INVENTION

Creosoted Lumber Now May Be Glued

➤ CREOSOTED PIECES of lumber can be glued together to form heavy structural timbers by a method on which a patent has been issued by the government. Until this method was developed it was thought impossible to glue creosoted wood.

In the process, pieces of lumber which are to be glued together to form the heavy timbers are creosoted in the usual manner, even to the extent of high impregnation. Then thin layers of the surfaces to be bonded are removed by dressing or planing. The procedure from then on is the same as for untreated wood.

When wood is creosoted by the pressure method, creosote coated fibers are formed near the surface. Fibers deeper within the wood have received creosote only by penetration. The dressing process removes the creosote coated fibers, resulting in surfaces that glue will hold.

Inventors are Fred Denig, Pittsburgh, Pa., and Walter P. Arnold, Orrville, Ohio. They were awarded patent 2,563,821. Rights have been assigned to Koppers Company, Inc., Pittsburgh.

Science News Letter, August 25, 1951

MARINE BIOLOGY

Living Organisms Exist Six Miles Under Water

➤ TINY living organisms exist in the famous Philippine Trough, one of the deepest parts of the ocean, six and one-half miles below the surface where the pressure is more than 15,000 pounds per square inch.

Dr. Claude E. ZoBell, professor of marine microbiology at the University of California's Scripps Institution of Oceanography is presently aboard the Danish scientific vessel *Galathea* in mid-Pacific and reported their existence.

In a letter to colleagues he revealed that living bacteria have been found in sediment cores taken from the bottom of the ocean off the Philippines at 10,380 meters or about 35,000 feet.

Dr. ZoBell's letter reported that he found approximately 100,000 bacteria per gram of mud in one core. The number is a little larger than he might have been expected to find, colleagues say.

Although it has been suspected that there are living things in the great deeps, the presence of bacteria in the recent cores is one of the first direct bits of confirming evidence. To live at such depths, under tremendous pressures and in very cold waters, creatures must be very specially adapted to their environment.

Using apparatus he designed himself, Dr. ZoBell has been able to reproduce the bottom conditions of great pressure and low temperature in his laboratory aboard ship. The samples were transferred to his pressure bombs, elevated to 15,000 pounds per square inch, and there, under conditions identical with those of the natural environment, showed active bacterial growth, Dr. ZoBell wrote.

Science News Letter, August 25, 1951

NUTRITION

You Can Use Chicken For Thrifty Main Dish

➤ CHICKEN will be plentiful and should be a good buy for protein food this coming month, the U. S. Department of Agriculture reports. For families who nevertheless find that chicken takes a big slice out of the food budget, and for those who are growing tired of fried, roasted and stewed chicken, the Agriculture Department's home economists suggest chicken scrapple. It makes a thrifty main dish as well as a good one, they say, and give the following recipe:

Ingredients for 8 servings: 3½ cups chicken broth; 1 tablespoon all-purpose flour; 1 cup corn meal; ½ teaspoon salt or 1 teaspoon if the broth has not been salted; ¼ teaspoon poultry seasoning; 2 cups ground or chopped cooked chicken.

To make: Heat half the broth in a double boiler. Blend flour, corn meal, salt, and poultry seasoning; mix with the remaining cold broth. Slowly stir the corn meal mixture into the hot broth. Cook, stirring until the mixture thickens. Cook for 30 minutes or longer. Stir in the chicken. Pour into a well-greased loaf pan. Cool quickly and refrigerate. When firm, cut in slices. Roll slices in flour and fry in a little hot fat until brown. Serve with chicken gravy.

Scrapple is a Pennsylvania Dutch dish, usually made with pork.

Other protein foods besides chicken which should be good buys because of plentiful supplies are fresh and frozen fish, cottage cheese, nonfat dry milk solids (powdered skimmilk) and peanut butter.

Science News Letter, August 25, 1951

MEDICINE

Drugs Can Conquer Spotted Fever Deaths

➤ DEATHS from Rocky Mountain spotted fever can now "be practically eradicated," five doctors at the University of Maryland School of Medicine declare. The means for accomplishing this are the three antibiotic drugs, chloromycetin, aureomycin and terramycin. Terramycin, a relative newcomer to the group, seems as effective in this disease as the other two, the University of Maryland physicians, Drs. A. M. Powell, M. J. Snyder, J. V. Minor, J. P. Benson and T. E. Woodward, find.

Science News Letter, August 25, 1951

IN SCIEN

METEOROLOGY

Pressure Changes May Help Predict Tornadoes

➤ TORNADOES MAY be predicted in time enough to permit adequate warnings as a result of work being done at St. Louis University by Dr. Edward M. Brooks.

Dr. Brooks used a speeded up barograph which gives in greater detail sudden changes in barometric pressure. He confirmed, using this instrument, that a sudden rise takes place just before a thunderstorm breaks and he discovered that the rear side of a thunderstorm or shower may have a much sharper drop in pressure.

Dr. Brooks is seeking proof of his theory that a tornado is surrounded by a low pressure area of about ten miles and that tornadoes may occur when the pressure drops abruptly in the first portion of a thunderstorm if, at the same time, there is a strong wind blowing into the storm.

Now Dr. Brooks is waiting for a tornado. He believes that work done on a tornado itself is all he needs now to bear out his theory.

Science News Letter, August 25, 1951

ENGINEERING

New Storage Battery Uses Lead-Silver Alloy

➤ A NEW storage battery for automobiles, which will give years of service longer than present types, has a unique grid. This is a framework of a lead-silver alloy with spaces filled with a lead composition in paste form as the active material.

Important also is the use of a milder electrolyte, which in reacting with the lead paste material does so with less expense to the battery life. Also important are separators to insulate the positive and negative plates in the battery. They are made of a special plastic material which has proved more efficient and enduring than those made of wood or rubber.

The new battery was developed by the Electric Storage Battery Company, Philadelphia.

The lead-silver grid was developed to minimize the problem of battery failure due to overcharging. It was tested over a six-year period in an experimental battery which contained two cells with the new grids and a cell with the conventional lead-antimony grid. At the end of the test, the new grids had many months of life left while two sets of the conventional grids had been worn out.

Science News Letter, August 25, 1951

CE FIELDS

NUTRITION

Shark Meat Made Suitable for Food

➤ SHARK meat may become a more important human food with a process of preparation for canning which brought patent 2,564,487 to Perry W. Mader and Gerstle I. Mader, Robertsdale, Ala. Rights are assigned to Food Research Institute, Inc., of Alabama.

Fresh shark meat, these inventors say, is toxic to men and dogs but shark meat is quite wholesome in the dried state or when semi-putrid. It is used in parts of the world as food but only when it has become partly rotten or dried. This new process removes from fresh meat the chemicals which cause the toxicity. The meat, still fresh, can then be preserved in cans and eaten with safety at any time.

The trimmed meat is boiled in an open kettle. A sudden release of a large amount of carbon dioxide in the boiling water is provided. Then the pot is allowed to boil over for a limited time. The harmful ingredients in the shark meat are carried out in the overboiling.

Science News Letter, August 25, 1951

GENERAL SCIENCE

NSF May Take Over AEC Fellowships

➤ MOST of the controversial Atomic Energy Commission fellowship program will probably be taken over by the new National Science Foundation in 1952-53, if Congress provides the funds to NSF. Only specialized fellowships, providing for study of direct use of the atomic energy program, will be continued by AEC.

One stumbling block in the transfer of the fellowship program, is the matter of security clearances now required by law. The National Science Foundation wants to steer as clear as possible of fellowship programs which require clearance by the FBI. At present the approximately 300 AEC fellows must be checked by the FBI.

A second stumbling block is the matter of appropriations. NSF has asked Congress for $14,000,000 for the present fiscal year, but this has not been finally acted on as yet. (See p. 117.) It has not been decided whether AEC or NSF would provide the money for the fellowships.

Officials of the AEC say that most of their fellowships were for general education in science. They point out that, at the time the fellowship program was started, no other agency could do the job, which was considered vital to the long-range defense of the country. Now, say these officials, the NSF, set up to do that sort of job, can carry on.

Shortly after the AEC program was begun, Congress required that all students be checked by the F. B. I. The National Research Council, which administered the program, protested and bowed out of the picture, except as advisers. The program now is administered by AEC's Oak Ridge Institute of Nuclear Studies.

Science News Letter, August 25, 1951

CHEMISTRY

New Test for Alkali Shows Soil Toxicity

➤ WHETHER or not alkali in the soil will interfere with the growing of plants may now be determined in 60 hours in many cases.

A new test developed under the direction of Dr. Roy Overstreet, professor of soil chemistry at the University of California's College of Agriculture, can check the soil any time of year in the laboratory. Materials necessary for correcting alkali soils can then be applied before a crop is planted.

"This is not a test of soil fertility," Dr. Overstreet emphasized. "It is a measure of soil toxicity. Alkali soils are usually fertile after the salts are removed."

The test can also check the efficiency and speed of materials used to correct an alkali soil.

Radish seedlings are used in Dr. Overstreet's test. Thirty-six hours after germination the seedlings are placed in a sample of alkali soil. The growth in the next 24 hours tells whether the soil contains too much alkali. Too much sodium and sodium salts in the soil inhibit plant growth.

Further experiments are now underway to find out if this test can be applied to other types of soils.

Science News Letter, August 25, 1951

INVENTION

Lawn Leaves Powdered To Make Humus

➤ LEAVES fallen from trees on the lawn are picked up, reduced to fine particles and returned to the grass to make humus by a manually-operated sweeper and disintegrator invented by Arvid Bjorklund, Minneapolis, Minn., on which patent 2,564,352 was issued.

It has a handle like a lawn mower for pushing, and geared wheels to operate the mechanism. It has rotating brushes much like a carpet sweeper to gather up the leaves. Inside is a disintegrator which includes a rotor with teeth. These convert the leaves into fine particles which are passed downward to the lawn.

Science News Letter, August 25, 1951

CHEMISTRY

Sulfur Recovered from Industrial Gases

➤ PART of the present shortage of sulfur may be met by a process for the recovery of the essential element from hydrogen sulfide and sulfur dioxide given off in certain industrial processes, particularly in refining petroleum oil and natural gas. The recovery of the sulfur in these by-product gases will not only obtain a valuable product but also prevent air pollution with gases harmful to animals and plants.

The inventors of this improved process for sulfur recovery are Robert Vose Townend, Arlington, N. J., and Donald Hoyt Kelly, New Hyde Park, N. Y. Allied Chemical and Dye Corporation of New York City has acquired the rights to the patent, 2,563,437.

The process consists in passing the hydrogen sulfide through a solution made by contacting sulfur dioxide with a dilute aqueous solution of aluminum sulfate and sulfuric and sulfurous acid. Elemental sulfur settles out.

Science News Letter, August 25, 1951

CHEMISTRY

Four Raw Materials May Increase Cortisone

➤ CORTISONE for every arthritis sufferer now can become a reality instead of a hope. Final steps in synthesizing it from four substances abundant in nature have been taken by chemists at Merck and Co.

Cortisone by the new process will not be quickly plentiful. The process must be improved, supplies of raw materials must be assured and facilities for production must be built. But the availability of more cortisone for the future is now assured.

Merck chemists responsible for this feat are Drs. John M. Chemerda, E. M. Chamberlin, E. H. Wilson and Max Tishler.

The four natural substances they started with are ergosterol, diosgenin from the Mexican yam, stigmasterol from soy beans and cholesterol from the spinal columns of cattle and from wool fat.

First and most difficult step of synthesizing an allopregnane compound from these chemicals was announced by the Merck group in May. Now they report (JOURNAL, AMERICAN CHEMICAL SOCIETY, August) the final steps involving transformation of the allopregnane compound into cortisone.

In the same issue of the chemical journal, Harvard scientists announce completion of the final links between a steroid chemical made from simple starting materials and a series of chemical reactions known to produce cortisone. The Harvard work was done by two research teams, one headed by Prof. Louis F. Fieser and the other by Prof. Robert B. Woodward.

Science News Letter, August 25, 1951