VI. DISEASES OF ORNAMENTAL PLANTS

ACHILLEA

Rust (Puccinia Ptarmicae Karst.) was collected, for the first time in North America, at Greenfield Park, near St. Lambert, Que., on wild plants of A. Ptarmica, on Aug. 2. It was later found on The Pearl, a cultivated variety of the same host, at Ste. Anne de la Pocatiere, and at Notre Dame du Portage, Kamouraska Co., where it was particularly severe and caused almost complete defoliation. Finally it was found at St. Pamphile and St. Roch des Aulnaies, L'Islet Co. (A. Payette).

ALTHAEA ROSEA - Hollyhock

Rust (Puccinia Malvacearum) was collected at Grand Forks and Summerland, B.C. It is general throughout the Okanagan Valley (G.E. Woolliams). Infection was heavy in a planting at Edmonton, Alta. (L.E. Tyner). Rust caused severe damage at Charlottetown, P.E.I. (R.R. Hurst).

ANTIRRHINUM - Snapdragon

Rust (Puccinia Antirrhini) was found on snapdragons in various sections of the interior of B.C., but was usually not very severe (G.E. Woolliams).

Stem Rot (Sclerotinia sclerotiorum) caused serious injury in two gardens in Ont. (J.E. Howitt).

Sulphur Dioxide Injury. Specimens of A. majus with prominent white lesions on the leaves were received from a greenhouse at Etobicoke, near Toronto, Ont. The injury was stated to be heavy at one end of the house. See also Dianthus (D.B.O. Savile).

AQUILEGIA - Columbine

Mildew (Erysiphe Polygoni) was heavy at Brackley Beach, P.E.I. (R.R. Hurst).

ASTER

Powdery Mildew (Erysiphe Cichoracearum) was light on A. dumosus var. Maiden Bush at the Botanical Garden, Montreal, Que. (J.E. Jacques).

BEGONIA

Bacterial Leaf Spot (Xanthomonas begoniae (Buchwald) Dowson). Heavily spotted leaves received from Toronto yielded small Gram negative short rods. The symptoms agreed with those illustrated by P.A. Ark and C.M. Tompkins (Phytopath. 29: 633-637. 1939). There is no clue to the source of the infection. What may have been the same trouble was later received from Ottawa; but in this material the bacteria were very scarce (D.B.O. Savile).

BERBERIS - Barberry

Rust (Puccinia graminis). Pycnia were mature at Ottawa, Ont., 27 May but infection was sparse. Specimens of common barberry and a purple-leaved variety, collected at Martintown 29 May by Mr. J.N. MacRae, bore aecia that were just mature. A heavily infected leaf with mature aecia was received from Lanark on June 18 (I.L. Conners). At the Botanical Garden, Montreal, Que., rust was abundant on B. heteropoda, B. Poiretii, B. sibirica, and B. Tischleri (J.E. Jacques). Only a trace of rust was seen on B.

vulgaris at Summerside, P.E.I., and none at Charlottetown (R.R. Hurst).

Wilt (Verticillium sp.) was severe on B. Thunbergii in Queens Co., P.E.I., in a section of a hedge under trees (R.R. Hurst).

CALENDULA

Yellows (Callistephus virus 1) varied from 10 to 100% in gardens at Charlottetown, P.E.I. (R.R. Hurst).

CALLISTEPHUS CHINENSIS - China Aster

Wilt (Fusarium oxysporum f. Callistephi) was prevalent in aster beds throughout Ont., destroying over 50% of the plants in some gardens (J.E. Howitt).

Foot Rot (Phytophthora cryptogea) caused heavy losses in a commercial planting at St. Vincent de Paul, Que. (J.E. Jacques).

Yellows (Callistephus virus 1) was seen in several gardens in Ont. (J.E. Howitt). Specimens were received from Hamilton, Ont., and Gatineau, Que. (D.B.O. Savile). Yellows caused slight damage at the Botanical Garden, Montreal, Que. (J.E. Jacques). Damage was severe in Queens Co., P.E.I. (R.R. Hurst).

CAMPANULA

Rust (Coleosporium Campanulae). Material was received from Fonthill, Ont. (G.C. Chamberlain). It was collected on C. rotundifolia var. intercedens at Riviere Quelle, Kamouraska Co., Que., 23 June, and was later found on this host at Notre Dame du Portage, St. Roch des Aulnaies, and elsewhere along the shore of the St. Lawrence (A. Payette). This appears to be the first report of C. Campanulae on this host in North America. According to Klebahn the form on C. rapunculoides in Europe will not infect C. rotundifolia. Maine (Pap. Mich. Acad. Sci., Arts and Letters 23: 171-175. 1938) showed that the common rust of northeastern North America, on C. americana which is known from Ont., Que., and N.S. on C. rapunculoides, would not attack 3 strains of C. rotundifolia. Observations at Ottawa in 1943 supported this view. It is probable that the rust here reported is a distinct strain (D.B.O. Savile).

Rust (Puccinia Campanulae Carm.). A trace of this rust was found accompanying Coleosporium Campanulae on C. rotundifolia var. intercedens at St. Roch des Aulnaies, Que. First Canadian record. A collection made in November from the same site showed abundant infection of the new shoots at the bases of the old stems. The rust is very inconspicuous (A. Payette).

CHRYSANTHEMUM

Rot (Sclerotinia sclerotiorum). Infection through disbudding scars in a greenhouse plant at Kentville, N.S., caused dying back (R.J. Baylis).

Spotted Wilt (virus). A few plants were slightly damaged in a greenhouse at the Botanical Garden, Montreal, Que. (J.E. Jacques).

COREOPSIS

Yellows (virus) was heavy and caused severe damage in Queens Co., P.E.I. (R.R. Hurst).

DAHLIA

Grey Mould (Botrytis cinerea). Specimens received from St. Aubert, L'Islet Co., showed severe injury of buds and shoots (J.E. Jacques).

Mosaic (virus) was seen on Jane Cowl, Jersey's Beacon, Jersey's Beauty, Margaret Woodrow Wilson, Cigarette, and several unidentified varieties at Charlottetown, P.E.I. (R.R. Hurst).

DAPHNE

Anthracnose (?Marssonina Daphnes). A stand of D. Mezereum near Charlottetown, P.E.I., was so severely defoliated that it failed to recover. Specimens were not seen, but, from the owner's description, this disease is thought to have been responsible (R.R. Hurst).

DELPHINIUM - Larkspur

Powdery Mildew (Erysiphe Polygoni) was heavy and caused considerable injury to D. sp. at Pembroke, Ont. (D.B.O. Savile). Traces of mildew were seen on odd plants at the Botanical Garden, Montreal, Que. (J.E. Jacques). Infection was a trace to heavy in Queens Co., P.E.I.; late infection often caused considerable damage (R.R. Hurst).

Bacterial Blight (Pseudomonas delphinii). Occasional plants were attacked at the Botanical Garden, Montreal, Que. (J.E. Jacques). Traces were seen late in the season at Charlottetown, P.E.I. (R.R. Hurst).

DIANTHUS

Blight (Alternaria dianthicola Neerg.) was found at Ottawa, Ont. by Dr. Paul Neergaard (J.W. Groves), and at the Botanical Garden, Montreal, Que. (J.E. Jacques). Study of scanty material from West Hill, Ont., suggests that this species was involved, and it now seems probable that some of the earlier reports of A. Dianthi should have been referred to this species. According to Neergaard (Danish species of Alternaria and Stemphylium. Copenhagen. 1945) the spores of A. Dianthi are 13.5 to 66 microns long including the beak, which is $\frac{1}{4}$ to 1/3 of the total length, whereas those of A. dianthicola are 33 to 142.5 microns, of which the beak is often one half (D.B.O. Savile).

Rust (Uromyces caryophyllinus). A slight infection occurred at Vancouver, B.C. (I.C. MacSwan).

Mosaic (virus). A disease agreeing with that described by D.B. Creager (Florists' Review. 27 Jan. 1947) has been increasing for some time in most greenhouses in the Guelph district, Ont. It is stated to be a limiting factor in the growing of many varieties (S.A. Simmons).

Sulphur Dioxide Injury. Specimens of D. caryophyllus var. Peter Fisher received from Etobicoke, Ont., bore conspicuous white lesions. They had been grown in a greenhouse bed adjacent to similarly affected Antirrhinum (q.v.) (D.B.O. Savile).

DIGITALIS - Foxglove

Leaf Spot (Phyllosticta Digitalis). A moderately infected specimen of D. purpurea was received from Georgetown, P.E.I.; pycnidia pale, inconspicuous; spores 6.5-10.5 x 2.0-3.5 microns (R.R. Hurst, D.B.O. Savile).

FILIPENDULA

Powdery Mildew (Sphaerotheca Humuli). Infected specimens of F. rubra were received from Highland Park and Ottawa, Ont. (D.B.O. Savile).

GAILLARDIA

Yellows (Callistephus virus 1). Infection was heavy in Queens Co., P.E.I. (R.R. Hurst).

GLADIOLUS

Yellows (Fusarium oxysporum). Infected plants were received from St. Catharines, Ont., and Acton Vale, Que. (D.B.O. Savile).

Penicillium Rot (P. Gladioli). Slightly infected samples of Leading Lady were received from St. Catharines, Ont. (D.B.O. Savile).

Scab (Pseudomonas marginata). Infection was serious in a large proportion of the corms of a grower at Erickson, B.C., who specializes in cut blooms. The plants had been grown on the same soil for the last two years (M.F. Welsh). Half the corms of a planting of Picardy in Lincoln Co., Ont., were attacked (G.C. Chamberlain). Scab was moderately prevalent in the Guelph district (S.A. Simmons). Specimens were received from Brantford and North Bay, Ont., and St. John, N.B. (D.B.O. Savile). Infection was 2-3% at Kentville, N.S. (D. Creelman).

Core Rot (Sclerotinia Draytoni Buddin & Wakef. (Botrytis sp.) is apparently increasing in Ont. In some storages up to 50% infection occurred in certain varieties (S.A. Simmons). Infected corms were received from Almaville, Que., in Feb. 1947 (D.B.O. Savile). The perfect stage of this organism is described in R.W.G. Dennis and E.M. Wakefield, Trans. Brit. Mycol. Soc. 29: 150. 1946.

Dry Rot (Sclerotinia Gladioli). Specimens were received from Colonsay and Saskatoon, Sask., and Brantford, Ont. Specimens received from St. Catharines showed severe infection on Orange Gold and moderate on Rosa van Lima; what was probably dry rot was stated to be severe in other varieties; later, corms of Leading Lady from the same source were received having unusual lesions that covered most of the corm but were generally shallow; isolations confirmed that these were due to dry rot (D.B.O. Savile). Some dry rot occurred in all storages examined in Ont. (S.A. Simmons). Severely infected specimens were received from St. John, N.B. (D.B.O. Savile).

Hard Rot (Septoria Gladioli). Severely damaged plants were received from North Bay, Ont., and thousands of plants were stated to be similarly affected. A trace was present in corms of Leading Lady received from St. Catharines. Severely infected corms were received from Montreal, with 75% of the crop stated to be affected, and Waterloo, Que., and from St. John, N.B. (D.B.O. Savile).

Bacterial Blight (Xanthomonas gummisudans). Specimens were received from London, Ont. It was stated to be heavy on the whole plantation, and what seemed to be the same disease was said to be common in the district (D.B.O. Savile).

Mosaic (?virus). Six plants received from Arnprior, Ont., showed a severe mottle. The owner stated that he had rogued out many similar plants in 1945, and then had discarded all his old corms and bought new ones; in 1946 a new location was used but the same trouble was showing up. Young plants with a severe leaf mottle were received from Montreal, Que. (D.B.O. Savile).

GYPSOPHILA

Sterility (?Callistephus virus 1). Two plants out of 25 of G. elegans in a garden at McKellar, near Ottawa, Ont., were sterile and spindly in habit. Five out of 50 plants of Callistephus chinensis in the same garden were infected by yellows (I.L. Conners).

HEDERA - Ivy

Bacterial Leaf Spot (Xanthomonas hederae). Leaves of H. Helix from Flin Flon, Man., received from Prof. T.C. Vanterpool, bore typical lesions (D.B.O. Savile).

HELIANTHUS - Sunflower

Powdery Mildew (Erysiphe Cichoracearum) was severe at the Botanical Garden, Montreal, Que. (J.E. Jacques).

Downy Mildew (Plasmopara Halstedii). Part of a systemically infected plant of H. rigidus var. Miss Mellish was received from Gananoque, Ont.; other small plants were stated to have been severely damaged (D.B.O. Savile).

HELICHRYSUM - Everlasting

Yellows (Callistephus Virus 1). Occasional plants were infected in Queens Co., P.E.I. (R.R. Hurst).

IRIS

Leaf Spot (Didymellina macrospora) occurred quite generally throughout the interior of B.C. (G.E. Woolliams). At the Botanical Garden, Montreal, Que., plants in a sandy soil of pH 7 or lower were badly diseased, whereas plants in soils of pH 7.5 or higher were healthy (J.E. Jacques). Severely infected specimens with the apical half of each leaf killed were received from Rosemere; 500 plants were stated to be similarly affected (D.B.O. Savile). Damage varied from slight to severe in Queens Co., P.E.I. (R.R. Hurst).

Soft Rot (Erwinia carotovora). Odd plants were affected at the Botanical Garden, Montreal, Que. (J.E. Jacques).

Bulb Rot (Penicillium sp.). Infection was about 30% in plants of Wedgewood and I. tingitana received from a Windsor, Ont., greenhouse in Feb. 1947; the stock was of French origin (D.B.O. Savile).

Bacterial Leaf Blight (Phytomonas tardicrescens). At the Botanical Garden, Montreal, Que., nearly all plants of Queen Catarina showed symptoms of leaf blight; adjacent varieties were healthy (J.E. Jacques).

Rust (Puccinia Iridis). A single specimen was received (R.R. Hurst).

Mosaic (virus). Infection was about 50% in samples of Wedgewood, Excelsior, and I. tingitana received from a greenhouse at Windsor, Ont., in Feb. 1947; the stock was of French origin (D.B.O. Savile).

Blindness (?physiological). About 25% of Wedgewood and 50% of I. tingitana received from Windsor, Ont., in Feb. 1947 showed severe stunting and blossom failure; the symptoms were particularly marked in I. tingitana. Although some of these plants were infected by Penicillium and mosaic (v.s.), the damage could not be attributed to these diseases. This is believed to be the blindness referred to by W.C. Moore (Diseases of Bulbs, Bul. 117. Brit. Min. Agr. & Fish. 1939), who suggests that it is sometimes due to sunless weather during the previous summer; this may well be the explanation in this instance, since the summer of 1946 was extremely wet in much of western Europe. Similar plants from Dutch stock were received from Montreal, Que., in March (D.B.O. Savile).

LATHYRUS

Streak (Erwinia lathyri). Trace occurred on L. odoratus in Queens Co., P.E.I. (R.R. Hurst).

Root Rot (?Fusarium). A report from Dunham, Que., referred to sweet pea plants drying up in July (D.B.O. Savile).

Powdery Mildew (Microsphaera diffusa). A trace occurred in Queens Co., P.E.I. (R.R. Hurst).

Mosaic (virus). Odd infected plants were seen in Queens Co., P.E.I. (R.R. Hurst).

Bud Drop (excess nitrogen) was very heavy in four gardens at Charlottetown, P.E.I. (R.R. Hurst).

LILIUM - Lily

Blight (Botrytis elliptica) was reported to have caused serious injury to Madonna lily (L. candidum) at several points in Ont. (J.E. Howitt). Severely infected plants of L. regale were received from Mount Royal, Que. (D.B.O. Savile).

Mosaic (virus). All plants of L. canadense at the Botanical Garden, Montreal, Que., were severely mottled (J.E. Jacques). A single plant of L. sp. received from Montreal showed severe mottling and some distortion (D.B.O. Savile).

Chlorosis (non-parasitic). Several young plants of L. speciosum magnificum at Rockcliffe, Ont., showed poor growth and slight yellowing and mottling; one, when dug, proved to have made almost no root growth. The trouble is believed to have been due to late planting (Nov.) the previous fall (D.B.O. Savile).

LONICERA - Honeysuckle

Leaf Blight (Glomerularia Lonicerae). In the Arboretum, Ottawa, Ont., infection occurred on L. bella, L. bella var. candida, L. discolor, L. iberica var. microphylla, L. Maximowiczii, L. Morrowii, L. notha, L. orientalis, L. orientalis var. longifolia, L. tatarica, and L. sp.; some bushes were severely affected. A heavily blighted specimen was received from River Beaudette, Lake St. Francis, Que. (D.B.O. Savile).

Powdery Mildew (Microsphaera Alni) was severe and caused premature defoliation at the Botanical Garden, Montreal, Que. (J.E. Jacques).

LUPINUS - Lupine

Eye Spot (Ovularia lupinicola Pollack). DAOM 5975 on L. arcticus, Black Tusk, B.C., 1930, coll. J.W. Eastham, and DAOM 19136 on L. sp., Brentwood, B.C., 1945, coll. W. Jones, both agree well with this species, described in J.A. Stevenson, Mycol. 38: 531. 1946. See P.D.S. 23: 111 and 25: 116 (D.B.O. Savile).

Downy Mildew (Peronospora Trifoliorum de Bary) was moderately heavy on L. polyphyllus var. Russell at Agassiz, B.C. Downy mildew has previously been recorded on L. perennis in Ont. and Wis., and was assigned to this species in each case. As Gäumann points out (Beiträge zu einer Monographie der Gattung Peronospora Corda. Zurich. 1923) P. Trifoliorum is a collective species and the form on Lupinus is probably distinct. In the present specimen the conidia are 18-31.5 x 15-22, commonly 22-25 x 18-20 microns, pale brownish yellow, dark brown in mass (W. Jones, D.B.O. Savile).

NARCISSUS

Bulb Nematode (Ditylenchus dipsaci). Stunted and yellowed forced plants were brought for examination at Ottawa, Ont. (D.B.O. Savile). Plants in four beds at the Botanical Garden, Montreal, Que., were severely attacked and had to be discarded (J.E. Jacques).

Smoulder (Sclerotinia narcisicola). Specimens were sent in for identification from River Hebert, N.S. (T.F. Hockey).

NEMESIA

Yellows (Callistephus virus 1). A few affected plants were seen in Queens Co., P.E.I. (R.R. Hurst).

PAEONIA - Peony

Blight (Botrytis Paeoniae). Infection was severe on stems and buds in several plantings at Edmonton, Alta. (M.W.C.). Specimens were received from Shanty Bay, Ont., with the statement that it was heavy in a number of plants. A single blighted bud (probably B. cinerea) was received from Toronto (D.B.O. Savile). Blight was moderately severe at Ste. Anne de la Pocatiere, Que. (R.O. Lachance). It caused severe damage in Queens Co., P.E.I. (R.R. Hurst).

Leaf Blotch (Cladosporium Paeoniae). Severely marked leaves were received from Gananoque, Ont., 30 Sept. Some Cladosporium and some Alternaria were present; but the predominant organism was a Phyllostista with small, bacillar spores, which may have been a microconidial stage of the Cladosporium (D.B.O. Savile).

Root Knot (Heterodera marioni). Knots, with immature nematodes present, were found on roots in a garden at Ottawa, Ont., in April; the plants had been declining steadily for several years (D.B.O. Savile).

Mosaic (virus). Leoygne and Solange showed symptoms of mosaic at the Botanical Garden, Montreal, Que., but the disease does not seem to spread (J.E. Jacques).

Ring Spot (virus). Slight infections were seen at Scott (H.W. Mead) and Swift Current, Sask. (B.J. Sallans).

PAPAVER - Poppy

Leaf Spot (Alternaria sp.). A moderately heavy spotting occurred on two clumps of P. orientale in the Arboretum, Ottawa, Ont. A. sp., apparently not A. tenuis, fruited inconspicuously among the long epidermal hairs on many spots. The fungus does not fruit readily in culture and has not been positively identified, but, according to Dr. Neergaard, it seems to be distinct from those previously reported on Papaver (D.B.O. Savile).

PARTHENOCISSUS

Powdery Mildew (Uncinula necator). A trace was seen at Charlottetown, P.E.I. (R.R. Hurst).

PELARGONIUM - Geranium

Stem Rot (Pythium sp.). An affected plant was received from near Toronto, Ont. (D.B.O. Savile).

Leaf Curl (virus). Specimens were received from two greenhouses near Toronto, Ont.; in one instance 50 out of 200 plants were stated to be affected (D.B.O. Savile).

PETUNIA

Mosaic (virus). One variety, Blue Ball, carried about 40% infection in a planting near Victoria, B.C. (W.R. Foster).

PHLOX

Powdery Mildew (Erysiphe Cichoracearum) was prevalent and caused serious injury to P. paniculata in many parts of Ont. (J.E. Howitt). A heavily infected specimen was received from Virginiatown. Mildew was heavy in many plantings at Ottawa by the end of July (D.B.O. Savile). It was heavy at Kentville, N.S. (D. Creelman) and at Charlottetown, P.E.I. (R.R. Hurst).

Blight (?virus). At the Botanical Garden, Montreal, Que., infection was severe early in the season and many stalks died down. New stalks that developed later showed no symptoms on flowers or leaves (J.E. Jacques). Several plants were affected in a garden at Charlottetown, P.E.I. and this trouble was frequently submitted for examination (R.R. Hurst).

PORTULACA - Purslane

Wilt (Fusarium sp.) attacked a small percentage of plants in several fields being grown for seed at Grand Forks, B.C. (G.E. Woolliams).

ROSA - Rose

Crown Gall (Agrobacterium tumefaciens). One specimen was received from Ottawa, Ont. (L.T. Richardson). Four cases, involving severe damage to Dorothy Perkins and Paul's Scarlet, were seen at Charlottetown, P.E.I. (R.R. Hurst).

Die-back (Cytospora ambiens). Specimens of standard roses were received from Leamington, Ont. Thirty were stated to be infected out of an unspecified total (D.B.O. Savile).

Black Spot (Diplocarpon Rosae). In specimens submitted by Mr. James W. Bish, Waterloo, Ont., from bushes that had been heavily inoculated, a seedling thought to be R. xanthina x acicularis was heavily infected; but R. spinosa altaica and a hybrid seedling of R. spinosissima showed what seemed to be a resistant reaction, a few small, sterile lesions with the typical radiating hyphae being present. Black spot was moderate to severe on all polyanthas and on several unnamed species in the Arboretum, Ottawa (D.B.O. Savile). It caused premature defoliation of several varieties at the Botanical Garden, Montreal, Que. (J.E. Jacques). A lightly infected specimen was brough in at Charlottetown, P.E.I. (R.R. Hurst).

Stem Canker (Leptosphaeria Coniothyrium). Large cankered areas were found on Gloaming hybrid tea in Lincoln Co., Ont.; Valsa sp. was also associated with the cankers (G.C. Chamberlain).

Leaf Spot (Mycosphaerella (Cercospora) rosicola). A specimen was received from Moose Range, Sask. (G.C. Chamberlain).

Rust (Phragmidium americanum) caused moderate damage to several varieties at Kentville, N.S. (D. Creelman). A single specimen of Phragmidium sp. was brought in at Charlottetown, P.E.I. (R.R. Hurst).

Anthracnose (Sphaceloma Rosarum). A small specimen showing moderately severe injury was received from Strathroy, Ont. (D.B.O. Savile).

Powdery Mildew (Sphaerotheca spp.). A request for information concerning felty masses on canes and thorns indicated the presence of S. pannosa at Victoria, B.C. Moderate to heavy infection by S. pannosa occurred in the Arboretum, Ottawa, Ont., on R. multiflora, R. polyantha var. Coralline, R. Pratti, R. rubiginosa, several varieties of R. rugosa, and several unnamed bushes (D.B.O. Savile). S. pannosa was general but not severe at the Botanical Garden, Montreal, Que. (J.E. Jacques). A specimen showing the conidial stage on the leaves was received from

Abbotsford (D.B.O. Savile). S. pannosa occurred on a rambler rose at Kentville, N.S. (D. Creelman). Powdery Mildew was very heavy and injurious to Crimson Rambler at Charlottetown, P.E.I. (R.R. Hurst).

Mosaic (virus) was seen on a single bush at Kentville, N.S. (D. Creelman).

SCHIZANTHUS - Butterfly Flower

Yellows (Callistephus virus 1) attacked occasional plants in Queens Co., P.E.I. (R.R. Hurst).

SOLIDAGO - Goldenrod

Powdery Mildew (Erysiphe Cichoracearum) was so heavy at the Botanical Garden, Montreal, Que., that the plants were almost white (J.E. Jacques).

TAGETES - Marigold

Yellows (Callistephus virus 1) caused slight damage in Queens Co., P.E.I. (R.R. Hurst).

TULIPA - Tulip

Fire (Botrytis Tulipae) was unusually severe in the Okanagan Valley, B.C., despite a dry spring. Late melting of the snow may have contributed to the outbreak. Pin-point infection of leaves and blossoms was seen at Kelowna, where the disease does not usually occur. No fire was found in one large commercial planting at Vernon, where the air drainage was good; but it was very prevalent elsewhere in the district, one grower suffering considerable loss from severe leaf and blossom lesions on which the fungus fruited freely. At Salmon Arm and Enderby infection was largely of the pin-point type (G.E. Woolliams). Nearly every bloom of red varieties was marked at St. Jean de Dieu Hospital and the Botanical Garden, Montreal, Que. (J.E. Jacques). Heavily infected specimens were received from Quebec City (D.B.O. Savile). Fire caused severe damage in a bed of mixed tulips at Kentville, N.S.; at digging time a few of the bulbs bore sclerotia on the scales (J.F. Hockey). Traces of fire occurred in a number of gardens at Charlottetown, P.E.I., and one severe outbreak was reported (R.R. Hurst).

Break (virus). In a commercial planting at Kelowna, B.C., break increased from 0.06% in 1945 to 1.0%; but at Vernon there were only very small increases and at Salmon Arm there was a slight reduction (G.E. Woolliams). A trace was seen in a red variety at the Botanical Garden, Montreal, Que. (J.E. Jacques).

VIOLA

Root Rot (Pythium sp.). Pansies from Vankleek Hill, Ont.; with rotted roots and bases of stems yielded Pythium sp. (L.T. Richardson).

Powdery Mildew (Sphaerotheca Humuli). Specimens of infected pansy were received from Goderich, Ont. (J.E. Howitt).

YUCCA

Leaf Spot (Coniothyrium concentricum) heavily infected the lower leaves of Y. sp. at the Experimental Farm, Saanichton, B.C., producing dark bordered, ashy centered spots up to 1¼ x 3/4 in. Previously reported in the

Survey from Kentville, N.S., but there are specimens in the Herbarium from Agassiz, B.C., and London and Ottawa, Ont. (W. Jones, D.B.O. Savile).

ZINNIA

Stem Rot (?Sclerotinia sclerotiorum) was destructive in a nursery at Charlottetown, P.E.I. (R.R. Hurst).

Yellows (Callistephus virus 1) caused slight damage in P.E.I. (R.R. Hurst).