

CHEMISTRY

Fungus-Proof Fabric Is Promising Development

► A MODIFIED cotton cloth, that failed to rot during six months buried under soil where ordinary cotton would rot in a week, has been developed in the Southern Regional Research Laboratory of the U. S. Department of Agriculture. It is a partially acetylated cotton, which is somewhat related to rayon made by the acetate process.

The new material has the strength and appearance of ordinary cotton, but it has the ability to resist the attack of rot-producing microorganisms and to resist mildew. In contrast with many preservative finishes on cotton, the treatment does not produce discoloration. The treated fabric is odorless and is not sticky. It can be used in food sacks because the fabric is not poisonous.

To test the rot resistance of the material some of the treated cloth and thread were buried in the ground and in especially prepared beds teeming with microorganisms of the kind that would have rotted ordinary cotton within a week. After six months they had lost very little strength. Sandbags made of acetylated cloth, sewed with similarly treated thread, and piled outdoors on the ground, were still intact after two years.

This modified cotton should be satisfactory for making clothing that will not mildew, tents and awnings that will not rot in damp climates, and fish nets that can be stored wet. It is also promising for use in making bags for fruits and vegetables.

Science News Letter, September 8, 1945

CHEMISTRY

Natural and Synthetic Rubbers May Be Combined

► WAR experience in the making and field use of tires can be expected to have considerable influence on the design and construction of tires for postwar cars, Dr. Waldo Semon, director of pioneering research for the B. F. Goodrich Company, stated in a radio address.

Confronted with an enemy-caused famine in natural rubber, scientists and manufacturers in the United States cooperated in doing the impossible, and filled the gap largely with synthetic rubber, mass-produced in this country for the first time. The speaker declared that while war-time tires of synthetic rubber may not be fully a match for the best

prewar natural-rubber tires, "a synthetic tire that is more than a match for prewar naturals may be 'just around the corner.'"

War-pressured speed-up in research has taught us many things about better tire design as well as improvement in basic materials, Dr. Semon stated, just as the spur of war has caused many very rapid advances in many other fields of applied science.

However, the speaker cautioned, "I would like to refute the rather common assumption that war speeds up technical progress. It's a big subject and could stand a lot of arguing, but I have long regarded as one of the world's most tragic fallacies the notion that war adds to the stockpile of fundamental knowledge. It is true that some spectacular advances in science are brought out under the spur of war, but in the long run war depletes rather than adds to the sum of fundamental knowledge. And for the most part the hard, digging research behind even those spectacular wartime advances was carried on during the years of peace."

Dr. Semon spoke as the guest of Science Service on the CBS program, "Adventures in Science."

Science News Letter, September 8, 1945

ENGINEERING

Electricity and Gas Used In Under-Water Cutting

► A NEW method of under-water cutting of steel plates on sunken vessels, using electricity and gas in combination, has been developed in Moscow by Dr. K. Khrenov, who is responsible for many under-water cutting techniques that have been successfully used in the removal of collapsed bridges and ships from Russian river bottoms. In his method a stream of hydrogen is sent into the cutting electric arc, resulting in a considerable saving of electricity.

Dr. Khrenov suggested using electric-arc welding under water 13 years ago, when he found that the arc is protected by gas bubbles formed. The arc is protected in much the same way that the flame in a lamp is protected from air currents by the glass chimney. Arc welding and cutting under water are common practices throughout the world.

In his experimental work in his laboratory, Dr. Khrenov uses a large steel tank filled with water, with electric lights on its sides and bottom. It is large enough for a man in a diver's suit to work on large plates under the surface.

Science News Letter, September 8, 1945

METEOROLOGY-ELECTRONICS

Radar-Equipped Aircraft For Weather Forecasting

► RADAR may serve an important meteorological function, now that the wars are over, in assisting the U. S. Weather Bureau in weather forecasting, a job that it performed satisfactorily during the past months in the Pacific area. The Air Technical Service Command has released information about the radar reconnaissance aircraft that gave home stations prompt and accurate pre-flight weather information in areas where bombing flights were scheduled.

A 450-pound piece of radar equipment, developed at Wright Field and originally used for blind flying, was adjusted to provide the meteorological information as well as navigation data. With his set trained on the air around him instead of on landmarks below, the radar operator, by pushing a switch marked "weather" gets a picture of advance cloud formations on a special detecting screen. Tracking clouds instead of a target, the screen will indicate approaching storms at distances of from 100 to 200 miles.

These weather observation planes reported information back to their bases every half hour, and from the bases it was relayed to bombers and fighters flying near the storm area.

Ground search radars have also been adapted to provide meteorological data, and were also successfully used in the Pacific.

Science News Letter, September 8, 1945

CHEMISTRY

New Plastic Upholstery Does Not Burn Easily

► A FIRE-resistant, plastic-coated upholstery fabric, which is expected to be used in boats, restaurant seats and office furniture has been developed at the du Pont coated fabrics laboratory at Fairfield, Conn.

Created for use in aircraft, tanks and ships, the fabric consists of a flameproofed cotton cloth base with a flexible fire-resistant surface coating of synthetic resin. The pliable material will char in contact with a flame, but will not continue to burn when the flame is withdrawn.

Science News Letter, September 8, 1945

IN SCIENCE



SCIENCE FIELDS

GENERAL SCIENCE

Latin American Students Receive U. S. Scholarships

► CHEMISTRY or related fields has been chosen by 19 of the 216 Latin American students awarded scholarships for on-the-job training in the United States under the auspices of the Office of Inter-American Affairs. Ten have already completed their studies.

Three of the students now in training are from Brazil, two from Uruguay and one each from Argentina, Chile, Mexico and Paraguay.

They are located as follows: Alberto Lagomarsino, Argentina, pharmaceuticals, Merck & Co., Rahway, N. J., and Vick Chemical Co., New York. Wilson F. Falcao, Brazil, plastics, International General Electric Co., Inc., Pittsfield, Mass. Walter de Oliveira, Brazil, industrial chemistry, United States Corporation, Clewiston, Fla., and U. S. Industrial Chemicals, Inc., New Orleans. Luis Telles, Brazil, chemical products, Lehn and Fink Products Corp., Bloomfield, N. J. Luis Garcia, Chile, plastics, Waterbury Companies, Inc., Waterbury, Conn. Virginio Olmedo, Paraguay, clinical chemistry and bacteriology, Arlington County Hospital, Arlington, Va. Enrique Orvananos, Mexico, industrial chemistry, Reynolds Metals Company, Richmond, Va. Agustin Etcheverry, Uruguay, dyestuffs, E. I. DuPont de Nemours & Co., Inc., Wilmington, Del.; and Hugo Garrido, Uruguay, industrial chemistry, Paragon Packing Company, Astoria, Oreg.

Science News Letter, September 8, 1945

PSYCHOLOGY

Idiot Has Unusual Power to Visualize

► HOW a 29-year-old "idiot," whom tests indicate has a mental age of a year and a half, is able to do the surprising feat of naming the day of the week on which any date fell within the last 30 years was investigated by A. Dudley Roberts of Lapeer State Home and Training School, Lapeer, Mich.

It is not because of any extraordinary mathematical ability, but because of his unusual talent for visualizing something that he has once looked at for a long time, Mr. Roberts reported in the *Journal*

of *Genetic Psychology*. He is apparently able to "see" every page of the calendar no matter how many months since the leaf was torn off.

Although spastic paralysis makes him unable to do many things that babies of a year and a half can do, which may account for his low "mental age," his mind in many ways has developed to a level found among children from six to nine years of age. Unable to walk or talk, he answered questions by nodding or shaking his head. His vocabulary, ability to remember numbers and to handle simple arithmetic problems was found equal to that of children in the first or second grade.

The patient is reluctant to give away the secret of his special ability, but a clue was obtained from the fact that he not only could tell that Nov. 27, 1930, was on a Thursday, but that it was printed in red on the calendar.

To test the theory this suggested, a calendar was prepared for 1945, with which year he was not already familiar, using three colors, the various colors being given to the dates at random. Two days later, after correctly giving the week-day, he seemed startled when asked the color of the number. Yet in practically all 12 dates chosen, he not only gave the day of the week, but told whether it was printed in red, blue or black.

Science News Letter, September 8, 1945

PHYSICS

Dreams About Atomic Power Are Due for Revision

► DREAMS of the romanticists that atomic power has abolished work and responsibility are due for drastic revision.

In dealing with atomic forces, we are not playing with tame power plants of toy dimensions. The atomic reaction will not begin until amounts of matter measured in pounds and tons are brought together.

Once brought together, these fantastically dangerous materials are watched by automatic mechanical guardians and controlled by scientists at distant stations.

Momentary warnings give the signal for split-second adjustments, within ranges measured in centimeters, which mark the difference between orderly power production and such utter annihilation as is caused by the bomb itself.

A plant like this is nothing to carry around in your watch-case.

Science News Letter, September 8, 1945

METALLURGY

Super-Cutting Metal Alloy Used No Tungsten

► A SUPER-cutting metallic alloy which contains no tungsten was developed in Germany for war purposes, it is now revealed. The new cutting material consists essentially of vanadium and titanium carbides bonded with metallic nickel.

Information relative to the new material is given in an article prepared by Prof. Gregory Comstock of the Stevens Institute of Technology. It is released for publication by the War Production Board and will soon appear in several technical journals. Prof. Comstock, who is director of the Institute's powder metallurgy laboratory, went to Germany before V-E day, and followed the Army in its advances into the Reich. His job was an investigator for the government-sponsored Technical and Industrial Intelligence Committee to study German scientific and technological developments during the war.

Prof. Comstock was able to secure data covering the amount of the new alloy made in Germany and Austria. One of its principal values to the Germans was that it freed their limited supply of tungsten for other uses. No tungsten is produced in Germany, and Hitler's war machine depended for this essential metal in modern steels upon importations, principally from Spain and Portugal.

Science News Letter, September 8, 1945

NUTRITION

Earthworms Contain High Quality Protein

► IF WE hear, presently, of Mr. Watahiro going out into his Honshu garden to eat worms, it won't be entirely because nobody loves him. More likely it'll be because he's hungry.

Prof. Sidney S. Negus of the Medical College of Virginia, calls attention to two almost-overlooked bits of research on the possibility of common earthworms supplying protein in a pinch. First, two Japanese scientists called attention to the high quality of the proteins found in these squirming little animals. Then a pair of English chemists killed some worms, split them, washed out the dirt, dried the remains to original moisture content, and analyzed them. They found that 12% of the earthworm body is "meat."

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