

V. DISEASES OF TREES AND SHRUBSABIES - Fir

Witches' Broom (Melampsora Caryophyllacearum). A low incidence seems to be general through the Prince George area, B.C., on A. lasiocarpa (P.J. Salisbury). It was collected on A. balsamea in P.E.I. (R. Bagnall).

ACER - Maple

Tar Spot (Rhytisma acerinum) was a trace at Glenmont, N.S. (J.A. Boyle).

AESCULUS - Horsechestnut

Leaf Blight (Guignardia Aesculi) was reported from Prince Edward Co., Ont. (J.E. Howitt). It caused severe damage in Queens Co., P.E.I. (R.R. Hurst).

AMELANCHIER

Rust (Gymnosporangium spp.). G. clavariaeforme infected 20% of the fruit of A. spicata at Auburn, N.S. G. clavipes was common and severe in the province on A. spp. (J.F. Hockey).

BETULA - Birch

Canker (Nectria galligena). A few badly infected trees of B. papyrifera had to be removed from an estate at Dorval, near Montreal, Que. Asci were clavate, 92-100 x 13.5 microns; spores 8, 1-septate, slightly constricted, hyaline, smooth, 13-17.5 x 6-8 microns. The fungus agrees with the conception of N. galligena of M.L. Lohman and Alice J. Watson (Lloydia 6: 77-108. 1943) (J.E. Jacques). First report to the Survey.

CARAGANA

Crown Rot (Fusarium Solani) caused lesions at soil level and wilting of the plants at the Forestry Farm, Sutherland, Sask. Fusarium sp. also caused heavy loss from wilting of seeded stands, affecting plants from 2 weeks to 2 years old; the root systems showed extensive lesioning (H.W.M.). See P.D.S. 14: 81. 1935.

Leaf Spot (Septoria Caraganae). A light infection occurred in several hedges at Edmonton, Alta. (M.W.C.). Defoliation was severe at the Forestry Farm, Sutherland, Sask. (H.W.M.).

CATALPA

Blight (Botrytis sp.). A slight to moderate infection occurred on leaves and pods at the Univ. of British Columbia, Vancouver, in July, following wet weather (I.C. MacSwan).

CRATAEGUS - Hawthorn

Scald (Fabraea maculata (Entomosporium Thuemenii)). Leaves of a double red hawthorn, showing heavy infection were received from New Westminster, B.C. (I.L. Conners).

Rust (Gymnosporangium clavariaeforme) caused slight damage to C. Oxycantha at Charlottetown, P.E.I. (R.R. Hurst).

## FRAXINUS - Ash

Anthracnose (Gloeosporium aridum) was heavy on young trees in shade in the Arboretum, Ottawa, Ont., and caused considerable defoliation; lesions often involved half the leaflet. Previously reported from London, Ont. (D.B.O. Savile).

Rust (Puccinia sparganioides) was heavy on young trees of F. americana near the Ottawa R., Ile Perrot, Que. (I.L. Connors, D.B.O. Savile).

## JUGLANS

Leaf Spot (Marssonina Juglandis) was moderately heavy on J. cinerea and a trace on J. nigra in the Arboretum, Ottawa, Ont. (D.B.O. Savile).

Canker (Melanconia Juglandis). A light to moderate infection was seen on J. cinerea, J. Sieboldiana and J. sp. in the Arboretum, Ottawa, Ont., and on J. sp. at Macdonald College, Que. (D.B.O. Savile, I.L. Connors).

## JUNIPERUS

Rust (Gymnosporangium spp.). Many galls of G. sp. were found on J. scopulorum at Edmonton, Alta. (G.B. Sanford). G. clavipes was moderately heavy on J. communis var. depressa at Wellington, slight on J. virginiana at Wellington, and moderate on J. virginiana at Glenora, Prince Edward Co., Ont. Not previously collected in Prince Edward Co., on the latter host (H.N. Rabiot, I.L. Connors). G. claviforme and G. clavipes lightly infected J. communis at Greenwich, N.S. (D. Creelman).

Needle Cast (Lophodermium juniperinum (Fr.) de Notaris) was collected at Rockwood, Ont., on J. communis (J.D. MacLachlan). First report in the Survey, but reported by G.D. Darker (The Hypodermataceae of Conifers. Contrib. Arnold Arb. I. 1431: 1932) from Ont. on J. communis var. depressa, J. horizontalis, and J. virginiana.

Twig Blight (Phomopsis juniperovora Mann). Affected specimens of J. virginiana were received from a nursery at Sheridan, Ont. The disease first appears on the tips of the young shoots and progressive dying back follows. Several hundred trees had to be destroyed during the previous year because of this disease; but this year the trees were sprayed early with lime sulphur, followed after 20 days by Bordeaux mixture, and a fair degree of control seems to have been obtained (H.G. Carmody, det. Ruth Macrae).

## MALUS

Rust (Gymnosporangium clavipes). Seedlings of M. pumila var. Niedwetskyana showed 5% infection at Kentville, N.S. (J.F. Hockey).

## MORUS - Mulberry

Canker (Pseudomonas mori). A scattered infection throughout a nursery at Port Burwell, Ont., caused slight damage; some leaf infection was seen in addition to twig cankers (L.F. Richardson, G.C. Chamberlain). About one-third of 1,400 young plants of M. alba in a nursery at Brantford, Ont., was affected. Dark, sunken lesions, especially near the ground line, caused the stems to break over (J.D. MacLachlan).

## OSTRYA - Hop-Hornbeam

Leaf Spot (Cylindrosporium Dearnessii) was heavy near Ottawa, Ont., to the tops of 15 ft. trees and was very heavy on the lower branches. It was also heavy on small trees at Vankleek Hill and at Hermit Trail, Que.; first report from Que. (D.B.O. Savile).

PICEA - Spruce

Rust (Chrysomyxa spp.), G. ledicola caused serious defoliation of young P. sitchensis in parts of the Queen Charlotte Islands, B.C. (P.J. Salisbury). It was seen on P. pungens at St. Alexandre, Que., for the second successive year; no ericaceous host could be found within a mile; nearby native spruce were unaffected (A. Payette). Cones of P. glauca attacked by G. Pyrolae were collected at Kananaskis, Alta. (P.J. Salisbury).

Witches' Broom (Peridermium coloradense) was seen sporadically near Prince George, B.C. (P.J. Salisbury).

PINUS - Pine

Blister Rust (Cronartium ribicola). About 70% of the trees in a plantation of P. Strobus at Ste. Anne de la Pocatiere, Que., were attacked and it is feared that the planting will be almost worthless in a few years (A. Payette). A single tree was slightly damaged at Wood Islands, P.E.I. (R.R. Hurst).

Needle Cast (Lophodermium pinastri). An experimental stand of P. ponderosa on Thurlow Island, outside the natural range of the host, suffered severe defoliation (P.J. Salisbury).

PLATANUS - Plane Tree

Anthraxnose (Gnomonia veneta) caused severe defoliation in a cemetery at Victoria, B.C.; it seems to be general in southern Vancouver Island (P.J. Salisbury).

POPULUS - Poplar

Canker (Dothichiza populea). A specimen on Lombardy poplar, P. nigra var. italica, grown as a windbreak, was received from Oakville, Ont. (J.D. MacLachlan). Previously known from N.B. and N.S.

Leaf Blight (Limospora tetraspora). Infection was light to moderate at Edmonton, Alta. (M.W.G.).

Leaf Spot (Marssonina Castagnei) was commonly found doing much damage to foliage of young P. tremuloides near Okanagan L. at Summerland, B.C. (G.E. Woolliams).

Rust (Melampsora albertensis) was prevalent on P. tremuloides at Summerland, B.C., especially near Okanagan L. (G.E. Woolliams).

Leaf Spot (Septoria populicola) was frequently seen on mature P. trichocarpa near Okanagan L. at Summerland, B.C. (G.E. Woolliams).

PRUNUS

Black Knot (Dibotryon morbosum) moderately infected P. triloba (flowering almond) at Kentville, N.S. It caused considerable damage to wild Prunus at Kentville and Greenwich (D. Creelman).

Powdery Mildew (Podosphaera Oxycanthae) caused loss of lower leaves of P. emarginata at Camp Lister, B.C., in mid September. Perithecia were abundant (M.F. Welsh).

Blossom Blight (Sclerotinia fructicola). About 1/3 of the blossoms of P. japonica were killed throughout the Annapolis Valley, N.S. (J.F. Hockey).

Pockets (Taphrina Peonifusa). Occasional fruits of P. virginiana var. demissa were hypertrophied near Creston, B.C. (M.F. Welsh).

## PSEUDOTSUGA - Douglas Fir

Canker (Phomopsis lokoyae). Extensive top-killing of P. taxifolia at Cowichan Lake Forest Experimental Sta., B.C., was apparently due to this organism, though it was not in good fruit at the time of collection (P.J. Salisbury). See G.G. Hahn, Mycol. 25: 369-375. 1933; and J.S. Boyce, Journ. For. 31: 664-672. 1933. First reported from Cowichan Lake and Green Timbers in 1942 (P.D.S. 21: 84).

## QUERCUS - Oak

Anthraxnose (Gnomonia veneta). Oaks in the vicinity of Niagara-on-the-Lake, Ont., showed general leaf distortion and some die-back (R.S. Willison). Specimens were obtained from Richmond Hill on Q. alba, from Niagara-on-the-Lake and Woodroffe on Q. macrocarpa, and from Queenston on Q. sp.; it was heavy on Q. alba on Ile Perrot, Que. (D.B.O. Savile).

Leaf Blister (Taphrina caerulescens). Specimens were received from Hemmingford, Que., on Q. alba, and from L. Memphremagog on Q. borealis (I.L. Conners).

## RHAMNUS - Buckthorn

Canker (Phomopsis sp.) occurred especially at ground level in a demonstration plot of R. Purshiana at the Experimental Sta., Saanichton, B.C. (P.J. Salisbury).

Rust (Puccinia coronata). Shoots of R. cathartica bearing pycnia were collected at Kemptville, Ont., on May 29 (I.L. Conners). Rust was common on R. alnifolia and R. cathartica at Laval des Rapides, Que. (J.E. Jacques). Infection was a trace on R. cathartica at Kentville, N.S. (J.F. Hockey), and at Charlottetown, P.E.I. (R.R. Hurst).

Mosaic (virus) attacked several bushes in a hedge of R. cathartica at Charlottetown, P.E.I. (R.R. Hurst).

## SALIX - Willow

Die-back (?Cytospora chrysosperma). This organism was apparently responsible for severe bark killing in a planting of S. alba tristis at Winnipeg, Man. (W.L. Gordon, T. Johnson).

## SORBUS - Mountain Ash

Rust (Gymnosporangium Juniperi) was found on S. americana at Key Harbour, Georgian Bay, Ont. (E.G. Anderson, det. D.B.O. Savile).

Canker (Polyporus pubescens). Isolations from new cankers, starting from pruning cuts, on S. aucuparia at Victoria, B.C., yielded this fungus (P.J. Salisbury).

## ULMUS - Elm

Dutch Elm Disease (Ceratostomella Ulmi). During 1946 work on this disease was again carried out on a co-operative basis by the Dominion Department of Agriculture and the Quebec Department of Lands and Forests. Scouting was largely confined to the general area of infection in Quebec and to eastern Ontario. Although all of the 1321 infected trees found in 1945 had been removed approximately 2,100 additional diseased trees were located in almost the same area in 1946. There was apparently some slight extension of the infected area to the west and to the northwest, north of the Ottawa River, but it is doubtful if this indicates that the disease has spread to these localities since 1945. The smaller European elm bark beetle (Scolytus multistriatus) has not yet been found in Quebec so that apparently the native elm bark beetle (Hylurgopinus rufipes) is responsible for the widespread condition of infection there.

In the vicinity of Sorel the number of infected trees was found to be so high that the policy of eradicating all diseased trees had to be abandoned. Instead an area of the most heavily infected part of the province has been delimited and in this no further control work will be carried out. It is hoped that, by continuing the eradication of diseased trees in the outlying districts, it will be possible to confine the disease to the central part of the infected area (A.W. McCallum).

Cephalosporium Wilt (*Dothiorella Ulmi* (*Cephalosporium* sp.)).

A sample on Ulmus sp. was received from London, Ont. These were young trees, recently obtained from a nursery and were stated to be seriously affected. Abundant pycnidia were present on the twigs (J.D. MacLachlan).

Black Spot (*Gnomonia ulmae*). A severely infected specimen of Chinese elm (*U. parvifolia*) was received from London, Ont. (G.C. Chamberlain). Infected leaves of *U. americana*, collected at Ottawa on Mar. 28, contained mature ascospores (D.B.O. Savile). A few trees of *U. pumila* were heavily spotted at the Botanical Garden, Montreal, Que. (J.E. Jacques).

Coral Spot (*Nectria cinnabarina*). A specimen of infected *U. parvifolia* was received from Sault Ste. Marie, Ont. (I.L. Conners). Material from a hedge of *U. pumila* or *parvifolia* was received from Barrie, Ont. (Ruth Macrae). The disease continued to be destructive to *U. pumila* at the Botanical Garden, Montreal, Que. (J.E. Jacques).

Leaf Spot (*Mycosphaerella Ulmi* Kleb. (*Phleospora Ulmi* (Fr.) Wallr.) was heavy on young trees of *U. americana* at Hermit Trail, Que.; it causes numerous small yellow spots on the leaves. Spores were 18.5-37 x 5.7-7.5 microns, generally 3-septate; agreeing well with specimens from Kansas and Denmark, but shorter and broader than in other specimens and the description. A micro-conidial stage also present. Recorded previously from southern Ont. (D.B.O. Savile).

Die-back (?nutritional). Many trees of a European elm were affected at Charlottetown, P.E.I. A number of trees that were fertilized in 1945 showed complete recovery (R.R. Hurst).