METALLURGY

New High-Speed Process Coats Wire with Tin

➤ A NEW high-speed process for depositing a tin coating of any desired thickness on any gauge of electric wire is being exhibited in Cleveland at the National Metals Congress by E. I. du Pont de Nemours & Co.

Copper wire used in the electrical industry has to be coated with tin for protection before the insulating rubber is put on. Until now, a common practice has been to dip the wire in molten tin. The heat from the molten tin causes the copper wire itself to become soft as it picks up the tin, forming a copper-tin alloy on the wire, which increases its electrical resistivity.

The new electrolytic process deposits tin on the wire without producing an alloy, and therefore does not affect resistivity. The process requires only half as much tin as the older methods.

Central unit of the new process is a special wire-plating machine, 30 feet long. It was designed and constructed by the National-Standard Company of Niles, Mich. The apparatus is arranged so that there is a minimum of tension and drag on the wire. The wire zips in and out of as many as seven baths of cleaning and plating solutions. Between baths, excess fluid of the wire is "wiped" off by blasts of compressed air.

Wire only five thousandths of an inch thick can be coated at the rate of 800 feet a minute, without breakage. Heavier strands of wire can go through at even higher speeds.

Science News Letter, October 28, 1944

MILITARY SCIENCE

Tough Searchlight Is Developed for Warships

➤ A SIGNALING searchlight for American warships, tough enough to withstand the pounding of heavy ocean waves and the shock of big guns fired close by, has been developed and tested in the laboratories of the Westinghouse Electric & Manufacturing Co., and is now ready for duty.

A special glass, ten times stronger than plate glass, is used for the lens; it not only stands the severe shocks of the waves and the firing guns, but resists sudden changes of temperature. This glass can be heated to a very high temperature and then plunged into icy water without showing the slightest strain, it is claimed.

The searchlight flashes its message in code by projecting a beam of light through a series of Venetian-blind shutters opened and closed by hand to simulate dots and dashes. It sends out a light beam visible on a clear night for many miles. The shutters are designed to take severe punishment without interference with their operation.

Science News Letter, October 28, 1944

NUTRITION

Potatoes Converted into Paste for Making Jelly

➤ A FAIRLY simple method of converting potatoes into a sugary paste for use in making jelly and candy has been evolved by Professors Davidov, Voitkevich and Maisuryan of the Lenin Academy of Agricultural Science, in Moscow. Either fresh or frozen tubers may be used in making the jelly-like substance. Not only the starch, but also the protein and mineral salts contained in potatoes can be used in this new method, according to the U.S.S.R. Central Food Institute. From 2% to 5% powdered malt from barley, rye or wheat is added to the hot mashed potatoes. This transforms the starch into glucose.

The resulting sweet, creamy substance is steamed until it evaporates into a dark brown paste. One pound of paste can be made from two and a half pounds of potatoes. Nearly half of the paste consists of sugars which preserve all the valuable protein and other nutritive elements of potatoes.

Science News Letter, October 28, 1944

ELECTRICITY

Tough Nylon Compound Coats Electric Wire

➤ A NEW nylon compound coating on electric wire gives unusual protection because it is tough, resistant to abrasion and heat, and impervious to attack by practically all solvents. Ignited by a free flame, the nylon coating ceases to burn when the flame is removed, and is therefore self-extinguishing. The new coating is a development of E. I. du Pont de Nemours and Company.

The coating is applied by an extruding process and wire can be coated at rates of over 1,000 feet per minute. It is laid snugly over the wire at an even thickness, which is determined by the wire speed as it passes through the plastic. The new compound may be found usable as a sealing material to fill the interstices between individual wires.

Science News Letter, October 28, 1944

IN SCIEN

PALEONTOLOGY

Mastodon Bones Found In Drainage Ditch

➤ BONES of a mastodon, primitive Ice Age elephant, have been found protruding from the bank of a drainage ditch on the farm of Carl Work, about 12 miles from Wooster, Ohio. Discovery is announced by Prof. Karl Ver Steeg of the College of Wooster (*Science*, Oct. 20).

The skeleton when found was incomplete, with the bones of the rear part of the body missing. They had apparently either been carried off by the excavating machine when the ditch was dug, or had been subsequently lost through erosion of the bank. The skull and tusks are in good condition. The tusks, which are complete, are three feet long and four inches in diameter at the base. The animal was small, as mastodons go.

The mucky nature of the soil in which the bones were embedded suggests that the area was a Pleistocene swamp, in which the luckless beast became mired and died.

Science News Letter, October 28, 1944

OCEANOGRAPHY

Scottish Research Body Studies Seaweeds

➤ SEAWEED beds that fringe Scotland's rocky coasts will be more intensively studied, with an eye to their greater economic exploitation, by the newly formed Scottish Seaweed Research Association. Its organization, in cooperation with the British Ministry of Supply and the Scottish Council of Industry, is announced in the United States in *Science* (Oct. 20).

A research ship, the Prospecto, has been especially equipped for collecting and investigating seaweed species growing in deep water. Other researches will be conducted from shore stations.

Seaweed has been used locally for many years as an agricultural fertilizer, either directly or after burning. To some extent it has also been fed to livestock. More modernly, chemical industries have utilized it as a source of iodine, potash, adhesives and other products. Greater efficiency in these industries, as well as new uses, are the objectives.

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CE FIELDS

MEDICINE

Transparent Film for Use On Oxygen Tent Canopies

➤ TRANSPARENT film is now being used in place of conventional heavy rubberized fabric for the canopy of oxygen tents. These tents are used in the treatment of pneumonia, heart disease, postoperative and similar cases where air conditioning and oxygen therapy are combined. With the air conditioning feature alone, the tents are used for cases involving carbon monoxide poisoning, heat prostration, asthma, for sufferers from hayfever and other ailments caused by pollen.

Developed by cooperative research involving the Continental Hospital Service, Cleveland, and the Goodyear Rubber Company, producers of the transparent film known commercially as Pliofilm, the new oxygen tents have distinct advantages over old-type rubberized tents.

Since the film is transparent, it is possible to keep patients under constant observation. The tent canopies can be discarded after use, thus eliminating the danger that a new patient may become infected from a previously-used canopy. Discarding the canopies saves valuable man-hours needed formerly for cleaning and sterilizing the canopies after each use.

Science News Letter, October 28, 1944

PLANT PATHOLOGY

Crown Gall of Plants Cured by Penicillin

➤ CROWN gall, a disfiguring and destructive disease of plants that is often called plant cancer, has been cured with penicillin in the plant pathology laboratories of the University of Arizona, Prof. J. G. Brown, head of the department, recently announced.

Crown gall is caused by a bacterial species, differing in this respect from human and animal cancers which it resembles in many other ways. So far as known, human and animal cancers are never directly produced by bacterial attack.

Regardless of whether or not Prof. Brown's discovery proves to have significance in the fight on human cancer, it promises practical results in the immediate field of plant pathology, if it leads to a practical treatment of crown gall in the field. This disease is known to attack at least 100 kinds of plants, and is an especially destructive enemy of young shrubs and trees in nurseries and orchards.

The crude penicillin extract used in Prof. Brown's experiments successfully cured the soft type of crown gall. It cost two cents per quart, and a quart was sufficient to destroy many small galls.

Last spring, Prof. Brown and Miss Alice M. Boyle announced the first known successful penicillin attack on a bacterial species causing a plant disease. Under laboratory conditions, they used the drug in killing the germ of the destructive rot that has been decimating the picturesque giant cactus, or sahuaro, in the Southwest.

Science News Letter, October 28, 1944

INVENTION

Trenching Machine Cuts With Screw, in New Patent

➤ A DEVICE as old as Archimedes (d. 212 B.C.) is put to the modern use of digging trenches for pipe lines in the invention covered by patent 2,360,334, issued to F. A. Engel of Roselle, N. J., and D. J. Manning, Mountainside, N. J., and assigned by them to the Elizabeth Products Corporation.

Archimedes, it will be recalled, lifted water out of a ship's hold by means of a long helical screw enclosed in a tube. In the new adaptation a similar screw, with a sharp cutting edge, is drawn slowly through the soil at an angle, power-turned as it moves along. Its exposed side is covered with a metal half-cylinder, to guide the loosened soil to the surface, where it is carried out of the way by a suitable conveyor.

Science News Letter, October 28, 1944

AERONAUTICS

Navy Warbird Speeds Into Path of The Setting Sun

See Front Cover

➤ SYMBOLIZING the part that U. S. aircraft carriers are playing in hastening the descent of Japan's Rising Sun, this carrier sends a huge craft into the path of the setting sun somewhere in the Pacific. Silhouetted barrels of five-inch guns command the sky over the flat-top. Elsewhere, thousands of other planes are heading into the sky to hasten the day of final victory.

Science News Letter, October 28, 1944

STATISTICS

Peoples Moving to America Gained Longer Lives

➤ PEOPLES of many lands moving to America found they gained not only a better life but also a longer one. Mortality among the foreign born today is no greater than among the native born, who have a life expectancy greater than that of any other peoples.

People born in foreign lands at the turn of the century died, on the average, much sooner than those born on American soil, the death rate being about one-fifth higher, according to statisticians of the Metropolitan Life Insurance Co. Living in crowded and unhealthful tenements, ignorance of modern sanitary principles and working under sweatshop conditions were largely responsible. But as the foreign born were educated to the democratic way of life, their health handicaps diminished, until by 1940 the death rates for the two groups were about equal.

"In these four decades, the foreign born, having the greater room for improvement, have also made the more rapid decrease in mortality, their death rates having been reduced by almost one-half, while the native born experienced a reduction of two-fifths," the company reports.

Science News Letter, October 28, 1944

INVENTION

Warlike Inventions Are Still Outstanding

➤ AS THE war goes on, so do warlike inventions. An outstanding one in this class is a self-lubricated driving band for artillery projectiles, on which patent 2,360,473 was granted to W. G. Calkins of Detroit, assignor to the Chrysler Corporation. In place of the solid ring of soft copper conventionally used, it consists of a ring of sintered copper alloy impregnated with graphite and other lubricating materials, the whole being bonded to a backing ring of steel which secures it to the shell.

An aerial bomb made of porcelain is the somewhat Chinese-sounding proposal advanced by James D. Long of Laurel, Md., in obtaining patent 2,360,696. The idea is to conserve metal, and at the same time obtain an effective, low-cost fragmentation missile. Shrapnel pellets (which may also be made of porcelain) are optional inclusions within the explosive charge.

Science News Letter, October 28, 1944