VI. DISEASES OF FOREST AND SHADE TREES

ABIES - Fir

Sooty Mould (Dimerosporium Abietis) was common on the foliage of white fir, A. grandis, at Cowichan Lake, B.C. (J.E. Bier)

Needle Cast (Hypoderma robustum) occurs commonly on the older needles of A. grandis at Cowichan Lake, B.C.

Witches' Broom (Melampsorella Caryophyllacearum). A trace was observed on A. balsamea in Queens Co., P.E.I.

Root Rot (Poria Weirii) is killing some A. grandis in the southeastern section of Vancouver Island, B.C. and in the vicinity of Vancouver. It is also killing patches of A. amabilis at elevations of 3,000 to 4,000 ft. near Youbou, B.C.

Rust (Uredinopsis macrosperma) caused some defoliation of 1-year-old needles of A. grandis at Cowichan Lake, B.C.

ACER - Maple

Tar Spot (Rhytisma acerinum). A few spots were observed on leaves of A. rubrum at the Botanical Garden, Montreal, Que. (J.E. Jacques)

Wilt (Verticillium) affected one side of several trees of A. saccharum bordering a garden in Welland Co., Ont.; raspberries infected with wilt and tomatoes were growing in the immediate vicinity. (G.C. Chamberlain)

AESCULUS - Horsechestnut

Leaf Blight (Guignardia Aesculi) was heavy on many trees at Charlottetown, P.E.I.

Canker (Nectria cinnabarina) Cankers were abundant on the twigs and branches of one tree at the Station, Fredericton, N.B.

AMELANCHIER

Leaf and Fruit Spot (Monilia Amelanchieris). A trace of infection was found at Beaverlodge, Alta. (W.C. Broadfoot)

ARBUTUS MENZIESII

Leaf Spot (Ascochyta Hanseni Ell. & Ev.) was observed at East Sooke, B.C., in Nov., 1940. (I. Mounce and I.L. Conners).

CASTANEA SATIVA - Chestnut

Blight (Endothia parasitica) was present on one tree at Agassiz, B.C. (J.E. Bier)

CHAMAECYPARIS

Root and Crown Rot is causing considerable damage to ornamental varieties of Chamaecyparis in commercial nurseries at Vancouver, B.C. It agrees well with the disease described by J.A. Milbrath (Phytopath. 30:788. 1940) and reported to be due to a new species, Phytophthora lateralis. (J.E. Bier)

CORNUS NUTTALLII - Flowering Dogwood

Leaf Blight (Monilia Corni) was general and caused slight damage on Vancouver Island, B.C., in April and May. (W. Jones)

Powdery Mildew (Phyllactinia corylea) was general in October on Vancouver Island, B.C.

Crown Canker (Phytophthora Cactorum) appeared to be quite common in Vancouver, B.C. Many ornamental trees have been killed. The disease has not been observed as yet on Vancouver Island. (J.E. Bier)

CORYLUS - Filbert

Leaf Spot (Septoria corylina) was general on a hedge of C. americana at Morden, Man.; infection was moderate.

COTINUS COGGYGRIA - Smoke Tree

Wilt (Verticillium sp.) affected two smoke trees at Peterborough, Ont. A Verticillium was readily isolated from the affected twigs. According to my correspondent the trees are about 3 years old and until this year made splendid growth. The first signs of wilting were noticed in July in one tree and the condition became progressively worse. The second tree, some 40 ft. away from the first, did not show signs of infection until about 6 weeks later. I have previously isolated the fungus from maple. The disease has been reported on smoke tree in the United States. (T.R. Bender, N.J. Agr. Exp. Sta. Nursery Dis. Notes 13, (No. 2):5-7. 1942). (F.L. Drayton)

CRATAEGUS - Hawthorn

Rusts. Gymnosporangium globosum and G. clavipes were fairly abundant on hawthorn in the vicinity of a neglected pasture in Norfolk Co., Ont. (J.E. Howitt)

Leaf Spot (Entomosporium Thuemenii) caused severe defoliation of C. Oxyacantha var. splendens at the Green Timbers Forest Nursery, B.C.

JUGLANS - Walnut

Bacterial Blight (Phytomonas Juglandis) was more severe than usual on Vancouver Island, B.C., and it caused considerable damage. (W. Jones)

JUNIPERUS

Rusts (Gymnosporangium spp.). The following rusts were observed on red cedar, J. virginiana, within a localized area in a neglected pasture in Norfolk Co., Ont.: Numerous witches' brooms caused by G. nidus avis, the number of old dead witches' brooms indicated that the rust had been present for some time; G. clavipes, fairly abundant; a widely spread infection of G. globosum; G. Juniperi-virginianae, very abundant killing many of the younger trees (J.E. Howitt). G. nidus-avis is known on Amelanchier intermedia from Ont. (J.C. Arthur, Man. Rusts in U.S. and Can. 369. 1934), but the telia have not been reported previously. Approximately 20 galls of G. Juniperi-virginianae per tree were present on Juniperus virginiana intended for export from Richmond, Ont. Old flowering crabs were reported growing 100 ft. from the cedars and neglected apple trees in a field probably 200-300 ft. away (I.L. Conners). Rust (G. Juniperi-virginianae) was noted commonly on wayside trees in Essex, Norfolk and Lincoln Counties; infection was very abundant. A light infection of G. clavipes on J. communis was

found near a large orchard at St. Joachim, Que.; no injury was noted on the apples.

MORUS - Mulberry

Canker (?Phytomonas mori). Infection was heavy and damage was severe at Summerside, P.E.I.; a trace was also observed at Charlottetown. (R.E. Balch and R.R. Hurst)

PICEA - Spruce

Rust (Chrysomyxa ledicola) was common on young trees of P. Mariana in York and Sunbury Counties, N.B. It caused some defoliation (J.L. Howatt). It partially defoliated P. canadensis at Otterburne and Steinbach, Man. A slight infection was also found on a spruce hedge at the Dominion Laboratory of Plant Pathology, Winnipeg. (J.H. Craigie and A.M. Brown)

PINUS - Pine

Rust (Cronartium coleosporioides). Slight infection was noted in the seedling beds on lodgepole pine at the Acadia Forestry Station, Fredericton, N.B. in 1941. However in 1940, it was estimated that nearly 10% of the seedlings were diseased (J.L. Howatt). The identification was confirmed by R. Pomerleau who has recently reported this rust in Quebec (Mycologia 34:120-122. 1942).

Rust (Cronartium ribicola) was general on Vancouver Island and in the Fraser Valley, B.C. Although white pine usually occurs mixed with other species, forming only a small percentage of the stand, almost all the young growth is infected (J.E. Bier). The white pine plantation of A. Joly de Lotbiniere at Pointe Platon, Que., on the south shore of the St. Lawrence, 30 miles up the river from Quebec city was inspected on May 14, 1941. The plantation was set out in 1908 and originally consisted of about 400 trees imported directly from Germany. When the trees were first examined in 1921, it was found that 66% of the 372 trees in the plantation bore the aecial stage. At the present time 46 are left. Careful examination revealed only one tree infected by blister rust. There has always been an abundance of the alternate host within 200 ft. of the pines. Dead and discoloured limbs were generally absent and only one small branch canker was found (A.W. McCallum). About 10% of the trees in a 2-3 acre block in the University of N.B's forest tract were found to be cankered near the base (J.L. Howatt). Mature aecia were abundant on white pine at Kentville, N.S. on May 26 (J.F. Hockey). Blister rust was reported at East Brideford, P.E.I. (R.R. Hurst).

Rusts (Cronartium spp.) were reported as being serious on lodgepole pine about Torrace, B.C. The gall rust (C. Harknessii) is frequent on lodgepole pine in the Cowichan Lake region.

The rot and fruiting bodies of Stereum sanguinolentum were found on the roots of a number of recently killed P. ponderosa in a 8-year-old plantation at the Green Timbers Forest Nursery, B.C.

POPULUS - Poplar

Leaf Blight (Linospora tetrraspora Thompson). Infection was severe on P. tacamahaca between Innisfall and Red Deer, Alta. (G.B. Sanford). G.E. Thompson (Can. Jour. Res. (Sec. C) 17:232-238. 1939)

reports the disease from B.C., Alta., Ont. and Que.

Leaf Spot (Marssonina Castagnei). Infection was severe on P. tremuloides at Fort Garry, Man., in late August.

Rust (Melampsora Medusae). Infection was moderate at Fort Garry and severe at Plumas, Man.

Rust (M. occidentalis) was common on P. trichocarpa at the Green Timbers Forest Nursery, B.C.

Leaf Blight (Sclerotinia bifrons) was common in York and Sunbury Counties, N.B.

Leaf Spot (Septoria populicola) was general on P. trichocarpa in southern B.C.

PSEUDOTSUGA TAXIFOLIA - Douglas Fir

Damping-Off. About 11 million Douglas fir seedlings are produced annually in the 2 Provincial Forest Nurseries in B.C. Considerable damping-off was observed during May and June, 1941. Isolations were made from 288 infected seedlings. They yielded the following fungi, which were identified by W.L. Gordon and J.E. Machacek: Fusarium avenaceum from 55 seedlings; F. oxysporum, 22; F. sambucinum f.1, 23; Pythium sp., 15; Rhizoctonia Solani, 82; R. Solani and F. spp., 13; R. Solani and Pythium, 4; Fusarium and Pythium, 7; Mucor ?racemosus, 49; and Gliocladium roseum, 5. (J.E. Bier)

Leaf Blight (Adelopus Gaeumannii) is universally present on 3-, 4-, 5-, and occasionally 2-year-old-needles on Vancouver Island and in the Fraser Valley, B.C. Infected needles have been found 85 ft. from the ground. The disease does not appear to cause any significant damage.

Dwarf Mistletoe (Arceuthobium Douglasii) is reported on Douglas fir near Nelson, B.C.

Armillaria Root Rot (A. mellea) is causing some mortality of Douglas fir on Vancouver Island, and in the Fraser Valley, B.C.; it appears to be most prevalent around Vancouver.

Root Rot (Fomes annosus) is affecting a few 20 to 30-year-old-trees of Douglas fir at Cowichan Lake, B.C.

Canker (Phomopsis lokoyae) has been found at Cowichan Lake and Green Timbers, B.C. In most instances the lesions are delimited by callous tissue before the girdling is completed.

Bacterial Galls (Phytomonas pseudotsugae Hansen & Smith) similar in every respect to those described by H.N. Hansen and R.E. Smith (Hilgardia 10:569-577. 1937) on Douglas fir in California were found in 20-year-old stands at Cowichan Lake, B.C.

Root Rot (Poria Weirii) is serious in 10- to 60-year-old stands of Douglas fir in the south-eastern part of Vancouver Island, B.C. The pathogen has been found causing a saprot in 200-year-old-trees and is a common saprophyte on stumps and logs of old fir. The disease was found on the mainland near Vancouver and Hope in 1941.

Leaf Blight (Rhabdocline Pseudotsugae) is common on one and two-year old needles at Cowichan Lake, B.C.

QUERCUS - Oak

Root Rot (Armillaria mellea)is common on 300- to 400-year-old-trees of Q. Garryana in the vicinity of Victoria, B.C.

Die Back (Phomopsis quercina) is very common on the younger trees.

Top Rot (Polyporus sulphureus) is becoming serious in the old trees. (J.E. Bier)

Leaf Blister (Taphrina caerulescens) moderately infected leaves of Q. macrocarpa at Beaverlodge, Alta.

RHAMNUS PURSHIANA - Cascara

Rust (Puccinia coronata). Aecia were abundant in a 5-acre plantation of 2-year-old trees at Green Timbers Forest Nursery, B.C., in 1940. The rust caused some defoliation and the death of a number of young stems. Infection was very slight in 1941. (J.E. Bier)

SALIX - Willow

Blight (Fusicladium saliciperdum and Physalospora Miyabeana) was found a second time in B.C. Two large diseased trees and a few smaller ones were located near Chilliwack by Mr. G.E.W. Clarke, District Horticulturist. All trees known to be diseased have been destroyed (J.E. Bier). The disease was reported from the vicinity of Sherbrooke, Que. In the region of Ste. Anne de la Pocatiere, some willow trees have escaped injury from willow blight and appear to be immune. A few trees have also escaped in the Gaspé. (E. Campagna)

Canker (Cytospora sp.) is present on S. sitchensis at Cowichan Lake, B.C.

Twig Blight (Marssonina sp.). The fungus was found associated with lesions girdling some of the smaller stems of weeping willow on Vancouver Island and about Vancouver, B.C.

Rust (Melampsora spp.) was common on willow near Saanichton, B.C. (J.E. Bier). A heavy infection of M. Bigelowii was general about Plumas, Man., on Aug. 12; there was considerable defoliation. (A.M. Brown)

Tar Spot (Rhytisma salicinum) was common on willows at Green Timbers, B.C.

SORBUS - Mountain Ash

Canker (Cytospora leucostoma). A moderate to severe infection was present on European mountain ash at the Station, Beaverlodge, Alta. (W.C. Broadfoot)

Coral Spot (Nectria cinnabarina) was found on the branches and trunk of S. alnifolia at the Botanical Garden, Montreal, Que. Branch cankers can be removed, but those on the trunk usually necessitate the removal of the entire plant, especially in young specimens. (J.E. Jacques)

THUJA - Arborvitae

Blight (Coryneum Berkmanni) is causing a severe blight of T. orientalis in the Vancouver area, B.C. Commercial nurseries have stopped propagating this species on account of the disease.

Needle Spot (Keithia thujina) is universally present on western red cedar (T. plicata) in B.C. The fungus has not been found on 2-year-old seedlings in the nursery at Green Timbers, although trees and hedges in the immediate vicinity are infected.

Fomes annosus has been isolated from a rot in the crown of several 30-year-old trees of T. plicata at Cowichan Lake, B.C. (J.E. Bier)

TSUGA HETEROPHYLLA - Western Hemlock

Dwarf Mistletoe (Arceuthobium campylopodum f. tsugensis) is abundant on western hemlock at Cowichan Lake and near Vancouver, B.C.

Root and Butt Rot. Fomes annosus appears to be the causal agent of a root and butt rot in 85-year-old western hemlock in the Fraser Valley, B.C.

Root Rot (Poria Weirii) has caused some mortality in 10- to 50-year-old trees on Vancouver Island and in Vancouver, B.C.

ULMUS - Elm

Black Spot (Gnomonia ulmea). A moderate infection was observed on Aug. 20 in Lincoln Co., Ont.; it was causing the leaves to yellow and drop prematurely (G.C. Chamberlain). A light infection was present at the Botanical Garden, Montreal, Que.; it did not cause any premature fall of the leaves (J.E. Jacques). Black spot was noted in York Co., N.B., and in the more severely infected trees it caused premature defoliation. (J.L. Howatt)

Coral Spot (Nectria cinnabarina). Examination of the hedges of Chinese elm (U. pumila) at the Botanical Garden, Montreal, Que., revealed that 60-70% of the individual trees bore fructifications of Nectria and 4% were so badly affected that they will have to be replaced. (J.E. Jacques)

Winter Injury was severe in a hedge of Chinese elm at Summerside, P.E.I. (R.R. Hurst)

INSECTS

A slight to moderate infection of Empusa ?Aphidis was noted on Myzus persicae etc. in fields in York, Carleton and Victoria Counties, N.B. An Empusa also attacked the aphids in the Laboratory greenhouse, Fredericton, during periods of high humidity. The latter formed a perfect stage. Whether there is more than one species involved has not been determined, but I have never seen resting spores in aphids parasitized in the field. (J.L. Howatt)

A few tarnished plant bugs, Lygus pratensis, were found in York Co., N.B. which were apparently killed by a species of Empusa. (J.L. Howatt)

A species of Empusa was found killing 15% of the adults of Thrips nigropilosus Uzel and a smaller proportion of the larvae by G.G. Dustan on Chrysanthemum in an experimental greenhouse at Vineland Station, Ont. The conidia resembled very closely those of E. Fresonii Nowakowski, but the spherical, beautifully ornamented resting spores are quite unlike those described for that species. (I.L. Conners)