New or Noteworthy Diseases

The number of new diseases found in Canada in any one year is naturally small and 1934 was not unlike other years in the discovery of some plant diseases previously unrecognized in the Dominion. Besides the limited number of new diseases, many previously reported, were recorded in additional provinces or on new hosts. As nearly one hundred such extensions were located by consulting the recently completed index to past reports, only those of special interest will be dealt with here.

The eel-worm disease (Heterodera schachtii) was evidently the most important cereal disease discovered in 1934. Putnam found an area of about 30 square miles in south Simcoe county, Ont., and a smaller one in Ontario county. This is the first record of H. schachtii on oats in United States or Canada according to Dr. G. Thorne, U.S. Department of Agriculture, Washington, D.C., although it is frequently reported as a serious parasite in Europe.

Since last year Sanford has found that the new foot rot of oats described by him is caused by Colletotrichum graminicolum. As a pathogen on the above ground parts of the plant, the fungus has been reported from Alberta, Saskatchewan, and Prince Edward Island, but it has never been previously associated with a foot rot. Anthracnose was also found on wheat for the first time in Canada when it was collected in Alberta this year.

Bacterial blight of barley is usually attributed to Pseudomonas translucens, but Hagborg found that out of 10 collections of the disease in 1933, one was due to P. translucens var. undulosa, the cause of black chaff on wheat. Bacterial blight (P. translucens var. Secalis) of rye was reported in Manitoba for the first time, being known previously from Alberta and Saskatchewan.

Vanterpool has shown that Pythium arrhenomanes, probably the chief causal agent of browning root rot of wheat, may attack many of the commonly cultivated grasses.

Although powdery mildew (Erysiphe graminis) is occasionally injurious on wheat and is not uncommon on barley, it is rarely reported on oats; it affected oats growing in the greenhouse at Edmonton, Alta., this year.

Last year attention was called to the prevalence of downy mildew (Peronospora aestivalis) on the Lytton strain of alfalfa when it was grown at 11 stations scattered from Alberta to Quebec. A special survey by Mr. J.W. Eastham in July showed that the Lytton strain was singularly free from downy mildew under the dry conditions.

prevailing in the Lytton district, B.C. Nevertheless, he noticed that along the irrigation ditches and in spots where moisture was excessive, downy mildew was quite severe. As Mr. Eastham correctly observes it is understandable that under other climatic conditions this disease might be serious. In the Lytton district the average rainfall from April to September inclusive in the past 12 years has been 4.09 inches making irrigation an absolute necessity. Under these conditions the Lytton strain appears to be much longer lived than others.

As a result of Mr. Eastham's survey yellow leaf blotch (Pseudopziza Jonesii) was definitely recorded for the first time in British Columbia. Mosaic (virus) previously unreported on alfalfa from Canada was found causing slight damage in Alberta. Although clover mosaic (virus) had not been previously reported in Ontario, it was unusually prevalent in the breeding plots of red clover at the Central Experimental Farm, Ottawa. Another new disease in Canada was mosaic (virus) on mangels being grown for seed on Lulu Island near Vancouver, B.C.; it has been of considerable importance on garden beets in Washington State in recent years. This mosaic was also reported on swiss chard in Saskatchewan in 1934.

Although Septoria bromigena is common on awnless brome grass in western Canada it is unknown outside of this general region. The collecting of the pathogen on Elymus Macounii (see p. 101) suggests that it may have occurred originally on this and possibly other species of Elymus and that afterwards it found the introduced brome grass a congenial host.

Crested wheat grass has been attracting considerable attention of late on account of its drought resistance. It appears, however, to be susceptible to the diseasesusually present on Agropyron; ergot was reported on this host from British Columbia and Manitoba for the first time and a plot at Ottawa, Ont., was affected by a foot rot caused by Helminthosporium sativum.

Among the vegetable diseases black leg (Phoma Lingam) was found attacking severely the seed pods of cabbage in British Columbia. The crop was destroyed to prevent the disease becoming established in the province as inspection failed to reveal the presence of the disease in all known cruciferous crops being grown for seed. Black leaf spot (Alternaria circinans) was found on cauliflower in British Columbia and Manitoba and both the black and the grey leaf spots (A. herculea) were reported on broccoli from British Columbia for the first time.

Two diseases new to the cultivated mushroom in Canada were reported in 1934; they were the truffle disease (Pseudobalsamea microspora) found at Winnipeg, Man., and white plaster mould

(Oospora fimicola) present in Welland county, Ont. Both diseases were destructive where present.

Another new disease, which deserves mention, is a suspected mosaic of sweet cherry in the Nelson district, B.C. This disease was drawn to the attention of Dr. H.R. McLarty in October, 1932, by Mr. J.W. Eastham. The outstanding symptoms are a mottling and crinkling of the leaves frequently accompanied by shot-hole and a stunting of twig growth. The fruit of affected trees was reported to be small in size and of poor quality. In a survey of the Nelson district in 1934 the disease was found on trees in 4 city lots in the city of Nelson and at Boswell and Creston in 2 commercial plantings. The trouble has not been found in the Okanagan district. No infection resulted in inoculations with expressed sap from diseased twigs according to McLarty, but on a tree, on which diseased scions were grafted in 1933, there developed typical symptoms of the disease in 1934. This report was received too late for inclusion in the main body of the Survey.

Although it is not claimed to be the cause of the cankers on apple trees, Phomopsis ?Mali was recorded from both eastern and western Quebec for the first time. Extensions worthy of mention are: powdery mildew (Sphaerotheca Humuli) on raspberry in Quebec and leaf scorch (Diplocarpon Earliana) on strawberry in British Columbia.

Some of the more important ornamental diseases recorded for the first time in Canada are: bacterial leaf spot of century plant, Alberta; leaf spot (Septoria Hepaticae) on Hepatica triloba, Que.; smut (Urocystis Colchici) on Colchicum, Ontario; mosaic (?virus) on lilac, Nova Scotia; and leaf spot (Phyllosticta Lychnidis) on Maltese cross, Quebec.