

## SEISMOLOGY

**Earthquake Reported Five Days Before Cabled News**

**T**HE CHINESE earthquake that took 100 lives in Chengtu and vicinity and did considerable damage on Aug. 25 was located on the day of the disaster by Science Service's earthquake reporting service and reported immediately to newspapers served by Science Service and in SCIENCE NEWS LETTER for Sept. 2, p. 152.

In the Science Service determination, based on reports from seismological stations interpreted by the U. S. Coast and Geodetic Survey, it was definitely announced that "considerable damage and possible loss of life was inflicted upon the region of the city of Chengtu."

Not until five days later did delayed news of the earthquake come from the region itself.

This adds another to the series of earthquakes that have been located and bulletined to the world by Science Service hours, days or weeks before news emerges from stricken regions.

*Science News Letter, September 9, 1933*

## ECOLOGY

**Roots Are Bur Oak's Chief Weapons in Prairie Invasion**

**R**OOTS, deep, spreading, exploiting the soil for every bit of available moisture, are the principal weapons employed by the hardy bur oaks that have been slowly invading the prairies of the West since the coming of civilization put an end to prairie fires. Before that time the prairies were the undisputed realm of grasses and other herbs, and even yet they give the invading oaks a hard battle in spite of the great disparity between the size of the contestants.

The development of bur oak roots in the prairie woodlands has been made the subject of a special study by Prof. J. E. Weaver of the University of Nebraska, who has reported his results to the *Botanical Gazette*.

The first thing an oak seedling does when it sprouts is get a long taproot down into the soil. It attends to this even before it unfolds its first leaves. By the end of the first season's growth this first taproot will have bored its way to a depth of from three to five feet, and will have many fine branches developed to soak up water.

When a prairie bur oak has reached

its full growth, at from 50 to 65 years, it is 35 to 40 feet tall, 12 to 18 inches through at the base, and in pure stands of timber is from 10 to 40 feet from its nearest neighbors. Such a tree will have a massive taproot with thirty or more large main branches, most of which arise in the first two feet of soil. The taproot itself goes down to a depth of about fourteen feet.

The main branches of the root spread widely—more widely even than the branches of the top, some 50 to 60 feet—and then turn downward, some of them going even deeper than the taproot. Other branches grow upward, some of them even vertically. Still other roots are ropelike, running for many feet with diameters of from a half-inch down to a sixteenth of an inch. On this framework fine feeding rootlets are abundantly developed.

With so much of its growing energy concentrated on the root, the tree will have as much of its weight underground as in the air, and almost half of its volume also beneath the soil.

The secret of this powerful root development is to be sought in the water relations imposed on prairie plants by the prairie climate. The air is usually dry, and the wind blows much of the time, so that the leaves are constantly having water evaporated from them at a high rate. The water supply, on the other hand, is only moderate, though the character of the soil is usually such as to favor its long-time storage. To get enough water to meet the endless demands on the leaves, the roots are forced to a development probably never encountered in trees of "softer" climates of the East and South.

*Science News Letter, September 9, 1933*

## CHEMISTRY

**Vitamin C Synthesized By Swiss Chemist**

**V**ITAMIN C, the scurvy-preventing substance occurring naturally in oranges, lemons and many green vegetables, has been prepared synthetically by Dr. T. Reichstein of the Polytechnic Institute of Zürich, Switzerland. With his two collaborators, A. Grüssner and R. Oppenauer, Dr. Reichstein announces in a communication to *Nature*, that they have succeeded in obtaining pure crystals of 1-ascorbic acid, the highly active anti-scorbutic substance considered to be identical with vitamin C.

*Science News Letter, September 9, 1933*

**IN SCIENCE**

## ASTRONOMY

**Saturn Has New White Spot On Its Equator**

**A** NEW white spot has been observed on the ringed planet, Saturn, near its equator, the Lowell Observatory at Flagstaff, Ariz., has notified the Harvard College Observatory at Cambridge, Mass. It was seen on the planet's central meridian at about midnight the night of August 28-29 and it was confirmed photographically.

The recent finding of the large spot and studies of it were described in SNL, Aug. 19, p. 115.

*Science News Letter, September 9, 1933*

## VETERINARY MEDICINE

**Caged Mammals and Birds Have Cancerous Growths**

**M**ANKIND is by no means alone in being subject to the affliction of tumors and other cancerous growths. A study of tumors occurring in animals of the Philadelphia Zoological Gardens has been reported to the *American Journal of Cancer* by Dr. Herbert L. Ratcliffe of the University of Pennsylvania. A review of more than 5,000 animal autopsy records shows the occurrence of these afflictions in about two per cent. of all the animals dying in the Zoo.

Mammals were much more frequently affected with tumorous growths than were birds, although there were more birds than mammals on record in the series of autopsies. Malignant growths were no respecters of zoological rank; they were found among the lowly opossums and other marsupials as well as among the dominating carnivores and the primates, closest of kin to man himself. Dr. Ratcliffe notes, however, that among all the orders of mammalia, the primates showed the lowest incidence of tumors.

The most common point of attack among mammals was the digestive tract; among birds the kidneys, adrenal glands and reproductive organs were most frequently involved.

*Science News Letter, September 9, 1933*

# CE FIELDS

## PLANT PHYSIOLOGY

## Cotton Seeds Helped By Acid Delinting

**S**OAKING cotton seeds in concentrated sulphuric acid for a few minutes removes the bothersome coat of lint that clings to them, abates the danger of infection by various plant diseases, and helps them to sprout earlier and grow faster. These and other benefits of acid treatment of cotton seeds are detailed in the *Botanical Gazette* by Miss Auval Hester Brown, graduate student of the University of Chicago.

Sulphuric acid soaking was used first to rid cotton seeds of bacterial and fungus diseases. The machine that was finally developed for the purpose is expensive, but is economically practicable for the farmers when it is used cooperatively.

Miss Brown's studies were aimed especially at the question of the effects of acid treatment on the germination and growth of the seeds. She found that it so encouraged early growth that earlier cultivation was made possible—a matter of considerable importance in keeping the crop a jump ahead of the boll weevil. She also found that acid-delinted seeds can be handled most advantageously by seed-planting machinery.

*Science News Letter, September 9, 1933*

## PLANT PATHOLOGY

## 1936 To See Destruction Started in White Pine

**"F**OREST destruction as spectacular and ruthless as that caused by chestnut blight will begin in 1936 in the western pine forests of Idaho, Montana and Washington, except where white pine blister rust control is applied before that time."

With this prophecy of doom S. B. Detwiler of the U. S. Department of Agriculture opens a survey of the white pine situation in the official publication of the Society of American Foresters. The rust invasion has reached the epidemic stage through this region, he continues.

White pine blister rust is a fungus

disease of the highly valuable white pine species, which first invaded this country in the eastern states some years ago. It spends an essential part of its life cycle on gooseberry and currant bushes, so that if these shrubs are all destroyed in a given region, the white pine growing in the area will be saved. Blister rust control based on this principle has been successful in the parts of the eastern white pine area where it has been applied; but general economic conditions have prevented extensive use of the method in the larger white pine areas of the West. Since the U. S. Government still owns about a third of all the western white pine now standing, a large responsibility rests with it.

Although the regular funds for the control of white pine blister rust, as provided heretofore through the Department of Agriculture, have been seriously curtailed through recent severe budgetary restrictions, it is expected that this loss will be more than offset by the use of the newly recruited "Forestry Army;" but this is an emergency measure only, and there is no definite long-time plan for carrying the fight into future years, which is indispensable if the western white pine forests are to be saved. Mr. Detwiler feels that this lack should be supplied at the earliest possible opportunity.

*Science News Letter, September 9, 1933*

## VOLCANOLOGY

## Steam Vent Breaks Through Oiled Road

**A** NEWLY-BORN steam vent is a novel wayside decoration to one of the highways in Lassen Volcanic National Park, in northern California.

Lassen Peak is the most recently active of the volcanoes of continental United States, not including Alaska, having been in eruption less than a score of years ago. The entire area of the park is volcanic in nature, with fantastic lava field, both ancient and modern, hot springs, mud volcanoes, boiling lakes, and steam vents, showing that the internal heat still is near the earth's surface.

Recently a small steam vent broke through the oiled surface of the Lassen Peak Loop Highway at a point where the road crosses the Sulphur Works, an area of gas and vapor vents and other volcanic displays. Fortunately the vent is at one side of the road and therefore not an impediment to travel.

*Science News Letter, September 9, 1933*

## CHEMISTRY

## Ammoniated Peat May Become New Fertilizer

**C**OMMON peat, which exists by the billions of tons in ancient bogs in this country, promises to become an important factor in the fertilizer industry, if researches conducted by Dr. R. O. E. Davis and Walter Scholl of the U. S. Department of Agriculture result in a practical manufacturing process for what they call ammoniated peat.

The two chemists enclosed samples of peat in strong metal vessels along with ammonia synthesized out of the air, and subjected the mixtures to high pressures and a considerable range of temperatures. The result was a fertilizer containing a high percentage of available nitrogen, the most expensive of the elements used in fertilizers.

*Science News Letter, September 9, 1933*

## PLANT PATHOLOGY

## \$200,000 Prize For Cocoa Disease Conqueror

**"A** PRIZE of \$200,000 has been offered by the Government of Ecuador for an efficient method of stopping the monilia and witch's broom diseases that have destroyed 70 per cent. of our cocoa plantations," Dr. Eduardo Salazar Gomez, financial adviser to the Ecuador Legation in Washington and delegate at the World Economic Conference in London, informed a Science Service representative.

"It is true," added Dr. Gomez, "that as stated in a recent report of Science Service, certain new varieties of cocoa trees resist these diseases, but these varieties are inferior in flavor and other qualities to the original Ecuador cocoa, hence the Government is doing everything in its power to save original plants."

The diseases spread from Surinam (Dutch Guiana) to other plantations and all cocoa regions, including those of Brazil, Venezuela, and the Gold Coast of Africa are now involved. Considering, moreover, that the buyers and users of cocoa are equally interested in this matter which affects one of their common foods, the Ecuador Government is of the opinion that the whole question should form the subject of international consideration and has therefore brought it to the notice of the subcommittee of the Economic Conference dealing with plant-disease questions.

*Science News Letter, September 9, 1933*