IV. DISEASES OF FRUIT CROPS

APPLE

SCAB - *Venturia inaequalis* (Cke.) Wint.

B.C.- Scab is general on Vancouver island and in the lower Fraser valley.

Climatic conditions prevailing throughout the season were such that scab was severe only in the Salmon Arm district. However, losses were slight as a regular spray schedule is always carried out. In the Okanagan valley scab was not serious even where the trees were not sprayed. McIntosh and Wealthy were the most severely attacked.

The results of counts made on unsprayed trees in the Kootenay Lake district were furnished by Mr. J. W. Eastham: Granenstein, of 243 apples on entire tree, 96.7 per cent were scabby; McIntosh Red, 1219 apples, 99.3 per cent scabby; Rome Beauty, 377 apples, 93.1 per cent scabby.

Ont.- Apple scab was very prevalent in Wellington county this year. In some instances 100 per cent of the fruit and leaves were infected on unsprayed trees of susceptible varieties such as McIntosh and Baxter. In Leeds and Grenville counties scab was also very serious, 60 per cent of the fruit and leaves being infected on unsprayed trees.

In the Niagara peninsula scab was about as prevalent as in 1930. In one unsprayed orchard, 40 per cent of leaves and 30 per cent of the fruit were infected. In sprayed orchards the trees were quite free from infection. The ascospores were first discharged on May 7 in the Laboratory orchard, St. Catharines.

In Carleton county, in an orchard, where the calyx spray was delayed on account of bad weather, scab infection was as follows: McIntosh, 50 per cent on the foliage, 25 per cent on the fruit; Fameuse, 20 and 30 per cent; Wealthy, 10 per cent on the foliage; and Lobo, 25 per cent.

Que.- Scab was especially prevalent on McIntosh and Fameuse in western part of Quebec. The season was very favourable for scab development. Nearly all commercial orchards were sprayed. In 95 per cent of those orchards, where the number of sprays advised by the "Quebec Spray Service" was applied, scab infection varied from a trace to 10 per cent. In those where one or two sprays were omitted, scab ran from 10 to 50 per cent. In unsprayed orchards 100 per cent of the fruit was usually scabby.

Sepal infection was the most common and late infections were especially noticeable in orchards near the St. Lawrence river.

Perithecia were mature on April 24; following a rain, the first discharge was noticed on April 28-29; the heaviest discharge occurred on May 12-13. (F.L. Godbout)

In eastern Quebec in Kamouraska, L'Islet, and Montmagny counties, infections on the fruit of several varieties varied from one to 20 per cent.

N.B.- In the lower St. John valley scab was severe, chiefly on McIntosh and Fameuse, while in the upper St. John, infection was light.

N.S.- Heavy infections were general on fruit and leaves in Nova Scotia. Unsprayed trees in many orchards were defoliated by August. First ascospore discharge took place on May 9 and conidia were found on foliage lesions on May 25. The weather was very favourable for scab development, the early part of the season being similar to 1925. (J.F. Hockey)

P.E.I.- Scab caused slight to severe damage on McIntosh and Gravenstein in Queens county. In unsprayed orchards scab was common and destructive; in carefully sprayed orchards only traces were present.

FIRE BLIGHT - Bacillus amylovorus (Burr.) Trev.

B.C.- Fire blight was very common in many sections of the Okanagan valley on susceptible varieties such as crab, Spitzenburg, Wealthy, Jonathan, etc., but it caused no serious loss. The disease has not been recognized on Vancouver island or in the lower Fraser valley.

Man.- Fire blight was fairly destructive despite a dry spring.

Ont.- In general, fire blight caused light infections in the Niagara peninsula. A conspicuous outbreak of the disease occurred in a small orchard of Greening apples in Lincoln county. It caused general twig infection.

Que.- Fire blight was prevalent throughout the province in 1931, being more widespread than in 1930, but less severe, causing very little damage. Very few orchards were free from the disease, but most of them had only a trace. It was severe in a block of Alexander at St. Hilaire, and severe in one and moderate in another at Abbotsford; moderate in a block of Fameuse at Hemmingford; and

severe in a few small orchards of mixed varieties in eastern Quebec. Fire blight occurred almost entirely as twig infection. Blossom infection was observed only at Abbotsford and Franklin Centre. At Abbotsford it occurred in patches on three Fameuse trees; it was severe on a Queen's Choice crab; and present in moderate amounts on Alexander. At Franklin Centre it was severe on one Golden Russet, two King, and a few Fameuse trees. The varieties most severely infected were Winter Arabka, Alexander, and crab apple.

Observations made at Lennoxville on a number of varieties showed Golden White to be severely affected, Joyce moderately so, and Lawfam, Atlas, Lobo, Choata, and Niobe slightly infected.

P.E.I.- Fire blight caused slight to moderate damage to the twigs in an orchard of Golden Russet in Queens county.

BLACK ROT - Physalospora malorum Shear
(Sphaeropsis malorum Pk.)

Sask.- Black rot apparently caused the death of a few limbs in the University orchard, Saskatoon. The pycnidial stage was abundant on the twigs of certain trees. What was probably the perfect stage was present on July 28, but the perithecia were very immature.

Ont.- A scattered infection of black rot was found on Balwin apples in an orchard in Lincoln county. Although McIntosh, Wealthy, Duchess, and Greening trees were growing in the same orchard, no disease was found on them.

Que.- A trace of black rot was noticed in the experimental orchard at Ste. Anne de la Pocatière.

CORKY CORE - Physiological

B.C.- Corky core was much less severe in the Okanagan valley than last year, when it was estimated that 200,000 boxes were affected.

Ont.- Ninety per cent of fruit was worthless on account of corky core in an orchard of Talmon Sweet, Delicious, Duchess, and Northern Spy in Welland county.

DROUGHT SPOT - Physiological

B.C.- Drought spot was exceedingly severe in the Okanagan valley; its occurrence has meant the total loss of crop in many

orchards. The loss is difficult to estimate, but it certainly amounts to many thousands of boxes. It was extremely abundant on Jonathan and McIntosh Red at the Experimental Station, Kelowna. It was not general at Penticton, but it is on the increase.

PHYSIOLOGICAL BREAKDOWN

Que.- A breakdown in Fameuse apples occurred in one orchard at Oka. About 90 per cent of the crop was affected. The surface of affected fruit was uneven, but the epidermis was intact and of normal colour. When cut open, the fruit showed brown spots of broken-down tissue. At first these spots were found only near the epidermis, but later in the season they were present throughout the apple, their number depending on the severity of the disorder. The first specimens collected greatly resembled the illustrations of heat injury by Brooks and Fisher (Figs. 1 and 2, Plate 1, Journ. Agr. Res. 32:1-26. 1926), except that the broken-down tissues were not so continuous nor so near the epidermis. In later collections the specimens resembled those illustrated by McAlpine (Figs. 45 and 46, Plates 9 and 10, Bitter Pit Investigations, First Report, 1911-12). As the season was hot and the precipitation below normal, the trouble may be due to a combination of drought and heat injury.

DIE-BACK - Physiological

B.C.- Die-back was not exceptionally severe in the Okanagan valley and it occurred only in those orchards that had previously been suffering from the trouble.

DIE-BACK

Sask.- Die-back was responsible for considerable damage to the trees in the University orchard, Saskatoon. It is impossible to decide whether the limbs were killed by severe winter conditions or by Cytospora sp. The pycnidia of the fungus were plentiful on the dead limbs.

RUST - Gymnosporangium clavipes Cke. & Pk.

Que.- Slight damage was caused by rust in Kamouraska county. The identification of the fungus was confirmed by Dr. G.R. Bisby (J.G. Coulson)

N.S.- In the Annapolis valley one to 2 per cent of the fruit were marked by rust.

FROST CURL

B.C.- Frost caused considerable curling of the leaves at Penticton. The injury was most severe on Jonathan.

POWDERY MILDEW - Podosphaera leucotricha (Ell.& Ev.) Salm.

B.C.- Powdery mildew was general on Vancouver island and in the lower Fraser valley. Only in isolated sections was the damage significant.

There has been a distinct increase in the prevalence of powdery mildew this season. It was present in practically every orchard in the Okanagan valley and it did considerable damage by marking the fruit in the Penticton district. In the experimental spray blocks at Summerland, 30 per cent of the apples on the unsprayed trees had to be culled out on account of surface markings. Jonathan, Wagener and Yellow Transparent were the most susceptible varieties.

N.B.- Almost 3,000 trees were all heavily infected with powdery mildew in a nursery in York county.

ANTHRACNOSE - Neofabrea malicorticis Jackson

B.C.- Anthracnose was general on Vancouver island and in the lower Fraser valley. The damage was severe and greater than in 1930.

The disease was not prevalent except in neglected orchards, or those near water or in moist locations at Salmon Arm.

CROWN ROT - Physiological

B.C.- Where control measures have not been adopted, crown rot is steadily on the increase in the Okanagan valley. The percentage of trees affected can not be stated for large areas as a survey has not been possible. In certain badly affected orchards, as high as 25 per cent of the trees were diseased. Spitz, King, Winesap and Cox Orange are very susceptible although no variety appears to be resistant.

TWIG BLIGHT - Nectria cinnabarina (Tode) Fr.

Que.- The fungus was found at Abbotsford, fruiting on the bark of a dead stump where the branch had been pruned off.

N.S.- A slight amount of twig blight was found on Ben Davis and Rome Beauty in Kings county.

SOOTY BLOTCH - Gloeodes pomigena (Schw.) Colby

N.S.- A trace of sooty blotch was seen in Kings county.

P.E.I. - A slight amount of sooty blotch was present in Queens county.

FLY SPECK - Leptothyrium Pomi (Mont.& Fr.) Sacc.

N.S. - A trace of fly speck was found in Kings county.

HEART ROT - Pleurotus areolatus

N.S.- Pleurotus areolatus has only been found on apple trees affected with heart rot in Kings county. It is not known whether the fungus is the primary cause.

EUROPEAN CANKER - Nectria galligena Bres.

B.C.- European canker was found at Port Alberni, V.I. It is apparently rare.

N.S.- European canker was found in a few poorly cared for orchards of King, Nonpareil, and Wagener in Kings and Annapolis counties. The control of this canker is apparently connected with that of the green apple bug. The disease is on the decrease.

FROG-EYE SPOT - Cause undetermined

Rather extensive observations were made on frog-eye spot at Abbotsford, Que., and Manotick, Ont. At Abbotsford, frog-eye spot was found as follows: Wealthy, 3 to 4 spots per leaf; Fameuse, 2 spots per leaf; Golden Russet, slight infection; Yellow Transparent, a trace. At Manotick, the disease was recorded as follows: Lobo, most severely affected, 5 to 6 spots per leaf on the average; Wealthy, 4-5 spots per leaf; McIntosh, slight infection; Fameuse and Melba, traces. A microscopic examination of affected leaves, collected late in the season, showed that Coniothyrium pirinum (Sacc.) Sheld. was the most abundant fungus, all varieties being affected except Lobo. The spots on the latter variety yielded Cladosporium herbarum (Pers.) Lk. only. Other fungi found fruiting on the leaves were: Phyllosticta limitata Pk., and Phyllosticta sp. Spots, which were not in fruit, were cultured and yielded the following fungi: Alternaria sp. (not A. Mali), Cladosporium sp., and 3 unidentified fungi. Neither in the sections, nor in culture has Sphaeropsis Malorum been observed, although this fungus has been shown to be the causal agent of frog-eye spot in other places. Infection experiments with the fungi isolated have not been made (H.N. Racicot & A.S. Hill).

PINK ROT - Tricothecium roseum Lk.

P.E.I.- Where apple scab was present this disease had already appeared on stored fruit by October.

SILVER LEAF - Stereum purpureum (Pers.) Fr.

Que.- A trace was found in the experimental orchard, Ste. Anne de la Pocatière.

BITTER PIT - Non-parasitic

B.C.- Bitter pit was found on large size fruit at Summerland. Wealthy was the most susceptible variety.

Que.- Five per cent of the apples were affected with bitter pit, after being put in storage at Ste. Anne de la Pocatière.

BITTER ROT - Glomerella cingulata (Stonem.) Spauld. & v. Schrenk (Gloeosporium fructigenum Berk.)

B.C.- Bitter rot was found at Gordon Head, V.I.

Que.- A trace of bitter rot was found on several varieties in the experimental orchard, Ste. Anne de la Pocatière.

SPOT SCALD - Non-parasitic

N.S.- Spot scald developed on fruit exposed to light after being previously stored for 4 to 6 weeks. It was apparent only on fully matured fruit.

SUN SCALD - Non-parasitic

B.C.- Sun scald was most severe on old trees, which were being top worked at Penticton, Summerland, and Kelowna. It was also severe later in the season on heavily laden trees of Winter Banana, Permaine, and Wagener at Penticton.

Ont.- Sun scald disfigured 5 per cent of the fruit on Duchess and Wealthy in an orchard in Lincoln county; McIntosh was not affected.

FRUIT ROT - Botrytis cinerea Pers.

B.C.- Fruit rot due to Botrytis cinerea was found occasionally on Vancouver island. The damage was slight.

APRICOT

DROUGHT SPOT and PHYSIOLOGICAL SHOT-HOLE

B.C.- This disease was not serious in the Okanagan valley and was confined to certain orchards, where cultural conditions were poor.

BLACKBERRY

ORANGE RUST - Gymnoconia Peckiana (Howe) Trotter

Ont.- Five per cent of plants were affected with rust in a planting of Eldorado in Lincoln county. In another plantation also in Lincoln county, about 5 per cent of the plants were rusted. This plantation had been carefully rogued every year. The owner said he would never plant blackberries again on account of the rust. Otherwise the crop would be a good paying one. Rusted specimens were submitted for identification from Whitby.

Que.- This rust has been observed every year for the past five years in southern Quebec. It caused no commercial damage. This year a collection was made at Huntingdon.

LEAF SPOT - Mycosphaerella Rubi Roarck. (Septoria Rubi Westend.)

B.C.- Septoria leaf spot was general on Vancouver island. The damage was slight.

N.S.- Leaf spot caused slight defoliation in two plantations in Kings county.

CANE BLIGHT - Leptosphaeria Coniothyrium (Fuck.) Sacc. (Coniothyrium Fuckelii Sacc.)

B.C.- Cane blight is general on Vancouver island and in the lower Fraser valley. The damage is slight on Himalayan, the principal commercial variety.

CROWN GALL - Pseudomonas tumefaciens (E.F.Sm. & Towns.) Duggar

B.C.- Crown gall is general on Vancouver island and in the lower Fraser valley. The damage is slight.

FRUIT ROT - Botrytis cinerea Pers.

B.C.- Fruit rot due to Botrytis does slight damage on Vancouver island and in the lower Fraser valley.

BLUEBERRY

WITCHES' BROOM - Calyptospora Goeppertiana Kühn
(C.columnaris (Alb. & Schw.) Kühn)

N.S.- Witches' broom was found in Kings and Yarmouth counties on both wild and cultivated species. As high as 5 per cent of the plants may be affected. Apparently it is possible to find specimens over most of the western half of Nova Scotia.

LEAF RUST - Thekospora Vaccinii orum Karst.

Que.- This rust was collected on cultivated plants of high bush blueberries at Pointe du Lac.

CANKER - Godronia Cassandrae Pk.
(Fusicoccum putrefaciens Shear.)

Que.- Branches of high bush blueberry were found to bear cankers near the base, on which was fruiting Fusicoccum putrifaciens Shear. This material was collected in a plantation of about 50 plants representing a dozen varieties imported from White Bog, N.J. The plants were growing in a depression in the garden, which was very sandy, but where the blueberries were located the soil contained some muck.

The plants are attacked near the base. One branch after another dries up and dies until the plant is killed. About 15 plants have died in two seasons. Dr. N. E. Stevens, Washington, D.C., confirmed the identification. This organism causes a destructive end-rot of the cranberry, but this is the first time it has been observed on the high bush blueberry. (Vaccinium corymbosum L.) (H.N. Racicot & A.S. Hill).

CHERRY

SHOT HOLE - Coccomyces hiemalis Higgins
(Cylindrosporium hiemalis Higgins)

Ont.- Shot hole was not at all common at Vineland Station.

Que.- Some shot hole was found in two orchards in Kamouraska county.

N.B.- A few trees were slightly affected with shot hole in York county.

N.S.- Shot hole caused 10 to 20 per cent defoliation in Kings county. Unsprayed trees are likely to be heavily defoliated.

P.E.I.- Both wild and cultivated cherries were heavily defoliated in Queens county.

POWDERY MILDEW - Podosphaera Oxyacanthae (Fr.) de Bary

Ont.- Powdery mildew caused slight damage to an orchard of Montmorency cherries in Lincoln county.

BROWN ROT - Sclerotinia americana (Worm.) Nort. & Ezekiel

N.S.- Blossoms, leaves, and twigs of Morillo cherries were killed by brown rot in Kings county, 20 per cent of twigs died back a distance of one to 18 inches.

BLACK KNOT - Dibotryon morbosum (Schw.) Theiss. & Syd.

Que.- Black knot was noted on cultivated cherry in L'Islet county. It was also reported from three orchards in Kamouraska county. Knot was severe on wild cherries.

YELLOW LEAF - Non-parasitic

Ont.- In an orchard of 1000 sour cherry trees at Ridgeville, the upper branches of all trees were severely defoliated. The orchard is well cultivated; the trees are underpruned.

DROUGHT SPOT and PHYSIOLOGICAL SHORT HOLE

B.C.- This disease was noted at Naramata, Penticton, and Summerland.

CURRANT

WHITE PINE BLISTER RUST - Cronartium ribicola Fischer

B.C.- White pine blister rust is general on Vancouver island and in the lower Fraser valley.

Ont.- A heavy infection of white pine blister rust occurred on a plot of black currants across the road from a stand of white pine at Vineland Station. It caused severe defoliation in a planting of Boskop in Lincoln county. Victoria proved to be more resistant. The rust also caused severe defoliation late in the season in a planting of Topsy at Manotick

Que.- This rust caused severe defoliation of the black currant bushes at Cap Rouge, only about six young leaves remained at the tip of each shoot. The rust also caused defoliation at other places as follows: Neuville, severe; Beebe, moderate. Early in the season wild Ribes were inspected for rust about Hull. Scattered infections bearing uredinia were present on all the bushes examined.

N.B.- White pine blister rust is common on both wild and cultivated Ribes throughout the province.

P.E.I.- A heavy infection of this rust was found on red currant in Queens county. It caused serious defoliation. The rust was also observed in Prince and Kings counties.

SEPTORIA LEAF SPOT - Mycosphaerella Grossulariae (Fr.) Lindau (Septoria Ribis Desm.)

Sask.- This leaf spot developed rapidly in the University gardens, Saskatoon, from Oct.1 to 10. It appeared to cause premature defoliation.

P.E.I.- Septoria leaf spot caused some leaf drop on black currant in Queens county.

GLOEOSPORIUM LEAF SPOT - Pseudopezaza Ribis Kleb. (Gloeosporium Ribis (Lib.) Mont. & Desm.)

Que.- Gloeosporium leaf spot caused 75 per cent defoliation in a patch of red currant in Iberville county.

P.E.I.- This leaf spot was common in Queens county, but it caused little damage.

POWDERY MILDEW - Sphaerotheca mors-uvae (Schw.) Berk. & Curt.

B.C.- Powdery mildew was general on Vancouver island.

Alta.- Powdery mildew caused severe damage to both red and black currants in a garden at Edmonton.

Sask.- The young growing tips of black currant were rather severely damaged by powdery mildew in the University garden, Saskatoon.

In a garden protected by a windbreak of trees on three sides, black and red currants were slightly damaged by powdery mildew. Perithecia were forming well on the stems.

Ont.- Powdery mildew was prevalent on black Maple currants in a plantation in Lincoln county. The damage was slight.

GOOSEBERRY

WHITE PINE BLISTER RUST - Cronartium ribicola Fischer

B.C.- White pine blister rust is general on gooseberry on Vancouver island.

Que.- A very slight infection of this rust was found on gooseberry at Cap Rouge.

GLOEOSPORIUM LEAF SPOT - Pseudopeziza Ribis Kleb.
(Gloeosporium Ribis (Lib.) Mont. & Desm.)

Que.- This leaf spot caused about 90 per cent defoliation of the cultivated American gooseberry in a garden at Iberville.

P.E.I.- Traces of Gloeosporium leaf spot were found in a garden in Queens county.

CLUSTER CUP RUST - Puccinia Pringsheimiana Kleb.

B.C.- This rust was found at Saanichton. The damage was slight.

Que.- Specimens of rusted gooseberry leaves were received from Ste. Anne de la Pocatière.

N.S.- Cluster cup rust infected the leaves moderately and the fruit slightly in a plantation in Yarmouth county.

GRAPE

BLACK ROT - Guignardia Bidwellii (Ell.) Viala & Rav.

Ont.- Black rot infection varied considerably in the peninsula. In some vineyards 5 per cent of the fruit in the bunch was infected while in others only a trace was attacked. Where the vines were sprayed rot was of no importance.

DOWNY MILDEW - Plasmopara viticola (Berk. & Curt.) Berl. & de Toni

Ont.- The foliage was severely infected with downy mildew. In unsprayed vineyards considerable damage occurred on account of shelling of the fruit.

CROWN GALL - Pseudomonas tumefaciens (Sm. & Towns.) Duggar

Que.- Specimens of crown gall on grape were received for identification from Arthabaska county. The vines were of the "Beta" variety, and had been purchased from a nursery at Taylor's Falls, Minn.

LOGANBERRY

CROWN GALL - Pseudmononas tumefaciens (Sm. & Towns.) Duggar
B.C.- Crown gall was general on Vancouver island and in the lower Fraser valley. The damage was severe.

FRUIT BLIGHT - Botrytis cinerea Pers.
B.C.- Fruit blight caused severe damage on Vancouver island and in the lower Fraser valley.

CANE BLIGHT - Leptosphaera Coniothyrium (Fuck.) Sacc.
(Coniothyrium Fuckelii Sacc.)
B.C.- Cane blight is general and very serious on Vancouver island.

SPUR BLIGHT - Didymella applanata (Niessl) Sacc.
B.C.- Spur blight was found at Saanichton. The damage was slight.

BLOSSOM BLIGHT - Cause undetermined
B.C.- Blossom blight is destructive in the Elk Lake, Royal Oak, Keating, and Saanichton districts on Vancouver island. It caused a loss of about 30 per cent of the crop. Foster (Scient. Agric. 11:529-534. 1931) reported Bacillus dessicans n. sp. as the cause of this disease. More recent study indicates that thrip injury is the primary cause, but thrips alone are unable to produce any serious damage. Besides Bacillus dessicans several other bacteria have been isolated from blighted blossoms and fruit and their pathogenicity tested. It appears that some of these organisms may be more pathogenic than Bacillus dessicans (W. Newton).

ORANGE

STEM-END ROT - Diplodia natalensis Pole-Evans
Que.- This rot is causing serious damage to oranges shipped from Jamaica. Five to 50 per cent of the fruit is affected on its arrival by boat in Montreal (J.G. Coulson).

PEACH

SCAB - Cladosporium carpophilum Thüm.
Ont.- Peach scab was less prevalent than in 1930 in the Niagara peninsula. Thirty to 40 per cent of the fruit was

infected in an unsprayed block of Rochester in Lincoln county, but only 4 per cent was severely affected. Elberta was quite free from infection.

LEAF CURL - Taphrina deformans (Berk.) Tul.

B.C.- Leaf curl was general on Vancouver island. The damage was severe.

Ont.- Leaf curl was general and quite prevalent in unsprayed orchards in the Niagara peninsula. Ten per cent or more of the leaves were affected especially on Elberta. Where the trees were sprayed, infection was very light. Infection apparently occurred about 2 weeks after the buds had opened.

POWDERY MILDEW - Sphaerotheca pannosa (Wallr.) Lév. var. Persicae Woron.

B.C.- Powdery mildew was not abundant, but it was severe on Triumph and New Haven varieties at Summerland.

BROWN ROT - Sclerotinia americana (Worm.) Nort. & Ezekiel

Ont.- A scattered infection of brown rot was present in a block of Red Bird peach in Lincoln county. The damage was slight.

BLIGHT - Coryneum Beijerinckii Oud.

B.C.- Blight is general on Vancouver island. The damage is slight.

PEAR

FIRE BLIGHT - Bacillus amylovorus (Burr.) Trev.

B.C.- Fire blight was kept fairly well in check in most districts of the Okanagan valley through the work of the Extension Service of the Provincial Department of Agriculture. In the Westbank area, however, a serious outbreak occurred and as a result several orchards were practically wiped out.

Ont.- Fire blight caused considerable twig blight and in many instances branches and limbs were also involved. In the young Barlett orchard at the Laboratory, St. Catharines, infection was severe. It also caused a moderate amount of twig blight on Flemish Beauty at Abbotsford, Que.

SCAB - Venturia pyrina Aderh.

B.C.- Scab was general on Vancouver island; the damage was severe.

Ont.- Eighty per cent of the fruit was infected and severely damaged in a block of six Flemish Beauty trees in Lincoln county. The twigs and leaves were affected moderately and slightly respectively.

N.S.- Scab was very common in Kings county, 100 per cent of the fruit being infected in several varieties.

P.E.I.- A small percentage of fruit were severely damaged in an orchard of Flemish Beauty in Queens county.

DROUGHT SPOT - Non-parasitic

B.C.- Drought spot was found on Bartlett and Flemish Beauty at Penticton. It is not very prevalent, but it is on the increase.

BLACK END ROT - Non-parasitic

B.C.--Black end rot has increased slightly in the Penticton area, but it is not of serious economic importance.

CORKY CORE - Non-parasitic

B.C.- Corky core was found on several varieties at Summerland.

DIE BACK - Non-parasitic

B.C.- A number of trees were affected with die back in an orchard at Westbank. The buds had opened and then dried up; the dead leaves remained in position. In some instances the wood was alive and new leaves had come out; in others the wood was dead and the cambium had darkened.

POWDERY MILDEW - Podosphaera leucotricha (Ell. & Ev.) Salm.

B.C.- Powdery mildew appears to be somewhat on the increase as it was reported as affecting fruit from different sections. It was found on one tree of Pyrus ussuriensis in the Laboratory grounds, Summerland. Mildew was severe on the fruit of Bartlett and Flemish Beauty at Penticton.

PLUM

BLACK KNOT - Dibotryon morbosum (Schw.) Theiss. & Syd.

Que.- Black knot was severe on plums at Ste. Famille, Isle of Orleans. It was noticed in six orchards in Kamouraska county, 5 to 75 per cent of the trees bearing knots. The disease is present on 75 per cent of the wild plum trees along the roadsides on the

islands of Montreal and Jesus. The disease is affecting the ornamental value of these trees.

N.B.- Black knot is common on wild plum throughout the province. Slight infections occur also on cultivated plum.

N.S.- Black knot was noticed in a well cared for orchard at Kentville.

P.E.I.- Black knot caused slight damage in an orchard in Queens county. The disease is becoming less troublesome in well cared for orchards.

PLUM POCKETS - Taphrina Pruni (Fuck.) Tul.

Man.- Plum pockets was almost absent at Winnipeg in 1931.

Que.- Out of ten trees, four were badly infected with plum pockets in Kamouraska county.

N.S.- Half the fruit was destroyed on some unsprayed trees in Annapolis county.

BROWN ROT - Sclerotinia americana (Worm.) Nort. & Ezekiel

B.C.- Brown rot caused slight damage on Vancouver island.

Ont.- Brown rot was mere prevalent than in 1930 on stone fruits in the Niagara peninsula. No counts were made to determine the percentage of rot, but infected fruit could easily be found. Brown rot apothecia were first observed on May 4 and could be found easily on May 14.

N.S.- Up to 10 per cent of the fruit was affected by brown rot on varieties of Prunus domestica and prunes in Kings county.

P.E.I.- Brown rot was severe on one tree out of three in a garden at Charlottetown.

SHOT HOLE - Coccomyces prunophorae Higgins
(Cylindrosporium prunophorae Higgins)

B.C.- Shot hole is general on Vancouver island, but the damage is slight.

Ont.- Shot hole caused some defoliation in an orchard of prunes in Lincoln county.

Que.- A moderate infection of shot-hole was present on Damas plums at Ste. Anne de la Pocatière.

SCAB - Cladosporium carpophilum Thüm.

Que.- Fruits sent in for examination from Frontenac county were found to be affected with scab. The owner stated that his plums had dried up just as they were ripening for the last two or three years.

BACTERIAL SPOT - Pseudomonas Pruni E.F.Sm.

Ont.- This disease was observed on two neighbouring farms in Lincoln county. On one farm the disease was very prevalent, rendering the fruit useless and causing considerable shot hole and defoliation.

GUM SPOT - Non-parasitic

B.C.- Gumming accompanied by an internal necrosis has been more serious this year than usual in plums in the Okanagan valley. The loss over the whole area is difficult to estimate, but in certain orchards approximately all the fruit was unmarketable on account of the gumming.

PLUM LUMP - Non-parasitic

B.C.- In some orchards about Summerland 100 per cent of the fruit was affected.

BLACK ROT - Physalospora malorum Shear
(Sphaeropsis malorum Pk.)

Sask.- A small amount of the imperfect stage was found on plum at Saskatoon.

DIE BACK - Valsa ambiens (Pers.) Fr.
Cytospora ambiens Sacc.

Sask.-Both stages of the fungus were found on plum. The fungus was identified by Dr. Dearness.

QUINCE

LEAF BLIGHT - Fabraea maculata Atk.
(Entomosporium maculatum Lév.)

Ont.- Leaf blight was severe on quince at Jordan in 1930.

RUST - Gymnosporangium clavipes Cke. & Pk.

N.S.- Less than one per cent of the fruit and leaves were affected in an orchard in Kings county. The trees were well sprayed with sulphur fungicides.

RASPBERRY

SPUR BLIGHT - Didymella applanata (Niessl) Sacc.

Man.- Spur blight is common and causes some injury in Manitoba.

Ont.- Traces of spur blight were found on Latham, Viking and Newman at Manotick.

N.B.- Slight to moderate infections of spur blight were noted throughout the plantations in the province.

P.E.I.- Spur blight causes heavy losses in Queens county.

MOSAIC - Virus

B.C.- Mosaic was general on Vancouver island; over 50 per cent of the plants were affected.

Alta.- Both mosaic and leaf curl, especially the former, occur in many of the raspberry plantations in the province. Sometimes the damage is severe.

Ont.- Mosaic was found to be general in plantations inspected in York, Peel, Halton, Lincoln, Wentworth, Welland, Norfolk, Elgin, Huron, and Brant counties. The disease is more prevalent in Cuthbert, Viking, and King varieties. (G.C. Chamberlain). At Manotick the following percentages of mosaic were noted: Cuthbert, 20-25 per cent; Viking (2 plantings) 3 per cent and a trace; Newman, a trace.

N.B.- Mosaic infected 20 per cent of the plants at the Experimental Station, Fredericton. The disease is common on wild raspberries throughout the province.

P.E.I.- The following percentage of infected plants were reported in Queens county: Herbert, a trace to 100 per cent; Viking, a trace only.

LEAF CURL - Virus

Ont.- Leaf curl was found scattered throughout Lincoln, Brant, Middlesex, Elgin, Halton, Welland, and York counties.

The percentages of infection were small.

N.B.- Leaf curl was common on wild and cultivated raspberries throughout the province. The damage was severe.

ANTHRACNOSE - Plectodiscella veneta Burkh.
Gloeosporium venetum Speg.

Ont.- Anthracnose was prevalent in a planting of Black Perfection in Lincoln county; the damage was slight. Fifty per cent of the canes showed a trace and 10 per cent a moderate infection in a planting of Newman at Manotick. Only a trace was present on Viking.

P.E.I.- A trace of anthracnose was found on Viking in Queens county.

SEPTORIA LEAF SPOT - Mycosphaerella Rubi Roark
(Septoria Rubi Westend.)

Ont.- Specimens of this leaf spot on Herbert were sent in for identification from Sutton West.

Que.- Septoria leaf spot heavily infected 100 per cent of leaves of Herbert in plantations at Emileville and Beebe.

CANE BLIGHT - Leptosphaeria Coniothyrium (Fuck.) Sacc.
(Coniothyrium Fuckelii Sacc.)

B.C.- Cane blight was general and severe on Vancouver island. Diseased canes of Cuthbert were received from Hatzic. The owner says "That two-thirds of the canes have rotted or nearly rotted off. In some places the whole hill has died".

Ont.- Cane blight had affected and killed two per cent of the canes in a planting of Cuthbert in Wentworth county.

Que.- A trace of cane blight was found on Adams 87 at Cap Rouge.

BLUE STRIPE WILT - Verticillium ovatum Berkeley & Jackson
and Verticillium sp. (V. Dahliae group)

Ont.- Blue stem wilt was found scattered throughout Lincoln, Wentworth, and Norfolk counties, on Viking and Cuthbert. Infection varied from 1 to 5 per cent.

N.S.- Wilt affected 1½ per cent of the canes in a planting of Herberts in Kings county.

PUCCINIASTRUM RUST - Pucciniastrum americanum (Farl.) Arth.

Que.- About 30 per cent of the leaves were slightly to moderately affected with this rust in a planting of Viking at Abbotsford.

N.S.- Specimens of rusted leaves of cultivated raspberry were collected at Kentville in 1925. Examination of these leaves showed that they were infected with Pucciniastrum americanum. It is probable that the rust on Viking reported last year as Kuehneola uredinis was this rust. (I.L. Conners and A.S. Hill)

PHRAGMIDIUM RUST - Phragmidium imitans Arth.

B.C.- This rust is general on Vancouver island and is severe in certain districts.

POWDERY MILDEW - Sphaerotheca Humuli (DC.) Burr.

Ont.- Powdery mildew was prevalent on Brighton, Count, and Latham in the Niagara peninsula; it caused some stunting of the growth. Heavy infections were also reported on Latham from Peel and Halton counties.

CROWN GALL - Pseudomonas tumefaciens (Sm. & Towns.) Duggar

Ont.- Crown gall was in general more widespread this season due possibly to the high soil temperatures and frequent showers. In a planting of Latham in Lincoln county 25 per cent of plants were affected; the damage was moderate. Many galls appeared at the surface of the ground choking and killing the affected canes.

DIE BACK - Non-parasitic

B.C.- Die back, apparently caused by a late frost was very general at Summerland, Penticton, and Naramata. There was a considerable reduction of the crop.

HAIL INJURY

Ont.- Hail that fell a week or ten days previous to Sept. 24, severely injured the canes of raspberries at Manotick. The injury had the appearance of anthracnose, except that the hail marks were confined to one side of the cane and were scattered evenly, about two to three inches apart, the whole length of the cane.

BLOSSOM BLIGHT - Cause undetermined

B.C.- Blossom blight caused severe damage to Franconia, an English variety, in certain districts on Vancouver Island.

Cuthbert is practically immune in the field.

SANDCHERRY

POWDERY MILDEW - Podosphaera Oxyacanthae (Fr.) de Bary

Sask.- A fairly heavy infection of powdery mildew was present on some of the bushes of sandcherry in the University orchard, Saskatoon, on Sept. 29. Perithecia were abundant.

DIE BACK - Valsa ambiens (Pers.) Fr.
(Cytospora ambiens Sacc.)

Sask.- A little Valsa ambiens along with Cytospora ambiens was found on sandcherry. Determinations were made by Dr. Dearness (R.C. Russell).

STRAWBERRY

LEAF SPOT - Mycosphaerella Fragariae (Schw.) Lindau
(Ramularia Tulasneii Sacc.)

Sask.- A light infection of the conidial stage was present on cultivated strawberries in the University garden, Saskatoon.

Ont.- Leaf spot was reported but caused little damage in Lincoln and Carleton counties.

Que.- Medium to heavy infections of leaf spot were reported from Western Quebec. In some cases it caused heavy defoliation and thus decreased the yield. Leaf spot was general from Quebec to Riviere du Loup, 25 to 50 per cent of the leaf surface being infected.

N.B.-Leaf spot was widespread in the province. The damage was slight.

N.S.- Leaf spot was present in Annapolis and Halifax counties; it apparently caused no damage.

P.E.I.- Leaves of Senator Dunlop were moderately infected in Queens county; the damage was practically nil.

POWDERY MILDEW - Sphaerotheca Humuli (DC.) Burr.

Ont.- Powdery mildes caused slight damage in the Niagara pen-

BLACK ROOT - Cause undetermined

Ont.- Twenty-five per cent of the plants were affected with black root on May 22 in a patch of Parson's Beauty. The old plants were dying. The young plants were as yet apparently healthy.

LEAF SCORCH - Diplocarpon Earliana (Ell. & Ev.) Wolf
(Marssonina Fragariae (Sacc.) Kleb.)

Ont.- Leaf scorch was unusually common in the district around Vineland Station.