VI. DISEASES OF ORNAMENTAL PLANTS

BARBERRY (Berberis)

Pycnia of stem rust (Puccinia graminis Pers.) were mature on May 13, at Macdonald College, Que., and the vicinity, on both common and purple barberry, the leaves of which were two-thirds grown. The aecia were mature on June 2. The infections were larger and more numerous than last year.

BUCKTHORN (Rhamnus)

A hedge of buckthorn at Boissevain, Man., was severely infected by rust (Puccinia coronata Corda var. Avenae Erikss. & Henn.).

A few leaves were found infected with rust at Ottawa, Ont., on June 10. The aecia were well developed and shedding spores.

Infections of rust were observed at Macdonald College, Que., on May 17, when the leaves were ½ to ¾ inches long. The pycnia were mature on May 25 and the aecia on June 6. The infection spots were larger than last year.

CALENDULA

Ninety per cent of the calendula were severely damaged by yellows in a border at the Experimental Station, Frederioton, N.B.

CARAGANA

Leaf spot (Septoria Caraganae (Jacz.) Died.) lightly to moderately infected many caragana hedges in Edmonton, Alta., and caused slight premature leaf drop.

Although leaf spot was first observed on a hedge at the University, Saskatoon, Sask., on July 21 and it was common on caragana on Aug. 21, it did not become epidemic until after the drought was broken by rains in September. The rapid development of the disease at that time came too late to hasten leaf-fall appreciably.

CARNATION (Dianthus)

Anther smut (Ustilago violacea (Pers.) Fuck.) was found on cultivated carnations in a greenhouse in Toronto, Ont., on Oct. 25, by Mr. D.F. Putman, University of Toronto. Later affected specimens were also sent by Mr. F. Thomas from the same greenhouse. Two varieties, one white and one red were smutted. The infected plants lack vigour for the first four or five months after they are planted on the greenhouse bench and the blooms are dwarfed. Dr. John A. Stevenson, Bureau of Plant Industry, U.S.D.A., Washington, D.C., stated in a letter that he could find no authentic record of the occurrence of this smut on cultivated carnation in the United States and, as far as I am aware, this is the first report of its occurrence in Canada.

Apparently it is a disease of minor importance on this host in Europe. (I.L. Conners)

Rust (Uromyces caryophyllinus (Schrank.) Wint.) moderately infected stock brought into the greenhouse for forcing for the fall trade at Toronto, Ont. The rust slightly infected carnation in the Horticultural greenhouses, Central Experimental Farm, Ottawa.

Carnations were sligh1y infected by rust in the greenhouses at the Experimental Farm, Fredericton, N.B.

A stem rot caused by nematodes (Tylenchus sp.) was found in a greenhouse in Toronto, Ont.

CENTAUREA

Powdery mildew (Erysiphe Cichoracearum DC.) was prevalent on various varieties of centaurea in a garden in Lincoln county, Ont. The plants were dwarfed.

CHINA ASTER (Callistephus)

Wilt (Fusarium conglutinans Woll. var. Callistephi Beach) caused moderate to heavy damage in several gardens at Edmonton, Alta.

Powdery mildew (Erysiphe Cichoracearum DC.) was found on a few plants at the Experimental Station, Summerland, B.C.

Yellows (virus) was observed in several gardens in Edmonton, Alta.

A trace of yellows was present in gardens in Saskatoon, Sask.

Yellows was widespread and severe at the Experimental Station, Fredericton, N.B.; 60 to 85% of the plants were affected depending on the variety.

Yellows is so prevalent in all parts of Prince Edward Island that a garden of china asters is seldom free of the disease, and it is not unusual to find every plant infected.

CHRYSANTHEMUM

Powdery mildew (Oidium Chrysanthemi Rabh.) was common in many gardens on Vancouver island, B.C.

Three per cent of the plants were affected with powdery mildew in a greenhouse in Fredericton, N.B.

CLEMATIS (C. ligusticifolia)

Clematis affected with mosaic (virus) was found at Cache Creek, B.C.

Septoria leaf spot (S. Clematidis Rabh.) was general at Morden, Man., on Aug. 17. The damage was moderate.

COLUMBINE (Aquilegia)

Powdery mildew (Erysiphe Polygoni DC.) slightly infected columbine in York county, N.B.

COREOPSIS

Two plants were found severely infected by virus at the Experimental Station, Fredericton, N.B.

DAHLIA

Powdery mildew (Erysiphe Cichoracearum DC.) was found on dahlia at Fredericton, N.B.

A tuber rot of bacterial origin was found in two lots of dahlia at the Experimental Station, Fredericton, N.B.

Stunt (virus) severely affected a dozen plants in a private garden in Montreal, Que.

Mosaic (virus) affected many varieties of dahlias at Charlottetown, P.E.I.

DWARF MARIGOLD (Tagetes pumila)

Blight (Botrytis sp. of B. cinerea type) was fairly general on dwarf marigold at Saanichton, B.C. Five per cent of the bloom were destroyed.

EVERLASTING (Helichrysum)

Ten per cent of the everlasting plants were affected by yellows (virus) at the Experimental Station, Fredericton, N.B.

FIRE THORN (Pyracantha)

Scab (Fusicladium Pyracanthae Otth) severely infected a few bushes in the Fraser valley, B.C.

FLOWERING CRAB (Pyrus ioensis)

Fire blight (Bacillus amylovorus (Burr.) Trev.) quite generally infected the flowering crabapple trees in the ornamental gardens at the Parliament Buildings, Regina, Sask. (G.E. Woolliams) (See also the reports of fire blight in Saskatchewan under apple and plum)

GAILLARDIA

A slight infection of smut (Entyloma polysporum (Pk.) Farl.) was reported from Winnipeg and Virden, Man.

A trace of yellows (virus) was found in gaillardia at Fredericton, N.B.

GARDEN HELIOTROPE (Valeriana officinale)

A trace of crown rot (Rhizoctonia Solani Kühn) was found on garden heliotrope at Saskatoon, Sask.

GERANIUM (Pelargonium)

Basal stem rot (Pythium sp. of P. de Baryanum group) caused moderate damage to young plants in a greenhouse at Saskatoon, Sask. in February. The cuttings were then 3 to 6 inches high.

They had been rooted in sand in October, later they were transferred to smaller pots and kept fairly cool. (T.C. Vanterpool)

Damping-off (Pythium sp.) very severely infected cuttings in a greenhouse at Charlottetown, P.E.I., in October.

Blight (Botrytis sp. of the B. cinerea type) was very destructive to several excellent varieties grown in the greenhouses in Queens county, P.E.I. It was also observed occasionally in gardens and it was reported a few times on house plants.

GLADIOLUS

Hard rot (Septoria Gladioli Pass.) affected 20% of the plants of Orange Brilliant in a garden at Fredericton, N.B.

Dry rot (Sclerotinia Gladioli Drayton) was prevalent in Edmonton, Alta., and the vicinity; the damage was moderate.

Scab (Bacterium (Pseudomonas) marginatum McCull.) was present in several commercial plots of gladiolus; the loss was about 0.5%.

A trace of scab was found in the corms, grown at the Experimental Station, Fredericton, N.B.

Scab frequently caused very severe damage to gladioli where the corms were not treated in Prince Edward Island.

Bacterium (Pseudomonas) gummisudans McCull., the cause of bacterial blight, was isolated from corms grown at Brantford, Ont., in 1932. The cankered areas on the corms were more diffuse than those of scab and it was stated that the foliage had been covered with much gummy exudate from the lesions while the plants were growing in the garden. The damage was severe. (D.H. Jones). Although the above is the first report of this disease to the Survey, Drayton (Rept. Dominion Botanist for 1927, p. 28. 1928) found it in 2 plantations at Kitchener, Ont., in 1927.

Storage rot (Penicillium Gladioli McCull. & Thom) was reported as very severe on stored bulbs at Washago, Ont. The organism was isolated. (D.H. Jones)

Mosaic (virus) affected a few plants of the variety "Allspice" at the Agricultural College, Winnipeg, Man. (G.R. Bisby)

Root rot (Cause undetermined) was very destructive in Prince Edward Island. The extreme drought may have been the cause, but the unusual symptom was the scarcity of the roots on the new corms. In addition, the ones that were still present were dead at their tips, and that part of each root near the corm bore distinct lesions. The striking symptom in the field was the drying up and death of the leaves, but there were no

lesions on the corms, cormels, or corm scales. (R.R. Hurst & F.L. Drayton)

GOLDENGLOW (Rudbeckia laciniata)

Powdery mildew (Erysiphe Cichoraceearum DC.) was found on goldenglow in a garden at Fredericton, N.B.

HOLLY (Ilex)

Tar spot (Rhytisma sp.) killed a few leaves on bushes at Saanichton, B.C.

HOLLYHOCK

Rust (Puccinia Malvacearum Bert.) was observed only occasionally at Summerland, B.C.

Hollyhock rust first appeared at the Agricultural College, Winnipeg, Man., in the autumn of 1932; it was found again on June 9, 1933 and became very prevalent during the season. (G.R. Bisby)

Rust was prevalent on hollyhock in Lincoln county, Ont.; it caused some defoliation.

Rust was prevalent in the Montreal district, Que., but in general heavy infection came too late to injure the plant. At Macdonald College some plants were killed by rust, while in Kamouraska county the plants did not develop to their normal size and height on account of the disease.

Hollyhock rust was common in York county, N.B.; it caused severe damage in a garden in Fredericton.

Rust was observed in a small garden at Kentville, N.S.

This rust appeared on both double and single varieties of hollyhock, causing defoliation and unsightly appearing plants in Prince Edward Island. It attacked even some of the strains we had selected for resistance to rust. (R.R. Hurst)

Leaf spot (Septoria malvicola Ell. & Martin) was severe on cultivated hollyhocks at Morden, Man., on June 3.

HONEYSUCKLE (Lonicera)

Powdery mildew (Microsphaera Alni (Wallr.) Salm.) was found on one plant in August at the Experimental Station, Fredericton, N.B.

IRIS

Leaf spot (Didymellina macrospora Kleb. (Heterosporium gracile Sacc.) was reported as follows: general on Vancouver island and the Fraser valley, B.C., causing moderate damage; present in a few gardens at Summerland, B.C., where heavy irrigation was practised; slight infection in the University gardens, Saskatoon, Sask.; less than usual at Winnipeg, Man.; slight infection on an iris planting in Lincoln county, Ont.; first observed on June 2, at Macdonald College, Que., by September infection generally severe; slight damage apparent at

Kentivlle, N.S.; slight to severe infections in August in Queens county, P.E.I.

Rhizome rot (Bacillus carotoverus L.R.Jones) caused moderate to severe damage to iris in Alberta to judge by the specimens and inquiries received.

This rot caused severe damage to iris rhizomes at Sarnia and Whitby, Ont., in June.

Rhizome rot was very destructive in August and September in Queens county, P.E.I.

Bulb rot (Penicillium sp.) caused considerable damage in the field on one bulbous iris variety at Saanichton, B.C.

LARKSPUR (Delphinium)

Powdery mildew (Erysiphe Polygoni DC.) was general on Vancouver island and in the Fraser valley, B.C.; it caused slight defoliation.

Powdery mildew varied from moderate to severe on the leaves on the lower half of the plants at Saskatoon, Sask., in September.

This disease was prevalent in a garden in Wentworth county, Ont.; it caused some dwarfing of the plants.

Powdery mildew was common in gardens in York and Sunbury counties, N.B.

It caused slight damage to larkspur at Kentville, N.S.

Bacterial blight (Pseudomonas Delphinii (E.F. Sm.) Stapp) was common in York county, N.B. One specimen was received from Sussex.

Bacterial blight affected 16% of the plants at the Experimental Station, Charlottetown, P.E.I.; diseased plants were severely damaged.

LILAC (Syringa)

Little powdery mildew (Microsphaera Alni (Wallr.) Salm.) appeared on lilac at Macdonald College, Que., and infection was moderate in the Montreal district.

Powdery mildew was found on one tree at the Experimental Station, Fredericton, N.B., on Sept. 2.

Traces of powdery mildew were reported from Queens county, P.E.I.

What may have been bacterial blight (Pseudomonas Syringae) van Hall) caused a trace of damage to the twigs of lilac at Saskatoon, Sask. It was most conspicuous on the shaded inner portions of the foliage.

LILY (Lilium)

Blight (Botrytis elliptica (Berk.) Cke.) completely destroyed some plants of L. Hansonii in Queens county, P.E.I.

LUPINE (Lupinus)

Powdery mildew (Erysiphe Polygoni DC.) was common on cultivated lupine on Vancouver island, B.C.

MALLOW (Malva)

Rust (Puccinia Malvacearum Bert.) was very heavy on a cultivated mallow in a garden at Winnipeg, Man., on Oct. 10, 1933, while only a trace was present on the adjacent hollyhocks.

MARIGOLD (Tagetes)

Yellows (virus) was found affecting a single specimen of marigold in a garden at Saskatoon. China aster yellows was present in an adjoining garden. (T.C. Vanterpool)

A trace of yellows was found on marigold in a garden at the Experimental Station, Fredericton, N.B.

Wilt (Sclerotinia Sclerotiorum (Lib.) de Bary) destroyed several plants at Kentville, N.S.

NARCISSUS

Leaf scorch (Stagonospora Curtisii (Berk.)Sacc.) was found in several commercial plantings on Vancouver island, B.C., but the infection was only slight.

Smoulder (Botrytis narcissicola Kleb.) was present in most fields on Vancouver island, B.C.; it caused about 5% damage to the foliage.

This disease caused the complete loss of a lot of Victoria (N. bicolor) in St. Catharines, Ont.

Eelworms (Tylenchus dipsaci (Kühn) Bast.) were prevalent in all varieties of narcissus on Vancouver island, B.C. In some fields up to 50% of the crop was lost. King Alfred appeared to be particularly susceptible, while Golden Spur was fairly resistant. The hot water treatment is gradually being adopted by the growers.

PEONY (Paeonia)

Leaf blotch (Cladosporium Paeoniae Pass.) affected about 90% of the plants at Metchosin, B.C. It caused some premature defoliation.

Several varieties were severely damaged by leaf blotch at Macdonald College, Que., in September.

Blight (Botrytis Paeoniae Oud.) was severe at Morden, Man. on June 5.

Some varieties failed to produce any bloom on account of blight in Kamouraska county, Que.

Blight was found on 7 plants at the Experimental Station, Fredericton, N.B.

Four plants were affected by blight in a garden at Steam Mill Village, N.S.

Blight affected 65% of the plants in a new bed of peonies in Queens county, P.E.I.; it destroyed many vigorous plants.

Mosaic (virus) was observed in 2 plants in a garden at Winnipeg, Man.

The ringspot markings of mosaic were found on 14 plants at the Experimental Station, Fredericton, N.B.

Mosaic was seen in one plant at Kentville, N.S.

PETUNIA

Late blight was found on a single petunia plant at Charlottetown, P.E.I., in September. (R.R. Hurst)

PHLOX

Powdery mildew (Erysiphe Cichoracearum DC.) was general in many gardens and destructive in a few in the Summerland and Penticton districts, B.C.

This disease was prevalent in September on phlox in Lincoln county, Ont.; it caused some defoliation.

A heavy infection of powdery mildew was observed at Ormstown, Que.

Yellows (virus) was common on phlox in York county and one affected specimen was received from Charlotte county, N.B.

RED CEDAR (Juniperus)

A single specimen of Gymnosporangium globosum Farl. from a specimen tree was received from Almonte, Ont. This rust was prevalent on some of the susceptible species in the Arboretum, Central Experimental Farm, Ottawa.

RHODODENDRON

Leaf spot (Coryneum Rhododendri Schw.) was general on several plants at Agassiz, B.C.

ROSE (Rosa)

A trace of rust (Phragmidium spp.) was found on several varieties including Carmen, in the University gardens, Saskatoon, Sask.

Rust was prevalent on rose in a garden in Lincoln country, Ont.; it caused the death of some of the leaves.

Rust severely infected several specimens of wild rose in June and it was also observed on cultivated roses in September at Macdonald College, Que.

Rust was common in Westmoreland, Queens, Sunbury, Carleton and York counties, N.B.

Rust infection varied widely on the different varieties of cultivated roses grown at Charlottetown, P.E.I., as the following list shows: severe - Star of Waltham, Louise Creté, Mme. Gabriel Luizet, John Hopper, General Jacqueminot; moderate - Captain Hayward, Mabel Morrison, Duke of Edinburgh, Victor Verdier, Mme.

Caroline Testout, Lady Ashtown, Gruss an Teplitz, Mrs. R.G. Sharman-Crawford, Magna Charta, Mrs. Bertram J. Walker, Alfred K. Williams, Baroness Rothschild, Alfred Colomb; free - Frau Karl Druschki, Margaret Dixon, Killarney, Lieutenant Chauré, Richmond, Limburgia, Betty, and Edel.

Powdery mildew (Sphaerotheca pannosa (Wallr.) Lév.) was general on climbers and standard roses on shallow soil at Summerland and Penticton, B.C., but it was not often serious. It was also general on Vancouver island.

Powdery mildew was generally widespread and prevalent on various varieties in Lincoln county, Ont.

This disease slightly infected roses, principally the climbing varieties at Macdonald College, Que. Infection was less than last year.

A trace of powdery mildew was found at Sackville, N.B.

Powdery mildew caused severe damage to Pauls Scarlet and Dorothy Perkins at Charlottetown, P.E.I.

Black spot (Diplocarpon Rosae Wolf (Marssonina Rosae (Lib.) Died.) caused slight defoliation of Persian, a yellow variety, in the University gardens, Saskatoon, Sask. It was also present at Indian Head.

Black spot was reported by correspondents as injurious in some localities in Manitoba.

This disease was prevalent and caused some defoliation of Claudeus Pernet, Shot Silk, Mme. Edouard Herriot, Mme. Butterfly and Christine at the Laboratory garden, St. Catharines, Ont.

Light to moderate infections of black spot were seen in many places in the Montreal district, Que.

A trace of black spot was present at the Experimental Station, Fredericton, N.B.

SHASTA DAISY (Chrysanthemum maximum)

Leaf spot (Septoria chrysanthemella Sacc.) caused some injury at the Agricultural College, Winnipeg, Man.

SNAPDRAGON (Antirrhinum)

Rust (Puccinia Antirrhini Diet. & Holw.) is common in the Duncan district, B.C.; the plants were moderately infected. It was also found on specimens from Kamloops.

Rust is fairly common at Edmonton, Alta. Plants were being killed in one garden.

Snapdragons were moderately infected in Lincoln county, Ont.

In several gardens at Kentville, N.S., the plants were severely infected, and in some, they were completely defoliated.

Leaf spot (Phyllosticta Antirrhini Syd.) was found on a few plants at Saanichton, B.C. The spot is usually associated with rust.

SNOWBERRY (Symphoricarpos)

Specimens affected with Sphaceloma Symphoricarpi Barrus & Horsf., were collected at Stanstead, Que. It caused premature defoliation of the bushes. (H.N. Racicot)

STATICE

A trace of yellows (virus) was present on statice at the Experimental Station, Fredericton, N.B.

SWEET PEA (Lathyrus odoratus)

Powdery mildew (Microsphaera diffusa Cke. & Pk.) moderately to severely infected the lower half of sweet pea plants at Saskatoon, Sask., in September.

This disease was severe at Winnipeg, Man., in 1933.

Powdery mildew was found at Fredericton and Sackville, N.B.

This disease was very common in local gardens in Queens county, N.S. this year and caused severe damage in many.

Root rot (Rhizoctonia Solani Kühn) was severe in 2 gardens in Saskatoon, Sask. Sweet pea root disease was conspicuously less prevalent than last year. It was also found on a specimen received from Regina.

Bud drop (cause undetermined) caused severe damage in some gardens in Charlottetown, P.E.I.

SWEET SULTAN (Centaurea moschata)

Yellows (virus) affected 3% of the plants in a garden in Fredericton, N.B.

TULIP (Tulipa)

Bulb rot (Penicillium sp.) caused slight damage to tulips in the Station garden, Charlottetown, P.E.I.

Blight (Botrytis Tulipae (Lib.) Lind) was not as serious this year as last on Vancouver island, B.C., primarily on account of the dry weather and partly due to the adoption of more effective control measures.

This disease was rather injurious in a shipment of tulips to Winnipeg, Man., from Ontario.

Blight was less destructive than usual at Charlottetown, P.E.I.; infection ranging from a trace to 15%.

Basal rot (Fusarium sp.) destroyed 50% of the plants of Allard Pierson in a greenhouse at Niagara Falls, Ont., in February. (G.C. Chamberlain)

Breaking (virus) was observed in tulips at Salmon Arm, B.C.

YUCCA

Coniothyrium concentricum (Desm.) Sacc. infected several plants in a greenhouse at Kentville, N.S.; one plant was severely damaged.

ZINNIA

A trace of yellows (virus) was found on zinnia in a garden at the Experimental Station, Fredericton, N.B.

Wilt (*Fusarium* sp.) was observed on zinnia at Summerland, B.C.