

## ENGINEERING

**Static Reduced By Film Inside Inner Tube**

**D**ANGEROUS static electricity that develops on automobiles can be reduced by injecting two grams (15 grains) of a special conducting powder into the inner tube through the valve stem, according to a report by S. M. Cadwell, N. E. Handel and G. L. Benson, of the United States Rubber Co., to the American Chemical Society.

The powder distributes itself and adheres to the walls of the inner tube, forming a continuous conducting layer. This does not prevent the generation of static electricity on the tire tread, but the negative charge on the tread induces a positive one on the conducting layer, and the strong attraction between these two charges of opposite sign reduces the charges that would otherwise be induced on the body of the car.

Road tests of cars whose tires had received this treatment reached a maximum of 1200 volts on the car, and the charge disappeared quickly on standing. This is to be compared with 5,000 to 7,000 volts generated on cars whose tires had not been treated.

*Science News Letter, November 15, 1941*

## GEOLOGY

**Seek Way Into Caves Which May Rival Carlsbad**

**A**SEARCH for openings into huge caverns near Winslow, Ariz., is being pushed by local citizens, in the hope that Arizona has unknown underground sights rivaling Kentucky's Mammoth Cave and New Mexico's Carlsbad Caverns.

Roofs of some of the Arizona caverns are believed to have been smashed down during the terrific impact of a 10,000,000-ton meteorite that crashed in northern Arizona, 25,000 years ago.

Interest in the caves was aroused when a TWA pilot, Capt. H. H. Holloway, sighted 38 craters between Chevalon and Wild Cat Canyons, and speculated that the giant meteorite had been responsible for forming the craters when it hit the earth 42 miles away. An expedition to study the 38-crater area, organized by Edsel Ford and TWA, was led by Dr. Harvey H. Nininger of the Denver Museum.

Agreeing with Capt. Holloway's view that the craters were probably a secondary result of the meteorite hit, Dr. Nininger said:

"A network of caverns had developed by the usual process of solution, and when the impact occurred the roofs of the caverns were shaken down, producing a unique and closely aggregated group of walled sinks."

After riding over the area on horseback, Dr. Nininger stated:

"I have no doubt that the unexplored Chevalon Canyon is pierced with caves and small openings which lead to great underground chambers. Many caves of enormous extent have only small connections with the surface and therefore remain undiscovered."

If cave openings are located, the Department of the Interior is to be asked to assign engineers and surveyors to study and map the area.

*Science News Letter, November 15, 1941*

## ASTRONOMY

**Major Sun Mystery Is Still Unsolved**

**T**HE COMING minimum in the 11-year solar cycle expected to occur within the next three years will give astronomers a chance to check again on one of the sun's greatest mysteries—the sudden reversal in the magnetic polarity of sunspots.

Dr. Seth B. Nicholson of the Mount Wilson Observatory in a report to the Astronomical Society of the Pacific stressed the importance of future research in this field.

So far the effect has been observed only three times. Although discovered 29 years ago by the late Dr. George Ellery Hale, former director of the Mount Wilson Observatory, no satisfactory explanation of the phenomenon is known.

Sunspots almost always occur in pairs having opposite magnetic poles, like the ends of a horseshoe magnet, Dr. Nicholson explained. At present in the sun's northern hemisphere the western half of a spot-group has a polarity like the north-seeking pole of a magnet. But this condition will be reversed for spot-groups of the new cycle if they behave as they have at previous minima.

"Despite the fact that we have accumulated a vast amount of exact information about the way sunspots behave, we still know very little about what makes them behave that way," he concluded. "We may reasonably hope that some of the most fundamental questions of physics, chemistry, and astronomy may be illuminated by an intensive study of solar magnetism."

*Science News Letter, November 15, 1941*

**IN SCIEN**

## BOTANY

**Moss Growth in Caves Made Possible by Lights**

**G**REEN mosses grow in the Luray Caverns of Virginia supported by the energy of the little man-made suns called electric lamps, strung along the rocky walls and ceilings to guide the steps of visiting tourist parties. Many persons have noticed the green color, but it remained for a scientist, Walter Lang of the U. S. Geological Survey, to have curiosity enough about its nature to collect some and send it away for identification (*Science*, Oct. 31).

At Harvard University, it was determined to be a moss, but its exact identity could not be made out. A botanist at the University of Michigan who specializes in the study of mosses, Prof. W. C. Steere, identified it as *Leptobryum pyriforme*.

The spores of the moss were probably originally carried into the caverns by surface water. In the caves' normal darkness they would have perished. But because of the artificial illumination they were able to germinate and now thrive wherever the light is strong enough.

*Science News Letter, November 15, 1941*

## PLANT PATHOLOGY

**Subterranean Gas Attacks Halt Eelworms' Inroads**

**E**ELWORMS, borers from beneath that cause large losses to all kinds of plants, can be effectively kept away from narcissus bulbs in commercial plantings with subterranean gas attacks, Dr. Benjamin G. Chitwood of the U. S. Department of Agriculture has discovered. (*Phytopathology*, August)

Dr. Chitwood uses two kinds of chemicals, ethylene chloride and chloropicrin. The latter is the tear gas of World War I fame. Either can be employed alone, or both in a mixture. The chemicals are injected into small holes in the soil, a few inches deep and a few inches apart. The pests can be kept under control in the field at a cost of \$110 an acre.

*Science News Letter, November 15, 1941*

# CE FIELDS

## FORESTRY

## Fungus-Sick Trees Recover With Chemical Injections

CHEMICAL injections into sick trees, suffering from a fungus wilt disease, have arrested their illness and caused them to resume their growth, in experiments reported by Dr. Frank L. Howard of Rhode Island State College (*Science*, Oct. 10).

The chemical used is the di-hydrochloride salt of di-amino-azo-benzene. It antidotes the toxin produced by *Phytophthora cactorum*, which causes a wilt disease of many plants and the bleeding canker of hardwood trees.

Prof. Howard injected successfully 350 trees known to be infected with the bleeding canker fungus. Time will tell whether the cures are permanent and whether chemotherapy can be used on a large scale in control of plant disease as it has in human ills.

*Science News Letter, November 15, 1941*

## PUBLIC HEALTH

## Troops in North May Need Anti-Diphtheria Toxoid

U.S. soldiers and sailors sent on defense duty to northern latitudes should be given shots of anti-diphtheria toxoid, it appears from the report of Dr. Stafford M. Wheeler, of Harvard University, and Dr. Allan R. Morton, Commissioner of Health of Halifax, N. S., to the American Public Health Association.

Without presuming to recommend action to naval and military authorities, these physicians emphasized that the danger of a non-immunized person's getting diphtheria is greater the farther north he travels. The serious diphtheria epidemic in Halifax last winter showed that grown-ups as well as children in Northern regions need toxoid to protect them against the disease.

More than half the patients in this epidemic were adults. Even more surprising was the discovery that many more grown-ups in the Halifax area are susceptible to the disease than in regions farther south. Dr. Wheeler made a geographic study of diphtheria

susceptibility among grown-ups and found it was least in Alabama, and increased step by step as the tests were made on groups in Virginia, Baltimore, Kingston, Halifax, and Glace Bay, a Cape Breton town one hundred miles north of Halifax.

Why natural resistance to diphtheria grows less as one travels north is not yet known. The fact, however, suggests that not only soldiers and sailors but workers in defense industrial plants in the north may need toxoid to protect them against this sometimes fatal sickness which, even when not fatal, requires at least one month for recovery.

*Science News Letter, November 15, 1941*

## METALLURGY

## Electroplating With Iron Worth Further Study

PLATING a nobler metal with iron may seem like plating a gold watch with brass. Yet there are uses for just such a process. Although the commercial uses of iron plating are minor in character, they are sufficient in number and importance to justify further study of the subject, in the opinion of C. T. Thomas, technical aide of the U. S. Bureau of Engraving and Printing, expressed in a paper presented before the Electrochemical Society meeting in Chicago.

The most active interest in iron plating today, he declared, centers around its use in electroforming molds for rubber, glass and plastics, as perfected in the laboratories of the United States Rubber Company. The iron is electro-deposited on a pattern, thus forming a strong mold for the materials mentioned.

Another recent use is the production of electrolytic iron powder for plastic metals—developed at the Mellon Institute—which can be molded and compressed into shape and then becomes a solid mass like any other plastic.

Iron is cheap and abundant and has strength. It can be plated on the back of a finer metal to give it strength. This process has been used for making the plates for printing government currency and bonds. A nickel face is first deposited electrically on the mold, taking all its delicate detail. This is then backed by a heavy deposit of electrolytic iron.

Electrically deposited iron is very pure, resists rust and has unusual magnetic properties.

Iron plating has been used for more than a hundred years, Mr. Thomas said, but most of the uses are now obsolete.

*Science News Letter, November 15, 1941*

## ARCHAEOLOGY

## Indians Gave Dead Town White Sand Shroud

A DEAD town that Indians of long ago covered with a white sand shroud is the strange discovery of archaeologists in southwest North Carolina.

Belief that a large town which later grew up over the town grave was Guasili, where De Soto visited Cherokee Indians, is expressed by Frank M. Setzler of the U. S. National Museum and Jesse D. Jennings, in a Smithsonian Institution publication, just issued.

Long before De Soto, early Indians settling at this place built a curious temple of stone and wood with a wide stone bench around it, excavations have revealed. The roof of this temple collapsed, and the wreckage was then covered with earth, making a small mound. This mound and the surrounding village became the dead town, which was buried later in sand. And then, another Indian group used the mound as a core for a greater, taller mound with temples erected on top, and in the mound they interred six bodies — possibly religious sacrifices.

De Soto, it is believed, may have viewed this mound when it was topped by these temples, reached by stairs of log.

*Science News Letter, November 15, 1941*

## PALEONTOLOGY

## War Delays Replicas Of Dinosaur-Age Fish

MUSEUM visitors the world over will have to wait for the end of the war before they can see replica casts of the rarest fish in the world, the dinosaur-age, blue-eyed giant caught three years ago off the east coast of South Africa.

Word received in the United States from the East London, S. A., Museum states that the trustees of that institution have decided against having casts of the specimen made at the present time, because of the international situation. The Museum, however, wishes to be informed by any institution wishing to obtain a cast as soon as shipment becomes practicable, to facilitate plans for having them made.

The fish, belonging to a family thought to have become extinct 50 million years ago, is the greatest prize of the East London Museum. It has been given the scientific name *Latimeria chalumnae*.

*Science News Letter, November 15, 1941*