

PLANT PATHOLOGY

Control Fungus Disease

► **OLIGOMYCIN**, A new antibiotic isolated at the University of Wisconsin, shows promise in the control of plant fungus diseases. The antibiotic was discovered by bacteriologists Elizabeth McCoy, W. H. Peterson and Robert M. Smith.

Unlike streptomycin, terramycin and other antibiotics that are effective only against bacteria, oligomycin strikes at many plant disease fungi and, at the same time, is harmless to bacteria. At the present time use of antibiotics to fight bacterial diseases in animals and plants is rapidly expanding.

Scientists have searched for a way to control fungus diseases without harming helpful bacteria in the plant and injuring the plant itself. Spray fungicides used now will control fungus diseases, but the spray

also damages the plant. An antibiotic that is selective in its action against fungi has been sought for use against these expensive and hard-to-treat plant diseases.

The Wisconsin tests seem to indicate that oligomycin is the answer to this search. The tests will be continued, however, to determine other aspects of oligomycin's action.

The new antibiotic has another property not shared by other members of the "wonder drug" family. It is highly stable when used against plant diseases in the soil. Streptomycin and other antibiotics lose their potency very quickly when applied to the soil. Oligomycin maintains its activity over a wide range of acidity and temperature conditions.

Science News Letter, November 21, 1953

TECHNOLOGY

Pollution Indicator

► A NEW device giving a continuous record of river water pollution is now in use by scientists at the Academy of Natural Sciences of Philadelphia.

Called the Catherwood diatometer, it indicates what is happening to the aquatic life in a river by collecting and measuring the changes in the numbers and kinds of diatoms in the water. Diatoms are one-celled algae found singly or in colonies. They are a river's most widely distributed water plants, and an important food for fish, waterfowl and other aquatic animals.

Polluted water is often characterized by a very low oxygen content and toxic substances. Diatoms, one of the most active groups in reoxygenating the water, are good indicators of water conditions because the various species differ in their tolerance of

pollution, Dr. Ruth Patrick of the Academy reports.

Diatoms have cell walls of silica, and are thus easily collected and preserved. The new device consists of two buoyant metal balls supporting between them a ledge on which are placed the slides for collecting diatoms. The slides on which these plants collect when the instrument is suspended in water, Dr. Patrick reports, can be stored without special treatment and kept permanently.

Knowing the kinds of plants and animals in a river is fundamental to an understanding of how a river may be used but not abused. Stream survey teams directed by Dr. Patrick have studied rivers from the St. Lawrence to the Sabine River, Texas.

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PLANT PATHOLOGY

Conquer Fruit Disease

► **CONQUEST OF** fireblight, a devastating disease of apple and pear trees, by using modern "wonder drugs" is forecast by experiments of Drs. H. F. Winter and H. C. Young at the Ohio Agricultural Experiment Station in Wooster.

Streptomycin and terramycin, two of the antibiotics which helped revolutionize human medicine, have proved to be the first promising means of controlling fireblight.

Fireblight is caused by a bacterium, *Erwinia amylovora*, that usually enters a tree during the blossom season when bees transfer the bacteria from the flowers of diseased trees to blooms on healthy trees.

Drs. Winter and Young found that foliage sprays of streptomycin and terramycin made apple trees temporarily im-

mune to bacterial infection. Applications of an antibiotic before and after a spray containing bacteria were found to control the blight.

Their results were striking. The spraying was done in the spring, and recently when the trees were examined, they found that the trees given the antibiotic treatment were nearly blight-free while control trees, sprayed with bacteria but not with a drug, were heavily blighted.

Three applications of streptomycin gave almost 100% control of the disease, they report. Terramycin was slightly less effective.

An additional problem to be worked out is the high cost of the antibiotics. It is possible that a less refined form of the bac-

teria-killer may be made available for agricultural uses.

Fireblight wiped out the pear orchards of California 50 years ago and largely eliminated pears from Ohio. It also limits the production of many varieties of apples. Scientists have been investigating the disease for 75 years in hope of finding a means of control. The antibiotics are the first to be found.

Antibiotics have also been found effective in fighting animal diseases and halo blight in beans. Farmers and fruit growers, however, have been cautioned on their use because they affect the plant auxins.

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