PLANT PATHOLOGY

NATURE RAMBLINGS
by Frank Thone

Spreading Menace

PERSIMMON wilt, new and deadly enemy of persimmon trees, has crossed the Mississippi. It has been found as far west as Oklahoma, by Drs. K. Starr Chester and W. W. Ray of Oklahoma A. and M. College.

Persimmon trees have a threefold importance: their wood is ideal for golf club heads and similar small objects, their fruit is one of the most important wildlife foods, and their tough, ropelike roots made them favorites with soil conservation workers as plantings to check erosion.

The disease is caused by a fungus known as *Cephalosporium*. Its course is terribly rapid; trees usually die within a few weeks after they are attacked. There is no known cure or preventive. It is quite possible that all of America's persimmons may go to join the chestnut trees, wiped out by the chestnut blight several decades ago.

Persimmon wilt was first discovered in 1937, on a farm in Tennessee. Since then, infestations have been found widely spread in the Southeast, and now it is known to be invading the Southwest.

The big-fruited Japanese persimmon, raised for market in parts of the South, is resistant to the disease when grown on its own roots. However, many of the orchards are of trees grafted on American persimmon roots, and these trees are susceptible.

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Sea level along the Pacific coast varies a few inches with the seasons, being high in the winter at Seattle, for instance, and low in spring and summer.

Bronze hand mirrors used by Etruscan women of ancient Italy were engraved with pictures of Helen of Troy and other romantic characters.

BOTANY—GEOLOGY

Plants Used as Prospectors For New Mineral Wealth

The Plant Material Is Reduced to Ashes, Then Placed In Carbon Arc and Analyzed With the Spectrograph

BOTANY may presently come to the aid of geology in prospecting for mineral wealth, if a new method proposed by two Swedish scientists, Drs. Nils Brundin and Sven Palmquist, works out as well in the field as laboratory tests promise.

The Brundin-Palmquist method depends on the fact that all substances in the ground dissolve at least to a slight extent in soil water, and are taken up with the water by plant roots and concentrated in the leaves and young twigs.

In testing any given area for the possible presence of a sought-for mineral, leaves and twigs are collected from deep-rooted trees and shrubs and stored in numbered bags. Corresponding numbers are marked on a map.

In the laboratory the plant material is reduced to ash in an oven. Samples of the ash are placed in a carbon arc, and the light is broken up by the prisms of a spectrograph and recorded as lines on a photographic plate. The stronger and more pronounced the lines indicating any given element, the more abundant that element was in the plant.

Obviously the method is not particularly well adapted to prospecting for such common metals as iron and aluminum, which are present in abundance in practically all soils, even though they may be in commercially useless compounds. However, it should prove especially valuable in the search for rarer metals like nickel and molybdenum, which are very "spottily" distributed and difficult to locate by methods now in use.

Naturally the new Swedish method would not be sufficient by itself to locate the ore-bearing bed of rock. This would not necessarily be directly beneath the indicator trees. Soil water, especially at deeper levels, has often traveled considerable distances. Where the botanist leaves off the geologist would have to start, endeavoring to trace to its source the water that brought the telltale traces of mineral elements to the trees.

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PHOTOGRAPHY

Robot Deep-Sea Camera Makes Photographs Two Miles Down

PHOTOGRAPHS two miles down in in the ocean—deepest sea pictures ever taken—have been snapped in Bermuda waters by means of a massively built, automatically operating deep-sea camera outfit invented by Prof. E. Newton Harvey of Princeton University. Previous record for submarine photography was William Beebe's "shooting" from the bathysphere, about half a mile down, only a quarter of the new depth record.

Prof. Harvey's device has two windows of an extra-strong type of glass, to resist the tremendous pressure of two tons to the square inch encountered at two miles down. The camera looks out through one window, and through the other a beam of light is projected. A timing device turns the electric lamp on and off at predetermined intervals, and a motor winds the camera film, which is of ordinary 16-millimeter size. Cur-