V. DISEASES OF TREES AND SHRUBS

ABIES - Fir

Witches' Broom (Melampsorella cerastii). A large broom on A. balsamea at Kentville, N.S., was sporulating profusely on 27 June (D. W. Creelman).

ACER - Maple

Leaf Spot (Cladosporium humile J. J. Davis) caused heavy spotting of A. rubrum at North Alton, Kings Co., N.S., on 21 Aug. The fungus fruited sparsely on some spots. A perfect stage was produced by Plakidas (Mycol. 39:34. 1952) and named Venturia acerina, but it was unaccompanied by a Latin diagnosis and, as far as we are aware, is still a nomen nudum. First Canadian record. (D. W. Creelman, D. B. O. Savile).

Die-Back (Cytospora ambiens and Nectria cinnabarina assoc.) has caused serious damage to a planting of A. pseudoplatanus at the Station, Kentville, N.S. (D. W. Creelman).

Leaf Spot (Gloeosporium apocryptum) was found on A. rubrum at Highbury, Kings Co., N.S. (D. W. Creelman, D. B. O. Savile).

Leaf Spot (Phleospora aceris) was widespread in Kings Co., N.S. It was heavy on A. rubrum, lighter on A. saccharophorum (saccharum) and trace on A. pensylvanicum in June. It was later found causing occasional large spots and marginal scorching of A. pseudoplatanus at Beaver River, Yarmouth Co. (D. W. Creelman).

Leaf Spot (Phyllosticta minima) was a trace on A. campestre and A. ginnala in the Arboretum, Ottawa, Ont. (J. A. Parmelee).

Leaf Blight (Ramularia lethalis), apparently following Taphrina dearnessii, was light on A. spicatum at New Minas, Kings Co., N.S. (D. W. Creelman, D. B. O. Savile).

Tar spot (Rhytisma spp.). R. acerinum was severe on several A. saccharinum at Montreal North, Que. (J. E. Jacques), on one tree at Centerville, N.S. (D. W. Creelman), and in a row at Southport, P. E. I. (R. R. Hurst). R. punctatum was light on a few trees of A. macrophyllum at Boundary Bay, B. C. (H. N. W. Toms); and light but general on A. pensylvanicum and A. spicatum in Kings Co., N.S.; and a specimen on A. negundo was received from Bridgetown, Annapolis Co. (D. W. Creelman).

Powdery Mildew (Uncinula aceris) was general on A. macrophyllum with poor air drainage at Boundary Bay, B. C. (H. N. W. Toms).

Chemical Injury (2,4-D). Observations for the last 2-3 years suggest a carry-over effect on A. negundo in Sask. The effect is admittedly unproved, but symptoms of 2,4-D injury appear on maple before spraying of cereal crops with 2,4-D starts in the Saskatoon region (T. C. Vanterpool).

AESCULUS - Horsechestnut

Wound Rot (Collybia velutipes) severely damaged a tree of A. hippocastanum in Queens Co., P. E. I. (R. R. Hurst).

Leaf Blight (Guignardia aesculi) was very severe in communities along the shore in Digby and Yarmouth Co., N.S., where A. hippocastanum is the principal shade tree. The humid weather in the coastal areas seems to favour the disease. It was also severe in Kings Co. (D. W. Creelman). Blight was a trace to heavy throughout P. E. I. (R. R. Hurst, J. E. Campbell).

Canker (Nectria cinnabarina). A trace was seen in Queens Co., P. E. I. (R. R. Hurst).

ALNUS - Alder

Powdery Mildew (Phyllactinia corylea). Infection averaged 50%, with severe damage, on Alnus spp. at several locations in Kings Co. and at Pleasant Lake, Yarmouth Co., N. S. (D. W. Creelman).

Leaf Spot (Ramularia ?alnicola Cke.). Specimens on A. crispa var. mollis from Acacia Valley, Digby Co., N. S., yielded a Ramularia tentatively identified as R. alnicola of which authentic material is not available. The conidia and conidiophores are much longer than those described for A. alnicola, but this may be largely a reaction to the dense pubescence of A. crispa var. mollis compared with A. glutinosa, a phenomenon seen in several species of Ramularia. The conidiophores are often scandent on the hairs. This is apparently the first North American record of this fungus (D. W. Creelman, D. B. O. Savile).

Leaf Spot (Septoria alni) was heavy on A. incana at Casey's Corner, Kings Co., N. S. (D. W. Creelman, D. B. O. Savile).

Catkin Deformation (Taphrina robinsoniana). Infection was 75% at Canning, N. S. (D. W. Creelman).

Leaf Blight (Taphrina tosquinetii (Westend.) Tul.) caused a general scorch on two small shrubs of A. crispa var. mollis, in July 1951, near St. Anthony, Nfld. Det. A. J. Mix. The mycelium is apparently systemic and perennial. This predominantly European species was hitherto reported in North America only in New Hampshire (D. B. O. Savile).

AMELANCHIER

Black Leaf Curl (Apiosporina collinsii) was a trace in the Beaverlodge district, slight near Alliance, and moderate at Edmonton, Alta. (T. R. D.).

Rust (Gymnosporangium clavariaeforme) was light at Bunbury, Queens Co., P. E. I. (J. E. Campbell, I. L. Conners).

Blossom Blight (Monilinia amelanchieris). Infection of blossoms and young fruit was 20-50% on A. intermedia at Steam Mill and North Alton, Kings Co., N. S. (D. W. Creelman).

Leaf Spot (Phyllosticta innumerabilis Peck) was moderate on A. intermedia and light on A. stolonifera at Gaspereaux Lake, Kings Co., N. S. Conidia bacillar or knobbed, 5. 5-8. 5 x 1. 0-1. 5 microns; apparently a micro-conidial stage (D. W. Creelman, D. B. O. Savile).

Leaf Spot (Physalospora obtusa) was light on A. intermedia at New Minas, Kings Co., N. S.; the Sphaeropsis stage was present (D. W. Creelman, D. B. O. Savile).

BETULA - Birch

Powdery Mildew (Phyllactinia corylea). Infection was about 75% with mod. damage on B. alba, B. lutea and B. populifolia at Moore's Falls, Kings Co., N. S. (D. W. Creelman).

Leaf Spot (Septoria ?betulae) was seen on B. lutea at White Rock, Kings Co., and B. populifolia at Pleasant Lake, Yarmouth Co., N.S. The Septoria spp. on Betula are poorly delimited, but this seems to be the best disposition for these specimens (D. W. Creelman, D. B. O. Savile).

Leaf Blister (Taphrina carnea Johans.) was common on B. glandulosa at Chesterfield Inlet, Dist. of Keewatin, in 1950, and occasionally on B. pumila at St. Anthony, Nfld., in 1951. Det. A. J. Mix (D. B. O. Savile).

Witches' Broom (Taphrina nana Johans.) was occasional on B. glandulosa at Great Whale River, Que., in 1949. Det. A. J. Mix (D. B. O. Savile).

CARYA - Hickory

Leaf Spot (Microstroma juglandis) was very heavy on a single tree at Trenton, Ont. (K. M. Graham, D. B. O. Savile).

CHAMAECYPARIS - Cypress

Root and Crown Rot (Phytophthora ?lateralis) is commonly found on C. lawsoniana in nurseries and gardens in the lower mainland, B. C. (I. C. MacSwan).

CORNUS - Dogwood

Crown Rot (Phytophthora cactorum) affected 8 trees of C. nuttallii in a garden at Vancouver, B. C., very seriously, and it appeared that they would die. This disease is common in the area. Several enquiries evidently referring to it were received (I. C. MacSwan).

Leaf Spot (Septoria cornicola) caused slight defoliation of C. alternifolia at Forest Glade, Kings Co., N.S. (D. W. Creelman).

CORYLUS - Hazelnut

Leaf Spot (Gloeosporium coryli) caused widespread damage to C. cornuta in Kings Co., N.S., producing large spots and marginal scorching. The affected leaves turned yellow in late Aug. and defoliation was 50% by early Sept. (D. W. Creelman).

Leaf Spot (Gnomoniella coryli). Traces were found at North Alton, Highbury and Northville, Kings Co., N.S. (D. W. Creelman).

Powdery Mildew (Phyllactinia corylea) was heavy on C. cornuta at Gaspereaux L., Kings Co., N.S. (D. W. Creelman).

CRATAEGUS - Hawthorn

Scald (Entomosporium thuemenii) was moderately heavy at Kentville and severe at Yarmouth, N.S., on C. oxyacantha, which is extensively planted. Defoliation of one hedge was 50% on 30 July (D. W. Creelman).

Rust (Gymnosporangium clavipes). Infection was 5% on fruits of C. oxyacantha in a hedge at the Station, Kentville, N.S. It was heavy on twigs and fruits of C. macrosperma at Steam Mill, Kings Co. (D. W. Creelman).

Leaf Blight (Monilinia johnsonii (Ell. & Ev.) Honey). A trace of the Monilia stage was seen on leaves of C. macrosperma at Kentville, N.S. First report to the Survey (D. W. Creelman).

CUPRESSUS - Cypress

Leaf and Twig Blight (Coryneum sp.) caused considerable damage to a hedge of C. macrocarpa at Salt Spring Island, B.C. (W. Jones).

FRAXINUS - Ash

Leaf Spot (Mycosphaerella effigurata (Schw.) House, syn. Cylindrosporium fraxini, Marssonina f., Piggotia f.) was heavy on specimens of F. pennsylvanica var. subintegerrima from Indian Head, Sask. (D.B.O. Savile). It was heavy, but seemed to cause little damage, on F. americana at White Rock, Kings Co., N.S. (D.W. Creelman). This polymorphic and widespread fungus has been reported to the Survey under various names. It seems preferable to unite all records under the ascigerous stage. See Weiss and O'Brien (Index of Plant Diseases in the United States. Part 4: 771-774. 1952) for additional synonymy (D.B.O.S.).

Powdery Mildew (Phyllactinia corylea) was heavy on one tree of F. pennsylvanica in the Arboretum, Ottawa, Ont. Only twice before reported to the Survey on Fraxinus, both times from Guelph, Ont. (P.D.S. 24:100, and 29:96). Most published records of this fungus on Fraxinus are from Michigan westward (J.A. Parmelee).

Rust (Puccinia sparganioides) was light on a tree of F. americana at Contrecoeur, Vercheres Co., Que. (J.E. Jacques). It was heavy on the same host in Kings Co., N.S. Pycnia seen on 12 June; aecia plentiful by 24 June; infected leaves wilting by 1 July, and trees appeared scorched by mid July; defoliation advanced by 1 Aug. (D.W. Creelman). Very heavy on young F. americana in a nursery at Charlottetown, P.E.I., on 17 July (J.E. Campbell).

HAMMAMELIS - Witch Hazel

Leaf Spot (Stilbospora sp. associated) was moderately heavy on H. virginiana at Acacia Valley, Digby Co., N.S. The spots bore superficial, perfectly flat acervuli with dark brown spores 14-22 x 5.0-7.3 microns, usually 3-5-septate, often with end cells paler than others. Hendersonia foliorum Fckl. var. hammamelidina Fairman was described from N.Y., but neither the description nor a specimen has been seen. The spores of the present fungus resemble those of Hendersonia, but the fruit body shows no tendency toward the form of a pycnidium (D.W. Creelman, D.B.O. Savile).

JUNIPERUS - Juniper

Rust (Gymnosporangium spp.). G. clavipes was very common on young growth of J. communis var. depressa in Kings and Annapolis Co., N.S., as a result of infections in 1950. G. clavariaeforme was prevalent on the same host throughout the district (J.F. Hockey).

LIGUSTRUM - Privet

Canker (Nectria cinnabarina) completely killed a 5-year-old hedge of L. amurense 40 ft. in length. The general picture suggested prior weakening by winter injury (D.W. Creelman).

LONICERA - Honeysuckle

Leaf Blight (Glomerularia lonicerae) was moderately heavy on leaves sent in for examination from Montreal, Que. (J. E. Jacques).

Powdery Mildew (Microsphaera alni) was severe on hedges in several private gardens and at the Botanical Garden, Montreal, Que. (J. E. Jacques).

OSTRYA - Hop Hornbeam

Leaf Spot (Septoria ostryae) was heavy and caused severe scorching of O. virginiana at White Rock, Kings Co., Ont. Affected trees were about 25% defoliated (D. W. Creelman). Reported previously from N.S.

PICEA - Spruce

Snow Blight (Phacidium infestans Karst.). The lower branches were reported to have been killed at the Agricultural School of La Ferme, Abitibi Co., Que. (J. E. Jacques). cf. P. D. S. 13:80 et seq.

PINUS - Pine

Rust (Coleosporium solidaginis) was common on Aster conspicuous at Clinton, B. C. First report from B. C. on this host (W. Newton). It was heavy in June on the lower needles of all trees in a young plantation of P. sylvestris near Limoges, Ont., on sod with considerable Solidago (D. B. O. Savile).

Rust (Cronartium coleosporioides) was severe in an ornamental hedge of P. contorta at Burnaby, B. C.; not known whether due to repeating aecia or to presence of alternate host (W. Orchard). This rust was collected on Castilleja sp. in the Cariboo district (W. Newton).

Blister Rust (Cronartium ribicola) was heavy, especially on trunks, of a young stand of P. strobus at the Station, Kentville, N.S. The aecia were shedding spores on 9 May when Ribes leaves were expanding (C. O. Gourley). Occasional infections were seen on P. strobus in Kings Co., P. E. I. (R. R. Hurst).

POPULUS - Poplar

Leaf Spot (Fusicladium radiosum). Infection was 50-75% on P. grandidentata at Kentville, N. S., in June, causing considerable defoliation (D. W. Creelman). It was heavy on the same host at Hunter River, P. E. I. in late June (R. R. Hurst).

Anthracnose (Marssonina castagnei) was heavy in a few trees of P. alba, causing considerable defoliation by late Aug., at Ottawa, Ont. (D. B. O. Savile). M. populi was heavy on P. grandidentata and P. tremuloides near Kentville, N. S. Infection was traced to cankered twigs (D. W. Creelman).

Rust (Melampsora abietis-canadensis) was heavy and caused moderate damage to P. tremuloides at South Alton, Kings Co., N. S. (D. W. Creelman).

Leaf Spot (Septoria musiva) was light to moderately heavy on P. tremuloides in Kings Co., N. S. (D. W. Creelman, D. B. O. Savile).

Powdery Mildew (Uncinula salicis). Infection was 75% on P. tremuloides at Gaspereaux L., Kings Co., N. S. (D. W. Creelman).

PRUNUS

Shot Hole (Higginsia hiemalis) was heavy in June on two trees of P. pensylvanica at Barton, Digby Co., N.S., with heavy defoliation (K.A. Harrison, D.W. Creelman). H. lutescens was heavy on P. virginiana at White Rock, Kings Co. (D.W. Creelman, I.V. Hall).

Blossom and Twig Blight (Monilinia fructicola). Infection was 50% on blossoms and 10% on twigs of a single flowering almond, P. triloba, at Kentville, N.S. on 13 June (J.F. Hockey) and was heavy on P. besseyi and P. virginiana at Annapolis on 17 June (K.A. Harrison). Infection was 75-100% on P. glandulosa at Lakeville, Kings Co., on 17 June (D.W. Creelman).

Shoot Hypertrophy (Taphrina flavorubra Ray) was a trace on Hansen's Bush Cherry, P. besseyi, at Atlantic, Shelburne Co., N.S. Det. A.J. Mix. First report from N.S. (D.W. Creelman). Dr. Mix has recently checked other specimens on this or other varieties of P. besseyi, and we are able to report the pathogen from Ont., N.B. and P.E.I. It may form "plum pockets" on the same host (D.B.O.S.).

QUERCUS - Oak

Leaf Blister (Taphrina coerulescens) was frequent, causing slight to moderate damage, on Quercus sp. at Summerside, P.E.I. (R.R. Hurst).

RHAMNUS - Buckthorn

Rust (Puccinia coronata) was moderate at Fredericton, N.B., on R. cathartica (S.R. Colpitts); but, in general, oat crown rust was only a trace on this host in the province (J.L. Howatt). Infection was a trace on this host at Wolfville, N.S. (D.W. Creelman) and in Prince and Queens Co., P.E.I. (R.R. Hurst, J.E. Campbell). Light to moderate infections were found on R. alnifolia in Carleton Co. and Victoria Co., N.B. (J.L. Howatt). The rust on this host commonly goes to Calamagrostis canadensis, which grows in similar habitats (D.B.O.S.). P. coronata var. agrostidis was moderately heavy on R. frangula at Fredericton (J.L. Howatt). A trace of the rust on this host was found at Kentville, N.S., where it is already recorded on Agrostis (D.W. Creelman). See Rust Races, Section I.

Mosaic (virus) affected half the trees in a hedge of R. cathartica in Queens Co., P.E.I. (R.R. Hurst).

SALIX - Willow

Scab (Fusicladium saliciperdum) was severe at the Station, Ste. Anne de la Pocatiere, Que., on weeping willow, S. babylonica var. ?aurea (S. niobe) (R.O. Lachance). It was present, with Physalospora miyabeana, in specimens of Salix sp. from Notre Dame du Nord, Temiskaming Co. (Ruth Macrae, I.L. Conners). It and blight were very heavy at Grand Pre and elsewhere in the Annapolis Valley on French willows or remaining suckers of killed trees. Good control was obtained at Grand Pre as a result of spraying as soon as the ground would support a sprayer. S. alba var. calva (S. coerulea) remains apparently immune (K.A. Harrison). Scab was heavy in Kings and Queens Co., P.E.I. (R.R. Hurst).

Anthracnose (Marssonina kriegeriana) was severe on 12 trees of S. babylonica in a low area in Stanley Park, Vancouver, B. C.; both leaves and twigs affected (I. C. MacSwan).

Blight (Physalospora miyabeana). The perfect stage, but not the Gloeosporium stage, was present on cankers in specimens of S. sp. received on 29 July from Notre Dame du Nord, Temiskaming Co., Que. (Ruth Macrae, I. L. Conners). See also under scab.

Leaf Spot (Ramularia rosea) was collected on S. ?discolor at Thorpe Road, Kings Co., N. S. (D. W. Creelman, D. B. O. Savile).

Tar Spot (Rhytisma salicis) was a trace on S. sp. near Edmonton, Alta. (T. R. D.).

Powdery Mildew (Uncinula salicis) was severe but patchy on willows near Edmonton, Alta. (T. R. D.). It was heavy on S. lucida and widespread on other spp. in Kings Co., N. S. (D. W. Creelman).

Gall (?insect). Large galls occurred on branches and trunks of laurel willow, S. pentandra, grown as a hedge at Centreville, Carleton Co., N. B. Although the galls superficially resembled crown gall, repeated attempts at isolation with various techniques failed to yield the organism. It is suspected that an insect was involved (M. D. Sutton, S. R. Colpitts).

SAMBUCUS - Elder

Leaf Spot (Ascochyta wisconsina J. J. Davis) caused moderate damage to S. canadensis at Kentville, N. S. First report to the Survey (D. W. Creelman).

SORBUS - Mountain Ash

Rust (Gymnosporangium juniperi (G. aurantiacum). Infection was 10% on leaves of Sorbus americana at East Margaretsville, Annapolis Co., N. S., and was also found at Pleasant Lake, Yarmouth Co. (J. F. Hockey, D. W. Creelman). These are our first mature specimens of this species from N. S., although pycnia presumably of it have been reported previously (P. D. S. 24: 102. 1945). To judge from its abundance at St. Anthony, Nfld., in 1951, collecting in Cape Breton in late summer will show it to be plentiful in suitable habitats. It is common in the Ungava Peninsula as far north as Great Whale River, and pycnia have been found as far north as Fort Chimo on Ungava Bay.

TILIA - Basswood

Leaf Spot (Cercospora microsora) caused considerable defoliation of T. americana at South Williamstown, Annapolis Co., N. S. (J. F. Hockey, D. W. Creelman).

Leaf Spot (Gloeosporium tiliae) caused slight damage to planted Tilia sp. at Bunbury, Queens Co., P. E. I. (J. E. Campbell).

Coral Spot (Nectria cinnabarina) caused slight damage to T. cordata at Kentville, N. S. (D. W. Creelman).

ULMUS - Elm

Dutch Elm Disease (Ceratostomella ulmi). The number of samples from elm trees suspected of having the Dutch elm disease received at the Ottawa Laboratory for culturing in the 1952 season was considerably less than in former years. The reduction was mainly the result of the general

survey being discontinued in Ontario as had previously been done in Quebec. The total number of samples received was 468: 53 from Ontario, 393 from Quebec, and 22 from Manitoba. Of these, 25 from Ontario and 209 from Quebec (32 of which were research samples) yielded Ceratostomella ulmi. No new serious outbreak of the disease was reported (Ruth Macrae).

Leaf Spot (Gnomonia ulmea). Infection was 75% on U. americana at Kentville, N.S., on 31 July, and the leaves were starting to turn yellow. Infection was 25% in a hedge of U. pumila at Woodside, Kings Co., in September, but injury was slight (D.W. Creelman).

Coral Spot (Tubercularia ulmea). Several inquiries were received concerning this disease in hedges in the Montreal area, Que. (J.E. Jacques). Specimens were received of U. ?pumila from a 20 ft. hedge at Halifax, N.S., in which infection was evidently heavy. It is prevalent in N.S. on "Chinese" elm (D.W. Creelman). Damage to U. pumila was severe at Summerside, P.E.I. (R.R. Hurst). See P.D.S. 31:109. 1952 concerning the nomenclature and identities of these Asiatic elms.

Winter Drought. W. Murray, Superintendent of Parks, Regina, Sask., describes the failure of a relatively large number of elms on the city boulevards to leaf out normally. The leaves open late and are abnormally small; and the trees die in a year or two. The condition has been seen on the University campus at Saskatoon (T.C. Vanterpool). A possibly related condition has been seen occasionally on a small scale at Ottawa, Ont., in trees bordering back yards or lawns that were used as skating rinks. The branches adjacent to the rink bear small leaves that may look as though infected by a virus, and usually die the following year. This effect may be due either to lack of oxygen or to low temperature. The clear ice of a rink presumably is a much poorer insulator than even the thinnest snow cover; and the soaking of the soil below the rink probably greatly reduces the insulating value of the soil itself. With the increased demand for complete removal of snow from city streets, injury to shade tree roots is to be expected (D.B.O. Savile).

VIBURNUM

Downy Mildew (Plasmopara viburni) was heavy on the lower leaves of V. opulus in a crowded planting at Ottawa, Ont. The disease tends to build up if we have two or more successive summers of abundant rainfall, but virtually disappears after a prolonged spell of dry weather (D.B.O. Savile).