VI. DISEASES OF ORNAMENTAL PLANTS

ACHILLEA

Rust (Puccinia Ptarmicae) was observed in the same locations as last year (P.D.S. 26:81. 1947) and elsewhere in Kamouraska Co., Que., on A. Ptarmica var. The Pearl. It was also found at Ste. Luce, Rimouski Co. (A. Payette, R.O. Lachance).

ACONITUM - Monkshood

Yellows (Callistephus virus 1). Two severely affected plants were found in a garden at Fredericton, N.B. (D.J. MacLeod).

ALTHAEA ROSEA - Hollyhook

Rust (Puccinia Malvacearum) was found on some plants at Edmonton, Alta., and was severe on plants at Brooks (J.D.C.). Rust was general at the Botanical Garden, Montreal, Que. (J.E. Jacques). It was heavy and caused severe damage at Kentville, N.S. (D. Creelman). Fourteen specimens were brought in for diagnosis at Charlottetown, P.E.I.; infection was a trace to very heavy (R.R. Hurst).

ANTIRRHINUM - Snapdragon

Powdery Mildew (Oidium sp.) caused slight damage to A. majus in a greenhouse at Sooke, B.C. (W. Jones). Erysiphe Polygoni and E. Cichoracearum are reported on Antirrhinum, but this is the first report to the Survey of any powdery mildew on this host.

Rust (Puccinia Antirrhini) was general on A. majus in a garden at Agassiz, B.C. (W. Jones).

Yellows (Callistephus virus 1). A trace was found in two gardens in York Co. and one in Sunbury Co., N.B. (D.J. MacLeod).

AQUILEGIA - Columbine

Leaf Blotch (Haplobasidium pavoninum v. Höhn.) was collected on Aquilegia sp. at Elk Lake, B.C. It was recognized by Dr. K.F. Baker. This is the first Canadian record of this fungus (W. Jones). Dr. Baker reports that this disease was very destructive in California in 1940, the first year that it was recognized. It has occurred sporadically since, but has always been less severe. The name peacock leaf spot has been used in the United States, but in our material the lesions are not conspicuously zonate, and the term leaf blotch used by W.C. Moore (Trans. Brit. Mycol. Soc. 22:266-277. 1939) seems preferable. Notes supplied by Dr. Baker indicate that many species and varieties may be attacked but that marked differences in susceptibility may be found. Our material agrees closely with the description given by Moore except that the swollen conidiophores often bear up to about 10 sterigmata rather than 1-4. These sterigmata, which are often dumbbell-shaped, bear 1-4 scars at the apex, similar to those on the conidiophore from which they arise, and each of these scars is the point of attachment for a chain of spores. Conidiophores about 25 microns high, 5-6 microns broad near base, 12-14 microns at flattened head; sterigmata 9.5-17.0 x 5.5-8.5 microns; spores 4.8-9.5 microns diam., spherical to broadly ellipsoid, minutely roughened, light yellow to greyish brown when cleared in lactophenol (D.B.O. Savile).

ARABIS - Rock-Cress

White Rust (Cystopus candidus) moderately infected A. alpina in a rock garden at Victoria, B.C., in 1946; first report on Arabis from B.C. (W. Jones).

ASTER

Powdery Mildew (Erysiphe Cichoracearum). A. novae-angliae and A. novi-belgii were severely attacked at the Botanical Garden, Montreal, Que. (J.E. Jacques).

BEGONIA

Leaf Nematode (Aphelenchoides fragariae). Many plants in a commercial greenhouse at Montreal, Que., were badly affected; previously reported from B.C. (J.E. Jacques).

Bacterial Leaf Spot (Xanthomonas begoniae). Several species were affected in the greenhouses at the Botanical Garden, Montreal, Que. (J.E. Jacques).

BERBERIS - Barberry

Rust (Puccinia graminis). The first pycnia were starting to secrete nectar on 30 May 1947 in the Arboretum, Ottawa, Ont. (I.L. Conners, D.B.O. Savile). Rust was very heavy on some escaped bushes at Fredericton, N.B. (J.L. Howatt).

BOLTONIA

Streak (virus) affected 40% of the plants in the border at the Station, Fredericton, N.B. (D.J. MacLeod).

CALENDULA

Yellows (Callistephus virus 1) severely damaged 50% of the plants of C. officinalis in the border at the Station, Fredericton, N.B. (D.J. MacLeod). Infection was 100% in a planting of Orange King, and was generally severe at Charlottetown, P.E.I. (R.R. Hurst).

CALLISTEPHUS CHINENSIS - China Aster

Wilt (Fusarium oxysporum f. Callistephi). A few plants in a seed crop were affected at Saanich, B.C. (W. Jones). Wilt was found in a garden at Edmonton, Alta. (A.W. Henry). This disease was destructive in a commercial planting of a reputedly wilt-resistant variety at Fort Garry, Man.; the organism was isolated (W.L. Gordon). Wilt killed 15 out of 300 plants in a mixed bed in the Arboretum, Ottawa, Ont. (D.B.O. Savile).

Yellows (Callistephus virus 1). A specimen was received from Caughnawaga, Que. (D.B.O. Savile). Yellows was general and severe in York, Sunbury, Queens, and Westmorland Co., N.B. (D.J. MacLeod).

CAMPANULA

Rust (Coleosporium Campanulae), reported last year (P.D.S. 26:82. 1947) from L'Islet and Kamouraska Co., Que., on Campanula rotundifolia var. intercedens, was found on the same host near Bonaventure, some 220 miles further east (D.B.O. Savile).

CENTAUREA

Rust (Puccinia Cyani) was severe in 1946 on a few plants of C. Cyanus in a nursery at Langley, B.C. (W. Jones).

Root Rot (Pythium sp.) severely injured plants of C. Cyanus received from Gananoque, Ont. The trouble was stated to be severe in one bed but absent from others (D.B.O. Savile).

Leaf Spot (Septoria centaureicola var. brevispora) caused slight damage to a few plants of C. Cyanus in a garden at Langley, B.C.; previously reported from Man. and Ont. (W. Jones, D.B.O. Savile).

CENTRANTHUS

Yellows (Callistephus virus 1). Three affected plants of C. ruber were found in a garden at Fredericton, N.B. (D.J. MacLeod). First report to the Survey on this host.

CHRYSANTHEMUM

Nematode (Aphelenchoides fragariae) affected a few plants at Victoria, B.C. (W. Jones). Many plants were attacked in a greenhouse at North Saanich (J. Bosher). This trouble was very prevalent in a commercial greenhouse at Montreal, Que., most of the plants being infected (J.E. Jacques).

Powdery Mildew (Erysiphe Cichoracearum) was becoming conspicuous in a greenhouse at Montreal, Que., on 13 Oct. (J.E. Jacques).

Leaf Spot (Septoria chrysanthemella) injured a few plants of C. maximum in a garden at Courtenay, B.C., in 1946 (W. Jones). The lower leaves of chrysanthemums in a commercial greenhouse at Montreal, Que., were heavily spotted in Oct. (J.E. Jacques).

Canker (?bacterial). Specimens were received from Brampton, Ont., that had been topped to stimulate flowering. Each stem was blackened about the cut and sometimes for 3-4 in. downward, the cortex was softened, and the pith and xylem were brown. A bacterium was consistently isolated (R.G. Atkinson).

Chimera (cause unknown). Specimens of December Gold, received from Crystal Beach, Ont., were seriously disfigured by pale streaks on the leaves. Other varieties were stated to be unaffected. The affected areas ran out from the veins and were pale green and slightly sunken when above, and grey green and markedly sunken when on the lower surface; occasionally lesions on both surfaces overlapped to give white areas. Sections showed that the affected tissue consisted of small, undifferentiated parenchyma cells, lacking chloroplasts and similar to the border parenchyma (D.B.O. Savile).

Stunt (cause unknown, possibly virus). A new disease of chrysanthemums has been encountered in several commercial plantings in Ont., of cuttings originating from Yoder Bros., N.Y. State. At St. Catharines 30% of a planting of Snow were affected. Other varieties found especially affected were Anaconda, Apricot, Queen Argo, Betsy Ross, Detroit News, Friendly Rival, and Nevada (G.H. Berkeley). Stunt has become a serious problem in a large commercial greenhouse at Falmouth, N.S., during the last two years. This establishment obtains most of its rooted cuttings from Yoder Bros. In the imported stock infection was over 50%, whereas it was less than 1% in stock rooted locally (J.F. Hockey). Although this trouble, traces of which have recently been observed in intercepted nursery stock from Yoder Bros., has the appearance of a virus disease, no success has been

reported in transmitting it. Hockey's observation of small amounts of the trouble in locally rooted cuttings might be interpreted as evidence of spread; but the trouble might be physiological and the different amounts of it explainable by different conditions of rooting (D.B.O. Savile).

CLEMATIS

Rust (Puccinia Clematidis) was light on C. sp. at Lethbridge, Alta. (M.W. Cormack).

CONVALLARIA MAJALIS - Lily-of-the-Valley

Blight (Botrytis cinerea) caused considerable damage at New Westminster, B.C. (R.J. Hastings).

Anthracnose (?Gloeosporium Convallariae) was heavy on three leaves received from Oakville, Ont. The lower limits of the spore size agreed with G. Convallariae, but the great variability in the spores leaves the identity in doubt (D.B.O. Savile).

COREOPSIS

Yellows (Callistephus virus 1) affected one plant of C. tinctoria at Fredericton, N.B. (D.J. MacLeod).

COSMOS

Blight (Botrytis cinerea) caused slight damage at Charlottetown, P.E.I. (R.R. Hurst).

CROCUS

Wilt (Botrytis sp.) attacked a few plants of a yellow variety at Gordon Head, B.C., in 1946 (W. Jones).

CYCLAMEN

Root Knot (Heterodera marioni) was affecting about 700 out of 1100 plants in a commercial greenhouse at Ottawa, Ont., in mid August, symptoms ranging from slight yellowing or curling to complete death. Eventually almost all the plants were lost. Tomatoes grown in a sample of the compost used for these cyclamen remained healthy. It is believed that the nematodes had been present previously in the greenhouse on a tolerant host and had passed unobserved (D.B.O. Savile).

DAHLIA

Mosaic (virus) was seen in several varieties in many gardens at Charlottetown, P.E.I. (R.R. Hurst).

DAPHNE

Anthracnose (Marssonina Daphnes) caused considerable defoliation of D. Mezereum at Cobble Hill, B.C., in 1946 (W. Jones).

DELPHINIUM - Larkspur

Powdery Mildew (Erysiphe Polygoni) severely injured the plants in the University plots, Edmonton, Alta. (J.D. Gilpatrick). It was heavy in a garden at Arundel, Que. In a garden at Perce it was heavy in one bed but absent from a second (D.B.O. Savile). Mildew was heavy in a garden at Charlottetown, P.E.I. (W.A. Hodgson, R.R. Hurst).

Wilt (?Fusarium sp.). One dying plant was found at Lethbridge, Alta., and F. sp. was isolated (M.W. Cormack).

Bacterial Blight (Pseudomonas delphinii). Severe damage was seen in the University plots, Edmonton, Alta., (J.D. Gilpatrick). Infection was heavy on certain plants at the Experimental Farm, Indian Head, Sask.; there appear to be considerable varietal differences in susceptibility (R.C. Russell). A few plants at the Botanical Garden, Montreal, Que., were attacked after flowering (J.E. Jacques).

Mosaic (?Cucumis virus 1) affected a few plants in a garden at Agassiz, B.C., in 1946 (W. Jones). A single plant was brought in at Charlottetown, P.E.I. (R.R. Hurst).

Yellows (Callistephus virus 1). Two affected plants were found in a garden in Sunbury Co., N.B. (D.J. MacLeod).

DIANTHUS

Wilt (Fusarium spp.). F. Equiseti was isolated from a plant of D. Caryophyllus var. Polyanna at Esquimalt, B.C., 24 Jan. 1946 (W. Jones, W.L. Gordon). Wilt, with F. sp. present in specimens caused severe stunting, yellowing and leaf curling of D. Caryophyllus vars. Peter Fisher and Virginia at Brampton, Ont., in June; the soil in the bed had not been changed or sterilized for several years (D.B.O. Savile).

Leaf Rot (Heteropatella valtellinensis (Trav.) Wollenw.) recently intercepted by the U.S.D.A. in a shipment of carnation cuttings from New Westminster, B.C., and was soon afterwards discovered to be established in the neighbourhood of Seattle, Wash. According to W. Buddin and E.M. Wakefield (Trans. Brit. Mycol. Soc. 14:215-221. 1929), who described the fungus as Heteropatella Dianthi, large, soft, greyish or brownish lesions are formed on the leaves and stems, on which can be seen the small, raised fruit bodies. The fruit bodies may be accompanied by a hyphomycetous phase (Pseudodiscosia Dianthi Host. & Laub.), which is the only spore form seen in culture. The conidia are typically 20-25 x 4-5 microns, excluding a short basal and a 12-20 (30) micron apical appendage, and 2-3-septate. Under dry conditions the spores are smaller, 0-1-septate and generally lack appendages. Plant pathologists are asked to examine carnations carefully to determine the range of this disease, which has not previously been found outside Europe. The fungus was originally described from D. carthusianorum; other Dianthus spp. should therefore be examined. Optimum growth in culture occurs at 19-20°C. and Buddin and Wakefield suggest that the disease is favoured by cool, wet conditions (D.B.O. Savile).

Leaf Spot (Heterosporium echinulatum) caused considerable damage to D. barbatus var. Scarlet Beauty at Brentwood and Gordon Head, B.C., in July 1946. It proved injurious and difficult to control on D. Caryophyllus in a greenhouse at Langley in June 1946 (W. Jones).

Bacterial Leaf Spot (Pseudomonas woodsii (E.F. Smith) Stevens) caused moderate damage to D. Caryophyllus in a greenhouse at London, Ont., in February (R.G. Atkinson).

Leaf Spot (?Septoria Dianthi Desm.) occurred on plants at Edmonton, Alta. (A.W. Henry).

DIMORPHOTHECA - Cape Marigold

Yellows (Callistephus virus 1). Three plants were affected at the Laboratory, Fredericton, N.B. (D.J. MacLeod).

ERYTHRONIUM

Blight (Botrytis ?Tulipae) affected a few blossoms of E. grandiflorum, 9 Apr. 1947, at North Saanich, B.C. Isolations yielded a fungus similar in culture to B. Tulipae, and inoculation of tulip gave lesions similar to those of fire. Later the fungus was found also on dying leaves of E. grandiflorum, and finally what appeared to be typical B. Tulipae from tulip was found to be pathogenic to Erythronium in the greenhouse (W. Jones).

Rust (Uromyces heterodermus) was common at North Saanich, B.C. (W. Jones).

ESCHSCHOLZIA

Yellows (Callistephus virus 1) was severe on 3% of the plants of E. californica at the Laboratory, Fredericton, N.B. (D.J. MacLeod).

FREESIA

Mosaic (Phaseolus virus 2). Infection was 95% in 15 flats of Marie in a greenhouse at Toronto, Ont., with severe mottling and stunting, and necrosis of the upper parts of the leaves. Infection was 5% in 15 flats of Red, but symptoms were confined to mottling and slight stunting. No infection was observed in Blue, Golden Giant, Oriole, White and Yellow. The corms had originated from California (C. Copeland, D.B.O. Savile). This disease has recently been shown to be due to the same virus that causes the widespread mild mosaic of gladiolus and the serious yellow mosaic of bean. See P. Brierley and F.F. Smith (Current status of gladiolus virus disease problems. The Gladiolus Magazine 12:38-40,46. 1948) for discussion of this virus.

GAILLARDIA

Smut (Entyloma Compositarum). A trace to moderate damage was seen in several plantings of G. aristata at or near Ottawa, Ont. (D.B.O. Savile).

Yellows (Callistephus virus 1). A single plant of G. aristata in the Arboretum, Ottawa, Ont., showed what appeared to be current season infection; the earliest heads were normal, later ones slightly stunted, and the latest very abnormal or completely sterile (D.B.O. Savile). A trace was seen at the Laboratory, Fredericton, N.B. (D.J. MacLeod). G. aristata var. Dazzler in a planting at Charlottetown, P.E.I., showed 10% infection with severe injury (V. Clark).

GEUM - Avens

Downy Mildew (Peronospora Gei Syd. ex Gäumann) was general and caused severe damage to a seed crop of G. chiloense var. Mrs. Bradshaw at Keating, B.C. First report to the Survey. Spores mostly 15-19 x 13-17 microns; in P. Potentillae, to which this form was at first assigned, the spores are mostly 23-30 x 14-21 microns (W. Jones, D.B.O. Savile).

GLADIOLUS

Yellows (Fusarium oxysporum) was definitely present in King of Hearts, and was suspected in Alladin and Chianti, in specimens received from Toronto, Ont., in July. Infection was severe in August in 5 out of 5 corms of Mrs. E. Both, imported from the United States,

but no infection was seen in 500 corms of other varieties in the same garden at Toronto (D.B.O. Savile). Specimens were brought in from four gardens at Charlottetown, P.E.I. (R.R. Hurst).

Scab (Pseudomonas marginata) was heavy in specimens received from Penticton, B.C., in May. It was very heavy in all corms received from Terrace in November, and a number had also been attacked by Penicillium and Botrytis, which had penetrated through the scab lesions. Infected corms of several varieties were received from Foremost, Alta., in November; new land was stated to have been used, but very wet weather in June is believed to have caused rapid spread. Severely infected corms were received from Welland, Ont., in March. Infected plants of Alladin and King of Hearts were received from Toronto in June; the lesions were still visible on the old corms (D.B.O. Savile). Odd infected corms were found in storage in spring at the Botanical Garden, Montreal, Que., and a few plants showed symptoms during the summer. Specimens were received from Quebec with the statement that the disease was very prevalent in a large plantation (J.E. Jacques). Infection was moderate to severe, with secondary Penicillium and Botrytis infection, in corms of several varieties received from Truro, N.S., in December (D.B.O. Savile).

Core Rot (Sclerotinia Draytoni) caused considerable loss in February and March at Hatzic and Brentwood, B.C. (T. Tourenu). Specimens were received from Welland, Ont., in March (D.B.O. Savile).

Dry Rot (Stromatinia Gladioli (Drayton) Whetzel). Slight damage was seen on corms at Victoria, B.C., in December (W. Jones). Diseased Vagabond Prince, received in a shrivelled state from Grand Forks had been attacked by dry rot at least in part. Seventy other varieties were said to be unaffected (D.B.O. Savile).

Hard Rot (Septoria Gladioli) was heavy in corms received from Penticton, B.C., in May (D.B.O. Savile). The corms of one variety were heavily infected at Thorsby, Alta. (M.W. Cormack). A single infected corm of Rosa van Lima was received from Magnetawan, Ont., and unidentified corms were received from Welland in March. Heavily infected corms were received from Amherst, N.S., in Jan. 1948 (D.B.O. Savile). Hard rot infection was 10% in one lot and 50% in a second in May at Charlottetown, P.E.I. (R.R. Hurst).

Bacterial Blight (Xanthomonas gummisudans) was moderately heavy on young plants of three varieties and a trace on others in the Arboretum, Ottawa, Ont. (D.B.O. Savile). In Jan. 1948 corms of White Gold were received from Burlington with ring-shaped lesions, superficially suggestive of white grub injury, surrounding the basal plate where the old corms had made contact. Slight to extensive bacteria-filled gum was present on all lesions (D.B.O. Savile).

Mosaic (Phaseolus virus 2). A markedly mottled plant was received from Lennoxville, Que. See discussion under mosaic of Freesia. It is now apparent that the slight mottle that often nearly uniformly affects certain stocks of some varieties is due to the bean yellow mosaic virus. It may prove to be impossible to secure disease-free stocks of certain varieties. It is important that growers should be warned to segregate all gladiolus plantings from peas, beans, common clover and sweet clover, and in particular to segregate nursery stocks from commercial gladiolus plantings as well as from all legumes (D.B.O. Savile).

GODETIA

Rust (Puccíniastrum Epilobii) caused slight damage to G. grandiflora at Brentwood, B.C., in 1946; first report from B.C. on Godetia (W. Jones). This specimen agrees closely in urediniospore size with specimens on Epilobium sect. Lysimachion from coastal B.C. In view of the finding (P.D.S. 23:106. 1944) that the rust on the latter hosts freely attacks Clarkia, it is probable that it is also a source of inoculum for Godetia (D.B.O. Savile).

GYPSOPHILA

Yellows (Callistephus virus 1). A trace was found in two gardens at Fredericton, N.B. (D.J. MacLeod).

HELENIUM - Sneezeweed

Fasciation (Corynebacterium fascians). A single affected plant of H. autumnale was received from Pointe Claire, Que. (D.B.O. Savile).

Yellows (Callistephus virus 1) severely injured two plants of H. autumnale at the Laboratory, Fredericton, N.B. (D.J. MacLeod).

HELICHRYSUM - Everlasting

Yellows (Callistephus virus 1) was seen on everlasting (?H. bracteatum) in four gardens in York Co., N.B.; infection was 2-7% (D.J. MacLeod). Infection was 6% in a garden at Charlottetown, P.E.I. (G.W. Ayers).

HYACINTHUS - Hyacinth

Yellows (Xanthomonas hyacinthi) was present in a few bulbs bought at a retail store at Vancouver, B.C., in April 1946, probably Dutch imports (W. Jones). Severely stunted plants were received from Windsor, Ont., in Jan. 1948. The disease was said to predominate in a lot of 400 imported bulbs (D.B.O. Savile).

HYDRANGEA

Powdery Mildew (Oidium sp.) was stated to be defoliating a single plant in a house at Almonte, Ont. (D.B.O. Savile). It was general but not severe in the greenhouse at the Botanical Garden, Montreal, Que. (J.E. Jacques).

IRIS

Leaf Spot (Didymellina macrospora) was common and often destructive at North Saanich; the spores were abundant on the lower leaves in May (W. Jones). Specimens were received from Toronto, Ont., with information that it was heavy on 100 plants in a garden (D.B.O. Savile). Specimens were received from Shallow Lake (I.L. Conners). At the Botanical Garden, Montreal, Que., plants in slightly acid soil were severely spotted, whereas no sign of the disease was seen in beds with soil at pH 8.0 (J.E. Jacques). A moderate infection occurred at Kentville, N.S. (D. Creelman). Leaf spot was heavy and caused severe injury in a planting at Charlottetown, P.E.I., and three specimens were brought in for identification (R.R. Hurst).

Bulb Nematode (Ditylenchus dipsaci) was seen in P. de Ridder, grown from Dutch imported bulbs at Victoria, B.C. (R.J. Hastings).

Soft rot (Erwinia carotovora) caused slight damage to several varieties of rhizomatous iris in the Arboretum, Ottawa, Ont.; there was considerable leaf infection aggravated by slug injury; May and June were very wet (D.B.O. Savile). Severe soft rot, following borer attack, developed in a planting at Charlottetown, P.E.I. (R.R. Hurst).

Bacterial Leaf Blight (Bacterium tardicrescens McCull.). Nearly all plants of Mount Royal were more or less affected at the Botanical Garden, Montreal, Que. (J.E. Jacques).

Mosaic (virus) was common in Sierra Blue and El Capitan, but not in 30 other varieties in the same garden at Winnipeg, Man. (F. Johnson). Infection was 80% in a greenhouse planting of Wedgewood at Windsor, Ont., in Feb. 1948 (D.B.O. Savile).

LATHYRUS

White Mould (Ramularia sp.) slightly damaged the lower leaves of L. odoratus at Saanichton, B.C. (W. Jones). H.M. Good (Studies on the Cladosporium blight of sweet pea. Can. J. Res. 25(c): 137-154. 1947) failed to infect L. latifolius and several other leguminous genera. He questions whether Erostrotheca multiformis is the perfect stage of the white mould organism, as he was unable to develop it in culture, and he uses the name Cladosporium album Dowson. Actually it is difficult to see why this organism, a typical Ramularia despite Dowson's claims to the contrary, was ever placed in Cladosporium. Apart from the question of its genetic connection with E. multiformis, C. album does not appear to have been proved to be morphologically distinct from Ramularia Lathyri Hollos (1910) and other species of Ramularia and Ovularia described on Lathyrus. In view of the great variability of many members of this group of fungi such proof is clearly desirable (D.B.O. Savile).

Root Rot (Fusarium sp.). Specimens of L. odoratus were received from North Bay, Ont. (D.B.O. Savile).

Powdery Mildew (Microsphaera diffusa). Infection was a trace to moderate on L. odoratus vars. Amethyst, Fortune, King Lavender, and Sextet Queen, in a garden at Charlottetown, P.E.I. (R.R. Hurst).

Mosaic (Pisum virus 2) attacked a few seed plants of L. odoratus at Saanichton, B.C. (W. Jones). Two plants were infected in a 50 ft. row at Charlottetown, P.E.I. (R.R. Hurst).

Bud Drop (excess nitrogen) was severe in a greenhouse crop of L. odoratus var. Rose Queen near Montreal, Que., in Dec. 1947; the plants were stated to be 12 ft. high (D.B.O. Savile). Traces occurred on Amethyst and King Lavender in a garden at Charlottetown, P.E.I. (R.R. Hurst).

LILIUM - Lily

Nematode Blight (Aphelenchoides ritzema-bosi) caused severe damage to L. longiflorum vars. Croft and White Queen in a greenhouse at Esquimalt, B.C. Experimental transfers from chrysanthemums reproduced the disease, showing that the same form of the nematode attacks both plants. Natural infection of lilies outdoors has not been seen in B.C., but it is important in Washington State (R.J. Hastings).

Blight (Botrytis elliptica) was fairly general, 22 July, at Oyster River, B.C., and was severe on L. speciosum (W. Jones).

Bulb Rot (?Fusarium sp.). A specimen from Beaverlodge, Alta., yielded Fusarium sp. (J.D.G.).

Stump Rot (Phytophthora parasitica Dast.). Severely rotted mature plants of L. regale were received in early June from Ingersoll, Ont., and P.

parasitica was isolated. Infection was stated to be heavy in the bed and in a bed of 200 seedlings of L. regale and L. tenuifolium, but L. candidum and some Creelman lilies were unaffected. The tops of the plants fell over abruptly from when the stems were barely through the ground until they were about a foot high. What was clearly the same disease was received in late May from Port Hope, again in L. regale, but although coenocytic mycelium was present secondary decay made isolation impossible; 12 plants were affected out of several hundred and loss was stated to have been 50% in 1945. This is the first report to the Survey of this disease, but the pathogen may be widely distributed and the trouble is to be expected in exceptionally wet springs (D.B.O. Savile, L.T. Richardson).

Fasciation (Corynebacterium fascians) attacked several plants of L. speciosum at Oyster River, B.C. (W. Jones).

Mosaic (virus). All plants of L. canadense at the Botanical Garden, Montreal, Que., showed typical symptoms early in the season, but flowering was not markedly affected and symptoms later disappeared (J.E. Jacques).

LONICERA - Honeysuckle

Leaf Blight (Glomerularia Lonicerae) was general on an extensive hedge of L. sp. near Montreal, Que. Infection was very heavy on specimens received from St. Eustache (D.B.O. Savile).

Powdery Mildew (Microsphaera Alni) was general and severe in hedges at the Botanical Garden, Montreal, Que. (J.E. Jacques).

LUPINUS - Lupine

Leaf Spot (Ascochyta Pisi var. Lupini) was general on the lower leaves of L. polyphyllus (Russell hybrids) at Pointe Claire, Que. Considerable necrosis had occurred, for most of which the fungus appeared to be responsible. First report from Que. (D.B.O. Savile).

Rust (Uromyces Lupini) occurred on a few plants in a garden at Chilliwack, B.C. in 1946 (W. Jones).

MAHONIA

Rust (Cumminsiella sanguinea) was abundant on a bush of M. aquifolium at Cowichan, B.C., in May 1946 (W. Jones).

Rust (Puccinia Koeleriae) was seen on M. aquifolium at Saanichton, B.C., in July 1946; det. G.B. Cummins; first report to the Survey although previously collected in B.C. on this host (W. Newton).

MATHIOLA - Stock

Yellows (Callistephus virus 1). Four severely affected plants of M. incana were seen at the Station, Fredericton, N.B. (D.J. MacLeod).

NARCISSUS

Dry Rot (Armillaria mellea) affected a few plants of King Alfred at Bradner, B.C., in May 1946 (W. Jones). Recorded from north-western United States and England, usually on recently cleared land, but not previously reported to the Survey.

Fire (Sclerotinia polyblastis) was fairly general on Poetaz at Bradner, B.C., in May (R.J. Hastings).

Leaf Scorch (Stagonospora Curtisii) was seen on Forerunner and and King Alfred at Abbotsford, B.C. Forerunner is very susceptible (R.J. Hastings).

Mosaic (virus) occurred in a few plants of King Alfred at Gordon Head, B.C. (R.J. Hastings). Plants showing leaf distortion and striping were received from Halifax, N.S. (J.F. Hockey).

OXALIS - Wood Sorrel

Rust (Puccinia Oxalidis Dietel & Ellis). Uredinia of this rust were collected, 6 June, by Dr. M.L. Timonin in a commercial greenhouse at Ottawa, Ont., on O. corymbosa DC. (O. Martiana Zucc.). When the greenhouse was visited a few days later it was found that O. corymbosa had completely overrun all sections and that nearly every plant was heavily rusted. O. rubra bore a few pustules but appeared to be quite resistant. Hosts determined by Dr. G.H.M. Lawrence. The natural distribution of the rust is southern United States, Mexico, West Indies and South America. The greenhouse changed ownership in 1945, at which time O. corymbosa, was already well established. Presumably the rust was originally introduced with imported Oxalis plants (I.L. Conners).

PAEONIA - Peony

Blight (Botrytis Paeoniae). Several infected stems were received from Invermere, B.C. (D.B.O. Savile). Blight was severe in gardens at Edmonton, Alta., and in the plots at Olds (J.D.G.). Severely infected plants with the pathogen in fruit were received from Montreal, Que. (D.B.O. Savile). Specimens were received from Ste. Rose with information that the disease was very severe (J.E. Jacques). The late buds were all blighted (?B. cinerea) at Ste. Anne de la Pocatiere (C. Ferrault). Blight caused slight damage at Charlottetown, P.E.I. (R.R. Hurst).

Leaf Blotch (Cladosporium Paeoniae). Occasional spots were found at the Botanical Garden, Montreal, Que. (J.E. Jacques). Specimens in good fruit were received from Pointe au Pic, Charlevoix Co. (D.B.O. Savile).

Phytophthora Blight (P. Paeoniae Cooper & Porter) was found at Morin Heights, Argenteuil Co., Que., and the organism was isolated. The symptoms are very similar to those of Botrytis blight (J.E. Jacques). First report to the Survey, but the disease may have passed unnoticed for some time owing to its resemblance to the universally present Botrytis blight.

Leaf Spot (Septoria Paeoniae) was severe on a few plants in the plots at Olds, Alta. (L.E. Tyner).

Mosaic (virus) occurred in one clump at the Botanical Garden, Montreal, Que. (J.E. Jacques).

Ring Spot (virus). Seven plants were infected in a plot at the Station, Fredericton, N.B. They are gradually degenerating (D.J. MacLeod).

PELARGONIUM - Geranium

Grey Mould (Botrytis cinerea). Leaves received from Montreal, Que., in June showed spotting and red and yellow coloration. B. cinerea fruited on some spots but may not have been the primary cause of the trouble (D.B.O. Savile). An affected plant was brought in at Charlottetown, P.E.I., in March (R.R. Hurst).

Leaf Curl (virus). Infection was 10% in pink varieties in a greenhouse at Aldershot, Ont. Plants were seriously stunted and blossoms were blasted (G.C. Chamberlain). It was heavy in the municipal greenhouses at Verdun, Que., on Salmon procured from a Montreal florist, but was not seen in Radio Red from the same source or in various varieties grown on the premises. Spotting was very pronounced in the specimens received (D.B.O. Savile).

PHLOX

Powdery Mildew (Erysiphe Cichoraceorum) was prevalent at the Botanical Garden, Montreal, Que., and in several private gardens in the district (J.E. Jacques). It was heavy in many clumps in some gardens at Montmagny, but others were free (D.B.O. Savile).

Blight (?virus). Most varieties of P. paniculata at the Botanical Garden, Montreal, Que., are more or less affected (J.E. Jacques). It was severe on 3% of the plants in the border at the station, Fredericton, N.B., and was common in York and Sunbury Co. (D.J. MacLeod).

Yellows (Callistephus virus 1) attacked scattered plants of Frau Anton Buchner and Mia Ruys at the Botanical Garden, Montreal, Que. (J.E. Jacques). Three per cent of the plants at the Station, Fredericton, N.B., were severely affected and yellows was general in York and Sunbury Co. (D.J. MacLeod).

PORTULACA - Purslane

Wilt (Fusarium sp.). Infection was a trace to 10% in seed crops at Grand Forks, B.C. (G.E. Woolliams).

ROSA - Rose

Crown Gall (Agrobacterium tumefaciens) severely damaged two plants of Paul's Scarlet at Charlottetown, P.E.I. (R.R. Hurst).

Leaf Spot (Diplocarpon Rosae) was again heavy and caused premature defoliation in many rose gardens in the Niagara Peninsula, Ont. (G.C. Chamberlain). Heavily infected specimens were received from Ottawa, Ont., and Knowlton, Que. (D.B.O. Savile). Several varieties were infected at the Botanical Garden, Montreal (J.E. Jacques). A lightly infected specimen was brought in at Charlottetown, P.E.I. (R.R. Hurst).

Stem Canker (Leptosphaeria Coniothyrium). Specimens received from a greenhouse at Brampton, Ont., in February had stems completely girdled near the base (R.G. Atkinson). Dying back from pruning stubs was common on several varieties of hybrid teas and hybrid polyanthas at St. Catharines in April (G.C. Chamberlain).

Leaf Spot (Mycosphaerella (Cercospora) rosicola). A light infection occurred at Kentville, N.S. (D. Creelman).

Rust (Phragmidium spp.). P. americanum caused some early defoliation of a bush of Paul Neyron hybrid polyantha at St. Catharines, Ont. (G.C. Chamberlain). A light infection by P. speciosum was seen at Kentville, N.S. (D. Creelman).

Powdery Mildew (Sphaerotheca pannosa). A trace occurred on a few varieties at the Botanical Garden, Montreal, Que. (J.E. Jacques). A moderate infection occurred on a rambler at Kentville, N.S. (D. Creelman). A trace was seen at Charlottetown, P.E.I. (R.R. Hurst).

Mosaic (virus). A single infected plant was seen at Kentville, N.S. (D. Creelman).

SYRINGA - Lilac

Powdery Mildew (Microsphaera Alni). Traces were seen on several trees at the Botanical Garden, Montreal, Que. (J.E. Jacques) and at Charlottetown, P.E.I. (R.R. Hurst).

Blight (Pseudomonas syringae). Specimens were received from Sheridan, Ont., with blighted tips and with small to moderately large cankers on the current and previous years' growth. Damage was severe and several hundred plants were said to be affected (D.B.O. Savile). Several bushes were badly blighted in a garden at Montreal, Que. (J.E. Jacques). It caused moderate damage at Ste. Anne de la Pocatière, where it had not been seen since 1936; apparently the weather favoured its development (A. Payette).

Graft Blight (lilac-privet incompatibility). Three bushes at the Station, Fredericton, N.B., developed severe chlorosis, then wilted and died; the privet stocks remained alive. This trouble has become common wherever privet stock is used in the province. The bush usually dies when 7-10 years old (D.J. MacLeod).

TAGETES - Marigold

Yellows (Callistephus virus 1) affected 17% of T. erecta at the Station, Fredericton, N.B. (D.J. MacLeod).

TULIPA - Tulip

Fire (Botrytis Tulipae). Specimens were received from Shallow Lake, Ont., and Malartic, Que., with reports of heavy damage (D.B.O. Savile). Several varieties were seriously affected at the Botanical Garden, Montreal (J.E. Jacques). Traces were seen in a garden at Charlottetown, P.E.I. (R.R. Hurst).

Shanking (?Phytophthora sp.). A specimen from Baie Comeau, Que., showed typical symptoms and contained coenocytic mycelium, but was too severely overgrown by saprophytes to permit isolation (D.B.O. Savile).

Root Rot (Pythium ultimum) caused considerable stunting and delayed flowering of forced plants in a greenhouse at Langley, B.C. The fungus was isolated and proved pathogenic to potato (W. Jones).

Stem Rot (Sclerotinia sclerotiorum) caused slight damage to William Pitt in a greenhouse at Brentwood, B.C. (R.J. Hastings, J.W. Groves).

Gummosis (physiological). Specimens were received from London, Ont., with the statement that 90% of the bulbs in 2 6-quart baskets of mixed varieties were affected. The bulbs were cured and stored in a cellar. This condition is generally regarded as due to insufficient ventilation in storage; affected bulbs usually grow normally (D.B.O. Savile).

Topple (physiological) affected a few plants growing outdoors at Vancouver, B.C. (W. Jones).

VIOLA

Blossom Blight (Botrytis sp.) was common and caused considerable damage to seed crops of V. tricolor var. hortensis at Oyster River, B.C. (W. Jones).

Leaf Spot (Cercospora Violae) was heavy, as a result of wet weather up to mid July, in a bed of mixed pansies, V. tricolor var. hortensis, at Ottawa, Ont. Many plants were nearly killed in early August when red mite and a sudden drought caused added injury (D.B.O. Savile).

Stem Rot (Myrothecium roridum Tode) killed 10% of Swiss Giant pansies in a seed crop at Elk Lake, B.C. The pathogen was isolated (W. Jones). First report to the Survey. N.C. Preston (Tr. Brit. Mycol. Soc. 26:158-168. 1943) was able to infect Viola with isolates from Dolichos and Hibiscus; the fungus attacks several unrelated genera as well as occurring on various non-living substrates.

Viola

Leaf Spot (Ramularia lactea) caused slight damage to pansies at Cobble Hill, Courtenay and Oyster River, B.C. (W. Jones).

ZINNIA

Yellows (Callistophus virus 1) affected 4 plants of Z. elegans in a garden in Sunbury Co., N.B. (D.J. MacLeod).