V. DISEASES OF TREES AND SHRUBS

ABIES - Fir

Witches' Broom (Melampsorella caryophyllacearum) was found on A. balsamea in Kings, Queens, Shelburne, and Lunenburg counties, N.S. In one acre near Kentville 5% of the trees were affected (D.W. Creelman). Brooms were seen on several branches of a single balsam fir at Southport, P.E.I. (J.E. Campbell).

ACER - Maple

Leaf Spot. The most prevalent leaf spot on maples this year in N.S. was caused by Phleospora aceris, which was found in all areas surveyed. Phyllosticta minima was common in the counties on the south shore. Gloeosporium apocryptum caused some damage to A. saccharophorum at Kentville. The leaves were also injured by a severe frost and wind early in the season and the maples presented a rather ragged appearance throughout the summer (D.W. Creelman). G. apocryptum was heavy on leaves of the sugar maple at St. Stephen, N.B.; the leaves had also been injured by wind (S.R. Colpitts).

Die-Back (Prosthecium innesii (Curr.) Wehm.) was heavy on 1% of the limbs of an A. pseudoplatanus tree at Kentville, N.S. Determination checked by L.W. Wehmeyer. First report for North America (D.W. Creelman).

Tar Spot (Rhytisma acerinum). Light infections on leaves of A. saccharinum from the Arboretum, Ottawa, Ont., and of A. saccharophorum from Treadwell were collected in the fall of 1952 and placed outside to overwinter. Mature ascospores were present on 5 May. At that date the leaves were beginning to unfold (J.A. Parmelee). Tar spot was general on A. rubrum in Queens Co., P.E.I. (J.E. Campbell).

Chemical Injury (2,4-D) was general on A. negundo in Edmonton, Alta. (G.B. Sanford).

AESCULUS - Horsechestnut

Leaf Blight (Guignardia aesculi) affected 25-75% of the foliage of A. hippocastanum at Kentville, N.S. (D.W. Creelman). A mod.-sev. infection occurred throughout P.E.I. (J.E. Campbell). The disease caused sl. damage to 5 trees in St. John's, Nfld. (G.C. Morgan).

ALNUS - Alder

Powdery Mildew (Microsphaera alni) was heavy on alders in Queens and Shelburne counties, N.S. (D.W. Creelman).

Leaf Spot (Septoria alni). Leaves of several clumps of A. sp. were badly scorched and browned on Gull Island, N.S. (D.W.C.).

AMELANCHIER

Black Leaf Curl (Apiosporina collinsii). Sl. infection at Edmonton and near Peers, Alta. (T.R. Davidson).

Leaf Blight (Entomosporium maculatum) was collected for the first time on A. sp. in N.S. when 20% of the leaves were found infected at White Point, N.S.

Rusts. Sl.-mod. infections of Gymnosporangium clavariaeforme and to a lesser extent of G. clavipes were seen in w. N.S. (D.W. Creelman).

Leaf Spot (Physalospora obtusa) sev. affected about 50% of the leaves on trees at Black Rock, N.S., causing a pronounced reddening of affected leaves and considerable defoliation. The Sphaeropsis state was fruiting in the lesions (D.W. Creelman).

BETULA - Birch

Rust (Melampsoridium betulinum) caused mod. infection in a nursery at Ocean Park, near Vancouver, B.C. (W.E. Woods, W. Jones).

Leaf Spot (Septoria betulina). A tr. was collected on B. alba and B. populifolia at East Port Medway, N.S. (D.W. Creelman).

Die-Back (non-parasitic). Increasing numbers of the native white birch are dying each year in Nfld. (G.C. Morgan).

CARAGANA

Leaf Spot (Phyllosticta gallarum Thuem.). Sl. infection was found in a nursery at New Carlisle, Que.; it was also sev. on some bushes at the Agricultural School, Ste. Anne de la Pocatiere (D. Leblond). The organism originally described on C. arborescens from Siberia is reported in Alaska and Wis.; first report for Canada (D.B.O. Savile).

CORYLUS - Hazelnut

Leaf Spot. Gloeosporium coryli caused considerable damage to C. cornuta in Kings Co., N.S. Gnomoniella coryli was widespread, causing little damage. Septoria corylina was collected for the first time in N.S. at White Rock, Kings Co.; it caused little damage (D.W. Creelman).

CRATAEGUS - Hawthorn

Leaf Blight (Entomosporium thuemenii) caused heavy premature defoliation of C. oxyacantha in a garden at Huntingdon, B.C. (H.N.W. Toms). Sl. infection in a nursery on Lulu Island (W.E. Woods, W. Jones). Leaf spot caused heavy defoliation at Kentville and Liverpool, N.S., on C. oxyacantha. The rose-flowered trees are much more susceptible than the white (D.W. Creelman).

Powdery Mildew (Podosphaera oxyacanthae) caused mod. damage to the leaves of Crataegus macrospora at Ingomar, Shelburne Co., N.S. (D.W.C.).

EXOCHORDA

Canker (Nectria cinnabarina). One large bush of E. racemosa was dead with Nectria fruiting profusely (D.W.C.).

FRAXINUS - Ash

Leaf Scorch (Gloeosporium aridum) was common on F. viridis along the boulevards in Edmonton, Alta. (G.B. Sanford).

Leaf Spot (Mycosphaerella effigurata). A tr. was seen on F. americana at East Port Medway, Queens Co., N.S. (D.W.C.).

Rust (Puccinia sparganioides). Infection was general but usually sl. on F. americana in Queens and Shelburne counties, N.S.; the light attack was in marked contrast to sev. damage caused in 1951 and 1952 (D.W.C.). A mod. infection was recorded on F. americana planted at the perimeter of a farm near a saltwater marsh in Queens Co., P.E.I. (J.E. Campbell).

JUGLANS

White Mould (Microstroma brachysporum). A tr. infection seen on J. cinerea at Kentville, N.S.; first report from N.S. (J.F. Hockey, D.W. Creelman).

Powdery Mildew (Phyllactinia corylea) was fruiting on walnut leaves received from Kaleden, B.C. (D.L. McIntosh).

Bacterial Blight (Xanthomonas juglandis) was general on the foliage in a small orchard of J. regia at Saanichton, B.C. (W. Jones).

JUNIPERUS

Rust (Gymnosporangium spp.). An ornamental planting of 8 trees at St. Catharines, Ont., were all affected by G. clavariaeforme, causing a die-back of the lower branches. A shipment of 90 European grown trees were found affected by this rust and destroyed (G.C. Chamberlain). Specimens of G. clavipes and G. junipero-virginianae on J. virginiana were received from Brighton (C.B. Kelly). The dormant galls caused by G. juniperi-virginianae and G. globosum were abundant on trees of J. virginiana of widely varying age in a pasture field near Delta, Ont., in October. A few hawthorn bushes and wild apple trees were also present (I.L. Conners). Mod. infections were noted on J. communis var. depressa and J. horizontalis in May and on Amelanchier, Aronia and Sorbus later in the season at Ste. Anne de la Pocatiere and elsewhere in Kamouraska Co., Que. (A. Payette). G. clavipes and G. clavariaeforme were abundant on J. communis var. depressa in Kings Co., N.S. and G. cornutum was collected on the same host at East Margaretville, Annapolis Co. (J.F. Hockey, D.W. Creelman).

LARIX

Rust (Melampsora epitea (bigelowii)) was heavy on L. occidentalis in B.C. north of Grand Forks, the east slope of Monashee Pass, between Rossland and Cascades and near Moyie (between Creston and Cranbrook,) or wherever larch was associated with Salix bebbiana (q.v.) (D.B.O. Savile). A few affected needles of L. laricina were found at Brooklyn, Kings Co., N.S. (J.F.Hockey, D.W. Creelman).

LONICERA - Honeysuckle

Leaf Blight (Herpobasidium deformans Gould, Iowa State Coll. J. Sci. 19:317. 1945). Chas J. Gould, Jr., in a paper entitled "The parasitism of Glomerularia lonicerae (Pk.) D. and H. in Lonicera species" (idem 19: 301-331) describes the perfect state of this common pathogen. Type on Lonicera bella candida, Ames, Iowa, Nov. 1942 (in Iowa State College Herb.). According to him, the binomial G. lonicerae (Pk.) Dearn. & House is based on a nomen nudum G. corni var. lonicerae, which he claims Peck never published. The disease appears in early spring, with secondary infections occurring throughout the season. The basidia and basidiospores appear first, followed by the conidia. A large number of species of Lonicera are affected, some being more susceptible than others. Infection was also secured on Symphoricarpos albus. Lonicera japonica var. halliana appeared to be immune. The disease occurs in n.e. and n. central states of the U.S. and adjacent areas of Canada including Newfoundland. (I.L.C.). Heavy infections of the Glomerularia state was observed on L. canadensis in Kings Co., N.S. Also officers of the N.S. Dept. of Agriculture report sev. damage on L. tatarica at Amherst in Cumberland Co. (D.W. Creelman).

Powdery Mildew (Microsphaera alni) was sev.on nursery stock at Southport, P.E.I. (J.E. Campbell).

Canker (Verticillium dahliae). A portion of a plant of L. morrowi from the grounds of the Prime Minister's official residence, Ottawa, Ont., was submitted for examination. Some of the leaves were yellow and branches dead. A narrow canker extended from the crown for several feet up the stem. Callus had formed at the margin of the canker but had failed to heal it over. Isolations from the juncture of the discoloured and healthy tissues consistently yielded V. dahliae. Besides this plant, a second one in a clump of three was showing symptoms. One plant reported to have shown the same symptoms had been lost on Parliament Hill. Only L. morrowi was affected (H.S. Thompson).

OSTRYA - Hop Hornbeam

Leaf Spot (Septoria ostryae) was heavy on O. virginiana at Highbury, Kings Co., and Mill Village, Queens Co., N.S. (D.W. Creelman).

PICEA - Spruce

Rust (Chrysomyxa spp.). Pustules of C. ledi found on 20% of the P. pungens trees in a young plantation at the Station, Beaverlodge, Alta. (W.P. Campbell, J.A. Parmelee). C. ledi was collected on P. ?glauca at Jordan Ferry and Ingomas, Shelburne Co., N.S., and C. ledicola at Low's Landing, L. Rossignol, Queens Co.

(D.W. Creelman, D.B.O. Savile).

Needle Cast (Lophodermium piceae). A tr. was collected on P. sp. at Port Joli, Queens Co., N.S. (D.W. Creelman).

Witches' Broom Rust (Peridermium coloradense). A large broom was found on a single tree of P. abies at the Station, Beaverlodge, Alta. The only other Canadian record on this host is from Brandon, Man. (W.P.C., J.A.P.). Witches' broom rust affected 50% of the trees of P. mariana on the w. side of Robertson L., Queens Co., N.S. (D.W. Creelman).

PINUS - Pine

Rust (Coleosporium solidaginis). A tr. was found on P. resinosa at Shelburne, N.S.; first record on red pine in N.S. (D.W.Creelman).

Blister Rust (Cronartium ribicola). P. albicaulis was heavily attacked on Blackwall Peak, Manning Prov. Park, B.C. (6,200 ft.) in proximity to Ribes viscosissemum on which later uredinia were found starting on 9 Aug. No appreciable infection on pine 1/4 mi. from Ribes. Light infections were found later on Copper Mtn., near Nelson and Mt. Apex, near Penticton. Heavy infection was observed on P. monticola near West Creston and light near Kaslo. (D.B.O. Savile). A mod. infection occurs in a plantation of P. strobus near the Agr. School, Ste. Anne de la Pocatiere, Que.; additional trees die each year (A. Payette). Blister rust was heavy in a young stand of P. strobus at the Station, Kentville, N.S. Aeciospores were being shed on 28 April. Considerable damage attributable to blister rust has occurred in recent years in white pine stands in Shelburne Co. Infected native Ribes were observed in numerous areas in 1953 (D.W. Creelman). Trace was found in a white pine plantation on a farm lot in Queens Co., P.E.I. (R.R. Hurst).

PLATANUS

Anthracnose (Gnomonia veneta) caused sev. infection on and defoliation of 30 plane trees in Stanley Park, Vancouver, B.C. (I.C. MscSwan).

POPULUS

Scab (Fusicladium radiosum) caused sl. damage to P. grandidentata at Kentville, N.S. (D.W. Creelman). A specimen on P. balsamifera collected at Kananaskis, Alta., by J. Kuijt 1 July was communicated by R.J. Bourchier, who reported the disease occurred widely in Alta. this year. According to S.J.Hughes (Can. J. Bot. 31:560-576. 1953), Pollaccia radiosa (Lib.) Bald. & Cif. is the correct name for the species. Canadian material needs restudy because 2 species are now recognized in Europe: P. radiosa with spores 18-26 x 5-8 microns and P. elegans Serv. with spores 35-38.5 x 11 microns (I.L.C.).

Canker (Hypoxylon pruinatum) caused sev. damage to stands of P. tremuloides at Steam Mill, Highbury and Kentville in Kings Co., N.S.; first collections in this area (D.W. Creelman, K.A. Harrison).

Anthracnose (Marssonina ?brunnea (Ell. & Ev.) Sacc.) mod. infected 2 trees of P. tremuloides at a summer home in Lincoln Co., Ont., causing the leaves on the lower part of the trees to yellow and fall (G.C. Chamberlain). M. populi (prob. M. brunnea) was general on P. tremuloides and P. grandidentata but not sev. in Kings Co., N.S. (D.W.C., I.L.C.). Recent study of herbarium suggests that M. castagnei is confined to P. alba and that specimens of P. tremuloides identified as this species are M. brunnea, a narrower-spored species (D.B.O.S.).

Anthracnose (Marssonina castagnei) caused slight damage to the leaves of P. alba at Kentville, N.S. (D.W. Creelman).

Anthracnose (Marssonina rhabospora). Traces were collected on P. grandidentata at several points in Queens and Shelburne counties, N.S. (D.W.C.).

Rust (Melampsora albertensis) was light on trees of P. tremuloides within 50 yards of Pseudotsuga at Richter's Pass, near Osoyoos, B.C., on 30 June; infection was just starting (D.B.O. Savile).

Rust (Melampsora occidentalis). Infection was light on P. trichocarpa associated with aecia on Pseudotsuga taxifolia near Nakusp, Upper Arrow L., B.C. (D.B.O.S).

Leaf Spot (Septogloeum rhopaloideum). A heavy infection was found on several small trees of P. grandidentata at Highbury, Kings Co., N.S. (D.W.C., I.L.C.).

Leaf Spot (Stigmina populi). A tr. was collected on P. balsamifera by J.S. Erskine at South River, Antigonish., N.S. (D.W.C.).

Leaf Blister (Taphrina populi-salicis Mix) infection was mod. near Nakusp, Upper Arrow L. and sev. n. of Slocam L. on P. trichocarpa in early July. Passing infections, presumably of the same species were seen elsewhere in s. B.C. on this host (D.B.O. Savile).

Powdery Mildew (Uncinula salicis) was heavy on small trees of P. balsamifera in partial shade at Banff, Alta. (D.B.O.S.). Mod.-sev. infections were seen on P. tremuloides about Edmonton, Alta. (T.R. Davidson). A mod. infection was recorded on P. grandidentata at Sunken L., Kings Co. N.S. (D.W.C.).

PRUNUS

Shot Hole (Cylindrosporium lutescens). Sl.-sev. infections were seen in N.S.; collections were made on P. serotina and P. pensylvanica in Kings Co. and on P. virginiana in Queens and Shelburne counties (D.W.C.).

Blossom Blight (Monilinia fructicola) caused a blight of 50-70% of the blossoms and also a die-back of a flowering almond (P. triloba) at Kentville, N.S. The disease also caused sev. spur and twig blight on P. tomentosa (J.F. Hockey). Planted occasionally as an ornamental P. triloba seems to be very susceptible to blossom blight (D.W.C.).

PSEUDOTSUGA - Douglas Fir

Rust (Melampsora albertensis) was heavy on the needles of P. taxifolia within 10 yards of Populus tremuloides (q.v.) at Ritcher's Pass, near Osoyoos, B.C. (L.L.O. Savile).

Rust (Melampsora occidentalis) was mod.-sev. on the needles of P. taxifolia where associated with Populus trichocarpa (q.v.) near Nakusp, Upper Arrow L., B.C. The aeciospores of this species are larger than those of M. albertensis. W.G. Ziller (M.A. thesis, Univ. of Toronto) has already demonstrated experimentally that Pseudotsuga is the aecial host of this rust (D.B.O.S.).

PYRACANTHA

Scab (Fusicladium pyracanthae). A sl. infection was reported on 50 P. coccinea plants in a nursery at Sheridan, Ont., by Plant Protection inspectors (H.S. Thompson). According to S.J.Hughes the fungus is a species of Spilicea (see under Apple Scab) (I.L.C.).

PYRUS

Fire Blight (Erwinia amylovora) was sev. on a single ornamental pear tree at Altona, Man. (J.E. Machacek).

QUERCUS

Powdery Mildew (Microsphaera alni). A tr. of the conidial stage was seen on Q. garryana at Thetis L., near Victoria, B.C. (H.N.W. Toms). The disease was present on every small tree of Q. borealis in the undergrowth in woods in Queens and Shelburne counties, N.S., causing little apparent damage (D.W. Creelman).

Leaf Blister (Taphrina coerulescens) was tr.-sev. on Q. borealis in Kings, Annapolis, Colchester, Antigonish and Queens counties; its occurrence is sporadic in N.S., the last collections being made in 1947 (D.W.C.). A specimen was collected on Q. borealis at New Carlisle, Que. (D. Leblond, D.B.O. Savile).

RHAMNUS

Rust (Puccinia coronata). A hedge of R. cathartica at the Sutherland Nursery near farm fields was more heavily rusted than for several years. No aecia were found on 3 hedges in the middle of Saskatoon, Sask. (T.C. Vanterpool). Volunteer bushes on the Farm, Brandon, Man., carried a few spent aecia on 15 July (W.L. Gordon). Escaped bushes of R. cathartica on the College property of Ste. Anne de la Pocatiere were heavily infected (A. Payette). A sl. infection was seen on R. cathartica at the Station, and on the numerous bushes about the O'Dell estate, Fredericton, N.B. A sl.-mod. infection also occurred on R. frongula at the Station (P.N. Grainger). Aecia were abundant on R. cathartica at Town Plot but only a tr. at Wolfville, both in Kings Co., N.S. (D.W.C.). A hedge at the Station, Charlottetown and one near Summerside, P.E.I., were mod. rusted. A sl. infection was present on nearly every bush in a typical

colony of R. alnifolia near O'Leary (D. Erskine, J.E. Campbell).

SALIX - Willow

Scab (Fusicladium saliciperdum) sev. affected all trees at St. Simeon, Saguenay Co., Que. (H. Genereux). Specimens affected by F. saliciperdum and the Gloeosporium state of Physalospora miyabeana were received from St. Luc de Matane (I.L. Conners).

Anthracnose (Marssonina kriegeriana) caused considerable damage to ornamental plantings of S. babylonica at Comox and Sidney (W. Jones) and at Chilliwack, B.C. (I.C. MacSwan).

Rust (Melampsora epitea (bigelowii). Heavy or potentially heavy infections were found on S. bebbina, the main arborescent willow in the area covered, when it was found growing in association with Larix occidentalis (q.v.) as follows: on the e. slope of Monashee Pass, 3100-3500 ft.; 5 mi. n. of Grand Forks at ca. 3000-4000 ft.; between Rossland and Cascade; and near Moyie. Scattered infections were seen elsewhere but it was nowhere serious except where the alternate hosts were growing together (D.B.O. Savile).

Powdery Mildew (Uncinula salicis). Mod. infections near Edmonton and at Carstairs, Alta. (T.R. Davidson).

Die-Back (Valsa leucostoma) was observed on S. laurifolia at Edmonton, Alta. (W.P. Campbell).

SAMBUCUS

Leaf Spot (Septoria sambucina). Mod. infection on S. canadensis at Upton, Queens Co., P.E.I. (J.E. Campbell).

SORBUS - Mountain Ash

Rust (Gymnosporangium cornutum). Pycnia and aecia were abundant on native mountain ash (Pyrus decora (Sarg.) Hyland.) grown as ornamentals at Clearwater Bay, Ont. Juniperus communis var. depressa growing some 20 yards distant was heavily infected, killing some branches (W.L. Gordon).

ULMUS - Elm

Dutch Elm Disease (Ceratostomella ulmi). Of the samples from elm trees received for culturing at Ottawa 37/57 from Ont. and 181/360 from Que., yielded C. ulmi. The 218 samples from which the organism was isolated were all from counties where the disease was previously reported except one from New Sarum in Elgin Co., Ont. Although no general survey was made, there appeared to be some increase in Kent Co. No new serious outbreak, however, was reported (Ruth Macrae).

Leaf Spot (Gnomonia ulmea) partially defoliated the odd plant in a hedge

of U. pumila in Lincoln Co., Ont. (G.C. Chamberlain). Affected specimens received from Brantford and Galt (C.B. Kelly).

Coral Spot (Tubercularia ulmea) caused sl. damage in a garden at Burnaby, B.C., and reported to be sev. on all 10 plants in a hedge at Vancouver (I.C. MacSwan, W. Jones). The disease was reported from Bracebridge, Ont. as follows: " I seem to be losing quite a few Chinese elm. They dry up and die and I attribute this to the red disease on the trunk and limbs of the trees". Specimens were also received from Palmerston, Stratford, Ripley, and Bracebridge in 1952 (C.B. Kelly). Specimens of Chinese elm were received from Kings, York, and Carleton counties, N.B. Infection was mod.-sev. in the individual cases. The destructiveness of the disease may be enhanced by winter injury (J.L. Howatt). Coral spot destroyed about 10% of a hedge at Summerside, P.E.I. (J.E. Campbell).

Leaf Spot (Phleospora ulmi) caused heavy defoliation of U. americana growing along the streets of Liverpool, N.S. The disease first observed on 14 Aug., had caused 80% defoliation by 10 Oct., the first killing frost being the night before. Defoliation was estimated as follows: 7 trees, nil; 9 trees 1/3 defoliated; 18 trees 2/3 defoliated; and 66 trees completely defoliated (M.A. Stillwell, J.A. Parmelee).

Chemical Injury (2,4-D). Specimens submitted from Picton, R.R. 4, Ont., were sev. injured (C.B. Kelly).