

## PLANT PATHOLOGY

**Watch For Disastrous Dutch Elm Disease**

**T**REE LOVERS everywhere are called upon by the U. S. Department of Agriculture to examine their elms for any signs of the Dutch elm disease, an outbreak of which has just been discovered in New Jersey.

This new epidemic infection is in the vicinity of our largest seaport and is in an area where the elm is one of our most important trees, and it is also feared that the disease may be present in other localities from which it has not yet been reported.

Watch for wilting or yellow or brown leaves accompanied by brown streaks in the young wood. When such cases are found, cut pieces of the infected twigs as big as a lead pencil and send them to the Dutch Elm Disease Laboratory, care Experiment Station, Wooster, Ohio. There are other diseases with the same symptoms and the cause of the trouble can not be definitely diagnosed till the specimens have been cultured. Ruthless destruction of diseased trees is the only safe procedure recommended by the experts. Not enough is known about the life history of the fungus to allow any other method. Widespread damage to elms has been caused by the disease since it was first discovered in 1920 in Holland, whence it spread to Belgium, France, Germany and England.

Sixty-nine infected trees have been found scattered among the elms of a 150 square mile area in Essex, Hudson and Passaic counties of New Jersey. The Public Works Administration has authorized the U. S. Department of Agriculture to expend up to \$80,000 to combat the disease.

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## ARCHAEOLOGY

**Old Rock Writings Discovered in Oregon**

**I**N AN ISOLATED area of Lake county, Oregon, on the meandering line of an ancient lake so inaccessible that it can hardly be reached on foot or on horseback, the oldest rock writings known in the Pacific Northwest have been discovered. This is the announcement of Dr. L. S. Cressman, Oregon state university ethnologist.

The rock writings are of that type known to students of ancient tribes as

petroglyphs. Once deeply engraved on basalt cliffs overlooking a lake, these rock writings have been obliterated in places by centuries of weathering. The writings were found scattered along miles of cliffs, on sheltered slopes.

In one place petroglyphs were found that had been covered with pictographs, that is, the rock carvings had been traced with paint.

It is believed the rock writings in time will enable students of aborigines of western America further to trace the migration of tribes and may prove of value in the work of charting the trails of ancient man following the immigration of Asiatic peoples to the North American continent.

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## CHEMISTRY

**Rubber Varnish May Aid Tire Repair**

**T**IRE REPAIRING and protection may be improved by the new German process of painting newly developed rubber varnishes on worn tires to protect them against heat and wet weather.

The varnishes are prepared by heating fatty oils such as castor oil with 3 to 8 per cent. of sulfur and the sticky elastic product is then applied to the worn spots. As the liquid passes into the solid state it coagulates into a rubber-like solid which is highly resistant to friction.

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## CHEMISTRY

**Artists' Crayons Made From Oat Hulls**

**A**RTISTS' crayons from agricultural wastes are a possibility as the result of recent studies at Iowa State College.

By treating furfural, an oily yellow liquid made from oat hulls, with various simple chemicals, a black material suitable for artists' crayons has been made. Tests show that crayons made from the new material are satisfactory in actual use in comparison with charcoal.

By varying the chemical treatment given the furfural, crayons of varying degrees of hardness and blackness may be secured—a thing impractical with charcoal but desirable from the artists' standpoint.

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**IN SCIEN**

## ASTRONOMY

**Falling Stars Brightest In Electrified Layer**

**T**HE PATHS of falling stars are brightest at a height of about ninety kilometers, just below the lowest electrical roof of the world, according to the calculations of V. Malzev of the Tashkent Astronomical Observatory, U. S. S. R., communicated to *Nature*.

Fireballs, too, occur at about the same height, according to numerous observations, and within the same region have been observed the peculiar luminous night clouds, rather like "cirri" in appearance, which have been noted at rare intervals.

The connection between these luminous phenomena and the electrical region of the upper atmosphere below which they seem to occur will no doubt form the subject of further inquiries by scientists.

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## SEISMOLOGY

**Earthquake Increases Size Of California Lot**

**A** PRINCIPAL street of Los Angeles, Ocean Avenue, had its width between curbs widened 6 to 8 inches by the earthquake of March 10 while 11-inch cracks were opened in side streets.

These geological changes are reported to have occurred in the sandy spit between Alamitos Bay and the Pacific Ocean, an area roughly 1½ miles long and 400 to 900 feet wide. Previous reports of the earthquake have not accentuated changes of such magnitude. It is estimated that the sandy spit was widened by the quake four feet in a number of places.

A man living in this area measured his lot and found to his apparent pleasure that it was 1½ feet longer than before the shake.

Four extra feet of pipe were necessary in repairing water pipes along typical cross streets. Nevertheless little damage was done to houses in this area.

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# CE FIELDS

## ENTOMOLOGY

### Perfume of Female Moths Lures Males to Betrayal

EVER SINCE the Philistines used the wiles of the beautiful Delilah for the entrapment of the strong but not-too-clever Sampson, crafty men have played the same game for the betrayal of the males among their enemies. Now the ancient trick is being used on insects; in a technical bulletin of the U. S. Department of Agriculture, C. W. Collins and S. F. Potts tell how.

The objective is to discover new infestations of the gypsy moth, whose caterpillars have for years been exceedingly destructive to New England shade and forest trees. It is desired to find new small colonies in the regions outside the main infestation.

The trick is done by baiting insect traps with an extract made from the bodies of unmated female moths, which has a scent imperceptible to human nostrils but powerfully attractive to the males of the gypsy moth tribe. They have been known to fly for more than two miles to reach one of these treacherous love-potions.

The scent is manufactured from the bodies of female moths in New England, where they are numerous, and the traps are set up in districts suspected of harboring new infestations. If male moths appear in the traps, the entomologists search the neighborhood until they find the infested spot. Then they go to work with poison sprays until they have wiped out the whole colony.

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## PHYSICS

### Physicists Seek Single Electron Acting as Wave

A GOAL of physics just now is to discover one single electron acting as a wave.

To clarify some of the latest enigmas of the most advanced knowledge of our physical world, Profs. P. L. Kapitza and P. A. M. Dirac, theoretical physicists at the University of Cambridge, have appealed to fellow experimental physicists

to perform a crucial experiment, that of passing a beam of electrons through a double beam of light.

Frankly they do not know how the experiment can best be done and they can only hope for success.

Since Prince Louis de Broglie, the French Nobelist in physics, showed that electrons have wave characteristics and Dr. A. Heisenberg, the young German physicist, stated that absolutely precise simultaneous measurements of both the position and the momentum of a particle were impossible, physicists have been inquiring into the behavior of individual electrons. These experiments have always shown an uncertainty in one of the fundamental quantities measured.

The new scheme suggested by Profs. Kapitza and Dirac is to let a green light shine on a perfect mirror and be reflected straight back. The superimposed waves of light will form a periodic field through which electrons will be shot at a definite speed. This field is expected to act on these electric particles which may also be considered as waves and bend them slightly.

It is hoped that the interference of the light wave field and the electron wave field will produce a pattern on a screen or detecting device. Scientists reading this pattern may acquire new conceptions of the behavior of single electric particles.

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## ENGINEERING

### Cold Process May Eliminate Picturesque Rivet Catcher

THE PICTURESQUE profession of catching hot rivets may disappear among steel workers.

Cold-driven rivets instead of heated rivets make the seals on the new 10,000,000 cubic foot gas-holder built for the Philadelphia Gas Works.

The ordinary practice is to heat the rivets to a cherry-red and pound the point into a second head after it is placed in a hole through two pieces of steel. On cooling, the rivet contracts, drawing the steel plates together. It is now found that cold rivets with small heads can be hammered into position tightly enough to make a seal.

The rivets driven in this manner have a greater tensile strength and will withstand a greater shearing force. The elimination of the labor of heating and catching the hot rivets is an additional advantage.

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## MEDICINE

### Artificial Heart Aids Blood Transfusions

BLOOD transfusions may be carried on more rapidly and conveniently than in the past, through the use of a new electrically driven "artificial heart" which is interposed between the blood donor and the receiver. The "heart," which is the invention of a Paris surgeon, consists of a small rotary pump which gives the transfused blood a "boost" with impulses simulating those of the natural pulse.

Among other advantages claimed for the device is the elimination of chemicals which are frequently added to prevent clotting in the older type of transfusion operation.

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## FISHERIES

### Clams "Doped" to Make Shucking Process Easier

DOPING clams before shucking them makes the shucking process easier. Not necessarily for the clams, but certainly for the workmen who do the shucking. For it causes the mollusks to open their shells so that the shuckers do not need to pry them apart with violence.

A new process of narcotizing clams has been worked out at the Beaufort, N. C., station of the U. S. Bureau of Fisheries by Dr. Herbert F. Prytherch and Dr. Vera Koehring, who recently developed a similar process to simplify and speed up the oyster shucker's task.

Clams, the two fisheries scientists report, were more obstinate about opening their shells than oysters, but finally yielded to a treatment which involves immersion in warmish water at a temperature of 105 degrees Fahrenheit, followed by the addition of a dilute solution of carbon dioxide or of various weak organic acids. This treatment brought about the relaxation of the strong muscles that hold the clamshell shut, leaving the bivalves gaping and defenseless before the attack of the shuckers.

This treatment does not kill the clams, but merely puts them in a narcotized and relaxed state. If for any reason it is desired to keep them unshucked a while longer, they can be restored quickly merely by putting them in cool sea water.

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