen of the University of Rochester School of Medicine.

The stores of this vitamin in the tissues of mice are lowered by inhalation tuberculosis, the doctors reported at the meeting in Atlantic City of the American Academy of Tuberculosis Physicians.

Rats that do not get enough vitamin A, they also found, are more susceptible to disease than rats with high stores of the vitamin. Animals lacking vitamin A have bronchi that are broader and more irregular in outline than those of animals not lacking the vitamin, and evidences of pneumonia and bronchitis with inflammation are more evident.

Science News Letter, June 21, 1947

INVENTION

Electrical Device Counts Words As They Are Typed

➤ WRITERS who do not like the tedious process of counting words in their manuscripts after they are typed will find the invention of Harold Chaskin of New York very useful. It is an electrical attachment that counts one when any letter key is struck at the beginning of a word, then goes out of action until the space-bar stroke indicates the end of the word. It does not have the disadvantages of earlier word counters operated by the space-bar only, which would count words when the writer was only making extra spaces between sentences. Three patents, Nos. 2,421,681 through 2,421,683 have been issued on this device.

Science News Letter, June 21, 1947

MEDICINE

Soilless Gardens Used To Probe Goiter Cause

➤ FOOD from chemical, or soilless gardens gives fresh evidence that lack of iodine can cause goiter. Studies showing this were reported by Drs. J. F. McClendon and Wm. C. Foster, of Hahnemann Medical College at the meeting in Atlantic City of the Association for Internal Secretions.

In order to produce for the tests a diet free of iodine and to rule out any goiter-causing influence other than iodine lack, these scientists grew the diet in a chemical garden in a disinfected greenhouse with disinfected water and chemicals in a goiter-free region. Air was pumped through a carbon filter.

This diet was fed to six litter-mate rats from a colony that had not had any goiter for six years. The rats were given the diet as soon as they were weaned.

Three were given water redistilled from alkali to drink. The other three were given water containing 10 parts per million of iodine. These last three rats had normal thyroid glands.

The other three, that got no iodine, at the end of 73 days had goiters four times as large as the thyroid glands of the rats that got the iodine in their drinking water.

The goiters of the rats raised without iodine were twice as large as goiters in rats from a colony that ran to goiters living in a goiter region and fed a diet containing very little iodine.

Science News Letter, June 21, 1947