VI. DISEASES OF ORNAMENTAL PLANTS

ACHILLEA

Rust (Puccinia Millefolii Fekl.) was again heavy at Ste. Anne de la Pocatière, Que., on A. Ptarmica var. The Pearl. This year a little rust was also found on adjacent A. Millefolium. Examination of a wider range of specimens on both host species fails to indicate any real difference. European observations have suggested host specialization, but the observations at Ste. Anne indicate that even that is not complete. Certainly there is no basis for specific distinction and P. Ptarmicae is accordingly to be regarded as a synonym of P. Millefolii. There is a tendency for the spores to be broader, on the average, in some specimens on A. Ptarmica than in those on A. Millefolium, but this seems to be a mechanical effect resulting from differences in host anatomy; it is no more significant than the variations often encountered from pustule to pustule in many Puccinia spp. Although this is the first record of P. Millefolii on A. Millefolium from southern Que., it is endemic on this species in northern Que., having been recorded from Chimo and Great Whale River (A. Payette, D.B.O. Savile).

ACONITUM - Monkshood

Yellows (Calistephus virus 1) severely affected two plants in a garden at Fredericton, N.B. (D.J. MacLeod).

ALTHAEA - Hollyhock

Rust (Puccinia Malvacearum) was common on A. rosea at North Saanich, B.C. (W. Jones). Owing to the dry season it caused little damage in the B.C. interior; plants were mostly unrusted, and when infection did occur it did not exceed 5% and caused negligible injury (G.E. Woolliams). Traces occurred on the lower leaves of A. rosea at the Botanical Garden, Montreal, Que. (J.E. Jacques). It was heavy and defoliated all but the tops of the plants in a planting at Kentville, N.S. (C.O. Gourley). Infection in P.E.I. was about average, varying from trace to heavy, damage nil to severe. It seriously limits hollyhock production (R.R. Hurst). It should be noted that this species is greatly stimulated by sprinkling in gardens, which is a common explanation of serious damage in dry summers; application of water directly to the soil in perennial borders greatly reduces damage (D.B.O.S.).

Stem Rot (Sclerotinia sp.) caused moderate damage in a garden at Edmonton, Alta. (A.W. Henry).

ANTIRRHINUM - Snapdragon

Powdery Mildew (?Erysiphe Cichoracearum) was collected in a greenhouse at Victoria, B.C., in April. The conidia agree well will those of E. Cichoracearum to which the specimen probably belongs (W.R. Foster, D.B.O. Savile).

Root Knot (Heterodera marioni). A specimen was received from Elmira, Ont. (J.D. MacLachlan).

Anthracnose (Gloeosporium Antirrhini) was severe on leaves and stems of a specimen received from Montreal in November. Previously reported, from Que. only, in 1927 (D.B.O. Savile).

Downy Mildew (Peronospora ?Antirrhini Schroet.). Specimens were received in September from Murillo, Ont. The disease started in frames before the plants were set in greenhouse beds. Plants were stunted and many were lost. Buds were set prematurely. Cheviot Maid No. 33, Peggy Schumann and Ball's Yellow Hybrid were affected. First report in Canada (J.D. MacLachlan). Gaumann gives the spores of P. Antirrhini (s.s.) as mostly 20-29 x 16-25 microns. In material transmitted by Dr. MacLachlan the spores are 23.5-40 x 13-18 microns, generally twice as long as they are wide, and are close to the figures given for P. canadensis Gäum., described from Linaria canadensis in Mass. with spores (30.5)-34-41.5-(43) x (9.5)-13-21-(22.5) microns. However, Kenneth F. Baker (in litt.) states that in Calif. spores measured 21-99 x 14-17 microns, intermediate between Gäumann's two sets of figures, and suggests that the complex has been split too far. It is likely that we actually have a single variable species with a greater host range than Gäumann anticipated; but wider collecting and all possible cross-inoculation studies are needed. It is quite possible that some endemic strains on Linaria will prove to be highly virulent to A. majus (D.B.O. Savile).

Rust (Puccinia Antirrhini) was general in a commercial seed crop at Elk Lake, B.C. Spraying with Bordeaux mixture gave partial control (W. Jones). Rust caused little damage in the B.C. interior, owing to the dry season. Infection ranged up to 5% under favourable conditions (G.E. Woolliams).

Basal Rot (cause uncertain). About 1/3 of the plants in a border at Lethbridge, Alta., were killed shortly before flowering. An unidentified Phycomycete was isolated from the roots (M.W. Cormack). A basal rot caused some trouble in the municipal parks at Regina, Sask. Phytophthora sp., with amphigenous antheridia, and Fusarium app. were isolated (T.C. Vanterpool).

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

AQUILEGIA - Columbine

Powdery Mildew (Erysiphe Polygoni) was frequently found on foliage in gardens in the B.C. interior (G.E. Woolliams).

Leaf Spot (Septoria Aquilegiae Ell. & Kellerm.). Infection of A. canadensis at Dalhousie Lake, Lanark Co., Ont., was 10-16% on 31 May (W.R. Childers, J.A. Parmelee). Previously recorded from Que.

ASTER

Powdery Mildew (Erysiphe Cichoracearum) became general late in the summer at the Botanical Garden, Montreal, Que. (J.E. Jacques).

BEGONIA

Grey Mould (Botrytis cinerea) slightly disfigured leaves and flowers of tuberous begonia in a garden at Vancouver, B.C., in August (H.N.W. Toms). A specimen was received from Elora, Ont., on 20 June

(J.D. MacLachlan). Affected leaves from Montreal, Que., were brought in on 26 Aug. with the complaint that the plants were severely infected (J.E. Jacques).

Powdery Mildew (?Erysiphe Cichoracearum). Specimens were received from Waterloo, Ont., on 1 June, and from Woodford on 8 Sept. (J.D. MacLachlan). See P.D.S. 28:105. 1949.

Root Knot (Heterodera marioni) was seen on two plants in a greenhouse at Victoria, B.C. Large galls occurred at the bases of the stems and small ones on the roots (E. Howard).

BERBERIS - Barberry

Rust (Puccinia graminis) was moderate on a few plants of B. vulgaris at Ste. Anne de la Pocatière, Que., and a trace in a colony at St. Roch des Aulnaies (A. Payette). Infection of B. vulgaris in York Co., N.B., was lighter than for several years (J.L. Howatt).

BOLTONIA

Streak (virus) severely affected 51% of the plants at the Station, Fredericton, N.B. (D.J. MacLeod).

CALENDULA

Yellows (Callistephus virus 1) severely affected all the plants in two gardens at Fredericton, N.B. (D.J. MacLeod). Infection was trace to 100%, av. 10%, and about as in other years, on all varieties observed in Queens Co., P.E.I. (R.R. Hurst).

CALLISTEPHUS CHINENSIS - China Aster

Wilt (Fusarium oxysporum f. Callistephi) was general in a garden at Stony Plain, Alta. (A.W. Henry). It was severe in two plantings of supposedly wilt-resistant asters near Winnipeg, Man. The pathogen was isolated in each case (W.L. Gordon, B. Peturson). Wilt was reported to be severe in two gardens near Montreal, Que.

Yellows (Callistephus virus 1) was severe in plots at Edmonton, Alta. (T.R.D.). It was severe this summer at Kamsack and Saskatoon, Sask. See also Zinnia (T.C. Vanterpool). Yellows was moderately severe in the Saskatoon area, and to judge from specimens and correspondence it was severe in southwest Sask. (H.W.M.). All the plants in two gardens at Fredericton, N.B., were severely affected (D.J. MacLeod).

CAMPANULA

Rust (Coleosporium Campanulae) was lighter than usual on C. rotundifolia var. intercedens at Rivière Ouelle, Kamouraska Co., Que. (A. Payette).

CHRYSANTHEMUM

Powdery Mildew (Erysiphe Cichoracearum). A specimen was received from Belle River, Ont. (J.D. MacLachlan). Infection was a trace in a greenhouse at Falmouth, N.S. (J.F. Hockey).

Wilt (Fusarium sp.). A specimen was received from Stratford, Ont. (J.D. MacLachlan).

Leaf Spot (Septoria chrysanthemella). A specimen was received from London, Ont. (J.D. MacLachlan).

Yellows (Callistephus virus 1). Infection was 2% in a garden at Fredericton, N.B. (D.J. MacLeod).

Oedema (physiological) appeared in a greenhouse at Crystal Beach, Ont., on young plants. The plants outgrew the condition and flowered normally (G.C. Chamberlain).

Spray Injury. Application of Parathion in a greenhouse at St. Catharines, Ont., in October when the house was very hot (over 100°F.) caused injury to plants whose buds were about to open. Affected heads did not open normally and the bloom was unsaleable. Less advanced plants were unaffected (G.C. Chamberlain).

COREOPSIS

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

CYCLAMEN

Stunt (Cladosporium Cyclaminis). Traces were observed in a commercial greenhouse at Montreal, Que. (J.E. Jacques).

DAHLIA

Storage Rot (?Pythium sp.). Several hundred tubers were affected in commercial storage houses at New Westminster and Burnaby, B.C. (I.C. MacSwan).

Stunt (virus) severely damaged several varieties in Queens Co., P.E.I. (R.R. Hurst).

DAPHNE

Anthracnose (Marssonina Daphnes) was heavy on most of the bushes of D. Mezereum in the Vancouver area, B.C. Defoliation in several successive years causes eventual death (H.N.W. Toms).

DELPHINIUM - Larkspur

Powdery Mildew (Erysiphe Polygoni). Traces occurred on lower leaves at the Botanical Garden, Montreal, Que. (J.E. Jacques). It was light in gardens at Charlottetown, P.E.I. (R.R. Hurst).

Bacterial Blight (Pseudomonas delphinii). A specimen was received from Stratford, Ont. (J.D. MacLachlan). Slight damage occurred at the Botanical Garden, Montreal, Que. (J.E. Jacques).

DIANTHUS

Blight (Alternaria sp.). Specimens of branch rot of carnation were received from Campbellford and St. Marys, Ont. (J.D. MacLachlan). Most of our early records were ascribed to A. Dianthi, but Dr. Neergaard pointed out during his visit to North America that A. dianthicola is the widely-established pathogen, whereas A. Dianthi is little known and doubtfully

parasitic. It would be greatly appreciated if specimens of Alternaria on Dianthus could be sent to Dr. Groves to aid in assessing the situation (D.B.O.S.).

Wilt (Fusarium sp.). Specimens of carnation were received from London and Dunnville, Ont. (J.D. MacLachlan).

Bud Rot (Fusarium Poae). Specimens were received from Montmagny, Que., where the disease was reported as severe (J.E. Jacques).

Leaf Spot (Heterosporium echinulatum) was severe in March in a greenhouse at Langley, B.C. on several varieties of sweet william, D. barbatus and carnation, D. caryophyllus. Leaf lesions generally were in the form of well-defined ring spots, but stem lesions also occurred, which sometimes girdled the plant. Among carnation varieties Maytime and My Love and its sports proved very susceptible. Olivette, Peter Fisher and Tom Knife showed moderate resistance. The grower claimed that heavy applications of potassium sulphate helped to control the disease. Spraying with Parzate later appeared to give good control (W. Jones, H.N. Olds).

Stem Rot (Pellicularia filamentosa). Specimens of carnation were received from Goderich, Ont. (J.D. MacLachlan).

DIMORPHOTHECA - Cape Marigold

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

ERIGERON - Fleabane

Yellows (Callistephus virus 1). A trace was present on E. mucronatus in the laboratory disease garden, Fredericton, N.B. (D.J. MacLeod).

ESCHSCHOLZIA

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

GAILLARDIA

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

GLADIOLUS

Leaf Spot (Alternaria tenuis). About 10% of the plants in a field in Halton Co., Ont., were affected when observed 22 July. Pathogenicity verified by greenhouse inoculations. Organism identified by J.W. Groves (S.A. Simmons).

Dry Rot (Fusarium oxysporum var. Gladioli). Infection was moderate in specimens received from a gardener at Vancouver, B.C. (I.C. MacSwan). Infection was about 5% in a plantation near Wilsonville, Ont. (S.A. Simmons). Specimens were received in January 1949 from a grower at Toronto, with the statement that infection was heavy (J.E. Jacques). Two infected corms of U.S. origin were received from St. Johns, Nfld., in June. Organism determined by W.L. Gordon (J. Sibalis).

Yellows (Fusarium orthoceros var. Gladioli). What appeared to be this disease was common at Saskatoon, Sask., and was also seen at Kamsack,

in August. Plants failed to bloom, roots were attacked, and plants and corms were small, but the corms were not rotted (T.C. Vanterpool). Nine plants with chlorotic leaves and rotting corms were received 8 July from Chateauguay, Que. All isolations yielded Fusarium (J. Sibalis).

Storage Rot (Penicillium Gladioli). Infection was moderate in May in specimens sent in by a gardener at Vancouver, B.C. (T.C. MacSwan). It was severe in April in corms from a garden at Saskatoon, Sask. (T.C. Vanterpool). Corms were received from Marieville, Que., in November (J.E. Jacques).

Scab (Pseudomonas marginata) was heavy on 3 corms received from Windsor, Ont., and one from Hamilton, in January 1950 (D.B.O. Savile), and on one from Apple Hill submitted in May 1949 (J. Sibalis). Specimens were received from Plantagenet, where it was stated to be severe. Scab was the most serious disease of gladiolus at the Botanical Garden, Montreal, Que. (J.E. Jacques).

Core Rot (Sclerotinia Draytoni) was much less severe near Guelph, Ont., than during the 3 last years. A rather severe outbreak of the neck-rot phase was seen in a planting near Simcoe (S.A. Simmons). Specimens received in December 1949 from Norwich showed 20% infection in Snow Princess and 65 to 95% in Alladin, Elizabeth Queen, Gaylore, Orange Gold and Red Charm. Sclerotia were abundant on several corms. Curing had clearly been inadequate. Infection was heavy on various varieties of which specimens were received from Montreal, Que., in January 1950 (D.B.O. Savile). A few specimens were received from Truro, N.S. (J.F. Hockey). Severely rotted specimens were received from Charlottetown, P.E.I. in March (R.R. Hurst, D.B.O. Savile).

Hard Rot (Septoria Gladioli) was very severe in specimens sent in from Bowmanville, Ont. in April (D.B.O. Savile).

Mosaic (Phaseolus virus 2). Infected spikes of Picardy were brought in from Joliette, Que. (J.E. Jacques).

Chemical Injury (naphthalene fumigation). Following fumigation for control of thrips in December, nearly all corms of every variety at the Arboretum, Ottawa, Ont., showed sunken irregular lesions somewhat resembling hard rot. The flesh below the lesions was unaffected. A similar lot of corms planted a few years ago grew normally. Inadequate curing before treatment, impure naphthalene and fluctuating temperature during treatment may all possibly contribute to this injury. We have received specimens previously, occasionally with sublimed naphthalene on some of the lesions, but have never previously secured full data. It is suspected that a sudden temperature increase, causing naphthalene to volatilize from the outer part of the container and sublime on the still cold corms near the centre, may be the commonest explanation. It is believed that other chemicals may give similar symptoms, because one such lot was seen that definitely had not received naphthalene treatment (D.B.O. Savile).

GODETIA

Yellows (Callistephus virus 1) severely injured all 10 plants in the laboratory disease garden, Fredericton, N.B. (D.J. MacLeod).

HELIANTHUS - Sunflower

Downy Mildew (Plasmopara Halstedii). Specimens of H. rigidus var. Miss Mellish were received from Gananoque, Ont., in June. The disease was reported on this host from the same garden in P.D.S. 26:85 (I.L. Conners).

Rust (Puccinia Helianthi) was light on the lower leaves of H. annuus and H. tuberosus at Kentville, N.S. (K.A. Harrison).

HELICHRYSUM - Everlasting

Yellows (Callistephus virus 1) affected 7 plants in the laboratory disease garden, Fredericton, N.B. (D.J. MacLeod).

HYACINTHUS - Hyacinth

Soft Rot (Erwinia carotovora). Specimens of L'Innocence and a blue variety were received from two commercial greenhouses at London, Ont., in February 1950. Blossom buds were blighted and in some cases rotting of the scape had occurred. Both lots were from imported bulbs. First reported in P.D.S. 28:109 (D.B.O. Savile).

Yellows (Xanthomonas hyacinthi). Infection was light in a garden at Vancouver, B.C. (I.C. MacSwan).

HYDRANGEA

Powdery Mildew (Oidium sp.) completely ruined 800 plants in a greenhouse in Toronto, Ont., in April. No control had been attempted and the fungus almost completely over-ran blossoms and leaves, causing necrosis of the latter (D.B.O. Savile).

Stem Rot (Sclerotinia Sclerotiorum) attacked most of 130 plants shipped to Forbes, Ont., from a nursery at Vancouver, B.C. In the specimens, received on 7 Dec. 1949, almost every shoot had been rotted back and sclerotia were present on several. A letter from the growers indicated that they had experienced the trouble on a number of occasions but that they were not attempting to control it (D.B.O. Savile).

IRIS

Bacterial Leaf Blight (Bacterium tardicrescens). A large bed at the Botanical Garden, Montreal, Que., containing many varieties was moderately affected (J.E. Jacques).

Leaf Spot (Didymellina macrospora) was general in the interior of B.C., but caused little damage owing to the dry season (G.E. Woolliams). Infection was moderate at Beaverlodge and light at Edmonton, Alta. (T.R.D.).

Soft Rot (Erwinia carotovora) attacked a few odd plants at the Botanical Garden, Montreal, Que. (J.E. Jacques).

LATHYRUS

Streak (Erwinia lathyri). The pathogen was recovered by the Dept. of Bacteriology, O.A.C., from specimens (J.D. MacLachlan).

Powdery Mildew (Microsphaera Alni) was a trace on several varieties in gardens at Charlottetown, P.E.I. (R.R. Hurst).

Mosaic (Pisum virus 2) caused breaking in a single plant of Ecstasy at Charlottetown, P.E.I. (R.R. Hurst).

Bud Drop (excess nitrogen) was trace to 10%, av. 2%, in gardens in Queens Co., P.E.I. (R.R. Hurst).

LILIUM - Lily

Nematode Blight (Aphelenchoides ritzema-bosi). Infection was 3% in forced plants of Croft and White Queen in the greenhouse at the Station, Saanichton, B.C., in January 1949 (D.B.O. Savile).

Blight (Botrytis elliptica). Traces were seen at the Botanical Garden, Montreal, Que., and specimens were received from St. Jacques de Montcalm (J.E. Jacques).

Rust (Uromyces Holwayi) was light and caused slight damage to L. canadense at Ste. Anne de la Pocatière, Que. (A. Payette). Not previously reported in the Survey, but we have specimens on L. spp., wild and cultivated, from B.C. and Ont., and on L. philadelphicum from Orford, Que. (D.B.O.S.).

LONICERA - Honeysuckle

Leaf Blight (Glomerularia Lonicerae) combined with powdery mildew to cause early defoliation at the Botanical Garden, Montreal, Que. (J.E. Jacques).

Powdery Mildew (Microsphaera Alni) was general at the Botanical Garden, Montreal, Que., by mid August and became severe in September. It was also common in hedges in Montreal (J.E. Jacques).

LUPINUS - Lupine

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

MAHONIA

Rust (Cumminsiella sanguinea). A moderate outbreak occurred on M. Aquifolium in the Arboretum, Ste. Anne de la Pocatière, Que. All stages were present (A. Payette). Apparently the first record from eastern North America, but this rust has in recent years become well established in parts of western Europe. It was presumably introduced with nursery stock (D.B.O.S.).

NARCISSUS

Basal Rot (Fusarium spp.) was found in two lots of bulbs from Vancouver Island, inspected before shipment, but the incidence was under 5%. None was found in lots entered for certification on the mainland (R.P. Messum). In P.D.S. 28:111, under Basal Rot, it was reported that 160 crates of daffodil bulbs in a shipment from B.C. to England were declared a total loss upon inspection at Montreal on 8 Sept. Subsequently it was learned that the shipment had been fumigated by a commercial firm before shipment with 4 lb. methyl bromide per 1000 cu. ft. of space for 13 hrs., instead of the recommended 3 lb. for 4 hrs. From the condition of the bulbs upon inspection and the subsequent investigation, it is believed that the loss was due primarily to over-fumigation. High temperature in transit probably aggravated the injury (I.L. Conners).

Smoulder (Sclerotinia narcissicola) was noted in 11% of plantings inspected on Vancouver Island, B.C., but did not exceed 0.4% in any. On the mainland the incidence of primary lesions averaged 0.4% in 54% of the plantings at first inspection. Almost no secondary infection occurred in rogued or general plantings (R.P. Messum).

Leaf Scorch (Stagonospora Curtisii). A trace was present in 11% of the plantings inspected on Vancouver Island, B.C. On the mainland infection averaged 0.1% primary lesions in 42% of the plots entered for certification, and very little secondary infection was seen. As usual, infection was much higher in two-year-old plantings and reached 60% in one (R.P. Messum).

Decline (virus). This disease has been present in B.C. for some time under a variety of names; e.g., white streak, paper tip, and purple streak. Although much observational data has been accumulated, little experimental work has been done. Every planting of the large trumpet varieties showed infection, and loss from this disease probably exceeds all others combined. All plantings inspected on Vancouver Island were infected. Thirty-three per cent of plantings of King Alfred carried less than the 2.5% tolerance. On the mainland 54% of King Alfred plantings had been rogued to within 2.5%, but the remainder showed up to 12%. In some unrogued plantings infection was nearly 100% (R.P. Messum).

Mosaic (virus) was present in 33% of plantings inspected on Vancouver Island, B.C., but did not exceed 0.4% in any. Little was noted on the mainland, partly perhaps because many inspections of general plantings were made late in the season when symptoms are obscure (R.P. Messum).

Frost Injury. Prolonged cold weather in B.C. killed several layers of tissue on the necks of bulbs, which combined with the normally sloughed layers to form a tough sheath round the emerging shoot; however, damage was very slight (R.P. Messum).

NIGELLA

Yellows (Callistephus virus 1). A trace was found in the laboratory disease garden at Fredericton, N.B. (D.J. MacLeod).

PAEONIA - Peony

Blight (Botrytis Paeoniae). A specimen was received from a garden on Mayne I., B.C.; damage slight to moderate (I.C. MacSwan). A light infection was seen at Edmonton, Alta. (T.R.D.). It was common, damage usually slight, in peony beds at Saskatoon, Sask. (H.W.M.). Specimens were received from London, Stratford and Sarnia, Ont. (J.D. MacLachlan). Diseased plants were received from St. Vincent de Paul, Que. (J.E. Jacques). Four specimens were brought in from Queens Co., P.E.I.; damage usually moderate (R.R. Hurst).

Leaf Blotch (Cladosporium Paeoniae). Traces appeared toward mid August at the Botanical Gardens, Montreal, Que. (J.E. Jacques).

Mosaic (virus) has been observed for several years in the same plants at the Botanical Garden, Montreal, Que. The plants do not seem to be affected materially (J.E. Jacques).

Ring Spot (virus). Twelve plants at the Station, Fredericton, N.B., showed marked symptoms (D.J. MacLeod). Four plants in a garden at Charlottetown, P.E.I., were severely damaged (R.R. Hurst).

Bud Blight (?non-parasitic) affected 5% of buds of Karl Rosenfield at Charlottetown, P.E.I. It is most marked in unthrifty plants (R.R. Hurst).

PAPAVER - Poppy

Bacterial Blight (Xanthomonas papavericola). The pathogen was recovered by the Dept. of Bacteriology, O.A.C., from a specimen sent in from Wallacetown, Ont. (J.D. MacLachlan).

PELARGONIUM - Geranium

Grey Mould (Botrytis cinerea). Specimens were received from a garden in Montreal, Que. (J.E. Jacques).

Crinkle (virus). Specimens were received from Garson Mine, Chatham and Simcoe, Ont. (J.D. MacLachlan).

Mosaic (Cucumis virus 1). A specimen was sent in from Hamilton, Ont. (J.D. MacLachlan). Four plants in a garden at Fredericton, N.B., showed severe mottling and stunting (D.J. MacLeod).

PETUNIA

Yellows (virus) was seen in November in three plants sent in from Merwin, Sask., that had been potted and brought indoors (T.C. Vanterpool). Yellows was general in gardens at Fredericton, N.B.; infection ranged from trace to 12%, av. 4% (D.J. MacLeod).

PHLOX

Powdery Mildew (Erysiphe Cichoracearum) was generally prevalent on susceptible varieties in Ont., particularly in shaded situations. Specimens were received from Albion, Alvinston and Athlone (J.D. MacLachlan). Infection was moderate at the Botanical Garden, Montreal, Que. (J.E. Jacques).

Leaf Spot (Septoria divaricata). A few spots occurred on the lower leaves of annual phlox, P. Drummondi, but caused little damage, at the University, Vancouver, B.C., in late July. It was seen on the same host in early August at White Rock (H.N.W. Toms).

Yellows (Callistephus virus 1) was general and severe on P. Drummondi in York Co., N.B. Infection averaged 27% (D.J. MacLeod).

Blight (cause uncertain) was severe on all varieties of P. paniculata at the Botanical Garden, Montreal, Que. (J.E. Jacques). Eight severely affected plants were found in one of the borders at the Station, Fredericton, N.B. (D.J. MacLeod). Blight was a trace to heavy, and usually caused severe damage, in many varieties in gardens at Charlottetown, P.E.I. Damage is most severe in old plants (R.R. Hurst).

PORTULACA

Leaf and Stem Blight (Helminthosporium Portulacae Rader: Mycol. 40:342-346. 1948) was common on P. pleracea in field plots and in the greenhouse at the University, Saskatoon, Sask. Conidia were 150-160 x 13 microns (E.T. Reeder). Infected plants of P. grandiflora were received in August

from Gananoque, Ont., from the same garden in which it apparently occurred in 1940. It was later found on both hosts at Macdonald College, Que. (J. Sibalis, I.L. Conners).

ROSA - Rose

Crown Gall (Agrobacterium tumefaciens) caused considerable damage to hybrid tea roses at Brentwood, B.C. Galls were mainly on the roots (W. Jones). Specimens were sent in from Sardis and Hammond (I.C. MacSwan).

Grey Mould (Botrytis cinerea). A specimen was received from Port Burwell (J.D. MacLachlan).

Black Spot (Diplocarpon Rosae) was common in the plots at O.A.C., Guelph, Ont., and specimens were sent in from Drumbo and Toronto (J.D. MacLachlan). It was common and caused much defoliation of hybrid teas and hybrid polyanthas in the St. Catharines area (G.C. Chamberlain). It was less severe than usual at the Botanical Garden, Montreal, Que. (J.E. Jacques). Infection was trace to heavy, av. 10%, at Charlottetown, P.E.I. (R.R. Hurst).

Stem Canker (Leptosphaeria Coniothyrium). Specimens were received from Woodstock and Toronto, Ont. (J.D. MacLachlan).

Rust (Phragmidium spp.). An ornamental rose at Meadows, Man., was almost completely destroyed by P. speciosum in June (W.A.F. Hagborg, I.L. Conners). Specimens of the caeoma stage of P. speciosum from Pictou, N.S., received in July, showed infection of petioles, buds and blossoms. A hedge 20 ft. long was said to have been practically destroyed and the rust was spreading to other bushes 50 ft. away (I.L. Conners). P. subcorticinum was less prevalent than in recent years in the rose plots at O.A.C., Guelph, Ont. A specimen was received from Uxbridge (J.D. MacLachlan). P. sp. was reported on cultivated roses at Nanton, Alta. (A.W. Henry).

Anthracnose (Sphaceloma Rosarum). A specimen was sent in from St. Jacob's, Ont. (J.D. MacLachlan).

Powdery Mildew (Sphaerotheca spp.). S. Humuli was severe on indoor plants at Turtleford, Sask. (H.W.M.). S. pannosa was prevalent on climbing roses late in the season at O.A.C., Guelph, Ont. Specimens were received from Galt, Georgetown, Woodstock, Meaford and Kitchener (J.D. MacLachlan). It was very heavy on susceptible ramblers in the St. Catharines district in August, causing stunting of cane growth (G.C. Chamberlain). Traces of S. pannosa occurred on a few varieties at the Botanical Garden, Montreal, Que. (J.E. Jacques). Mildew was heavy on a climbing rose at Richmond, P.E.I. (D. Robinson), and on Crimson Rambler in Kings Co. (R.R. Hurst).

SCABIOSA

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

SIBIRAEA

Crown Gall (Agrobacterium tumefaciens). A large gall was present on the main stem of a plant received from a nursery at Sheridan, Ont. (J. Sibalis).

SOLIDAGO - Goldenrod

Powdery Mildew (Erysiphe Cichoracearum) was moderately heavy on all plants at the Botanical Garden, Montreal, Que. (J.E. Jacques).

SYRINGA - Lilac

Powdery Mildew (Microsphaera Alni). Specimens were received from various sources in Montreal, Que. (J.E. Jacques).

Bacterial Blight (Pseudomonas syringae) was seen on lilacs in a private estate at Montreal, Que. (J.E. Jacques).

TAGETES - Marigold

Yellows (Callistephus virus 1) was general in gardens in York Co., N.B., av. infection 11% (D.J. MacLeod). Infection was 2-100% in gardens at Charlottetown, P.E.I., on Harmony and other varieties (R.R. Hurst).

TULIPA - Tulip

Fire (Botrytis Tulipae). On Vancouver Island, B.C., infection was slight in 51% of plantings inspected and moderate in 24%. On the mainland losses were negligible owing to the dry spring weather. Primary lesions were seen in 37% of the plantings and averaged less than 0.4% at first inspection, and in only 7% with an average of 1.8% at second inspection. A trace of secondary infection was seen in 63% of the fields, and slight to severe infection in 10% (R.P. Messum). Infection was moderate at the Botanical Garden, Montreal, Que., and specimens were received from Drummondville and Levis (J.E. Jacques). Infection ranged from trace to 50% of plants near Kentville, N.S. (J.F. Hockey). It was a trace in many gardens and heavy at two locations in Queens Co., P.E.I. (R.R. Hurst).

Bulb Rot (Sclerotium Delphinii). Specimens of forced Her Grace, and possibly other varieties, severely rotted, were received from St. John's, Nfld., in April. The characteristic sclerotia and mycelial fans were seen in several bulbs. The bulbs had been imported, but it is not known whether the pathogen was introduced with the bulbs or the soil (F.L. Drayton, D.B.O. Savile).

Gray Bulb Rot (Sclerotium Tuliparum). Moderate damage occurred in a garden at Vancouver, B.C., in May (I.C. MacSwan).

Break (virus) is common in home gardens in the interior of B.C. and was also seen in some commercial plantings (G.E. Woolliams).

VINCA - Periwinkle

Yellows (Callistephus virus 1). Symptoms were severe on 8 plants of V. rosea in the laboratory disease garden, Fredericton, N.B. (D.J. MacLeod).

VIOLA

Rust (Puccinia Violae) caused severe damage in a commercial planting of pansies, V. tricolor var. hortensis, at North Saanich, B.C. (W. Jones).

ZINNIA

Blossom Blight (?Choanephora sp.). C. sp. was associated with blossom blight specimens received from a garden in Montreal, Que, (J.E. Jacques).

Yellows (Callistephus virus 1). A trace was found in a bed at the University, Saskatoon, Sask. (T.C. Vanterpool). A few infected plants were sent in by the Forest Ranger Service from Reddit, Ont. (I.L. Conners). Infection was 10% in a bed at the Station, Fredericton, N.B. (D.J. MacLeod).