IV. DISEASES OF FRUIT CROPS

APPLE

SCAB (Venturia inaequalis) was rare at the Station at Summerland, B.C. It was of minor importance in the Niagara Peninsula, Ont. in 1936. Unsprayed McIntosh trees at the Laboratory farm, St. Catharines, had 35% of the foliage infected, but the infection was light and mostly on the late season growth. On sprayed trees infection was very scattered and light. It was quite prevalent in Durham county; foggy weather in the early season provided conditions favourable for infection.

Scab moderately infected both leaves and fruit of young Melba trees at La Fresniere, Que.; the trees were not properly sprayed. At Ste. Anne de la Pocatiere, scab was light in well sprayed orchards, Fameuse and McIntosh being the most affected. However, in an unsprayed orchard of old trees, scab was severe and the crop was poor, about 50% of the fruit being scabby. It was even more severe on a crab-apple tree. At Cap Rouge infection was very light except on Galetta, which was severely affected. In small home orchards at St. Elzear, Bonaventure county, the trees were often relatively free of scab, although unsprayed. However, in one orchard in which there were 3 trees, the leaves on a crab-apple tree were yellow from scab and the tree next to the crab bore a moderately scabby crop while the third tree was only slightly affected.

Scab was severe on unsprayed trees, or those poorly sprayed, in N.B. Satisfactory control was obtained where the standard spray programme was carried out. Ascospore discharge began May 4, and was unusually heavy. (S.Clarkson)

The first ascospore discharge at Kentville, N.S., took place on April 27 and the first conidia were present on new growth on May 19. These infections were mostly on the upper leaf surfaces. By June 2, 75% of the foliage was affected on some unsprayed trees and scab was common on the fruit and pedicels. Late infections were apparent on the fruit in early September and later infections were abundant during October. (J. F. Hockey)

A survey in P.E.I. indicated that apple scab was abundant in 1936. Where a regular spray schedule was followed, control of scab was good and in spite of a very rainy season, the disease was completely controlled. (R. R. Hurst.

FIRE BLIGHT (Erwinia amylovora) was unusually prevalent in the Okanagan valley, and although the damage was small, the disease may be destructive in 1937 unless the cankers are cleaned out before next season. Fire blight caused a trace to severe damage among the 36 apple hybrids, being grown in the University orchards, Saskatoon, Sask.; the average damage was moderate. Fire blight infection was slight at Morden, Man., and severe at Winnipeg.

In a large orchard at Queenston Heights, Ont. moderate to severe infection of blossoms and twigs occurred on Greening; some cankers from last year's infection and a few old cankers were present. Slight blossom and twig infection occurred on McIntosh in the same orchard; no old cankers were seen. On the other varieties present only a trace of infection developed. Fire blight caused slight blossom and twig infection on Tolman Sweet and a trace on Northern Spy in orchards at Port Dalhousie, Ont.

There was very little fire blight in western Quebec in 1936 and what there was developed on Alexander, Winter Arabka, Canada Baldwin, on certain crab-apple varieties, and on a few trees of other varieties growing in close proximity to those enumerated above. Where the susceptible varieties were absent the orchards were free from blight. At Abbotsford, fire blight was present in only 5 orchards. In these, 5% of the blossoms of Alexander and Winter Arabka were affected, with a slight amount of twig infection later. In one orchard old cankers on a few Canada Baldwins exuded freely during the season, but no new infections developed. In another 15% blossom infection occurred on a Queens Choice crab with some twig infection later on. In the Rougemont and St. Hilaire districts, Alexander was slightly to moderately infected in a few orchards where it is grown. In the Chateauguay district a trace of blight was present in a few small orchards on Alexander. In Franklin Centre fire blight was very severe on about 12 Alexander trees in a neglected orchard of 50 trees. Light infections were noted in a few orchards in West Shefford, but no blight occurred at Frelighsburg, Hemmingford, Covey Hill, and St. Joseph du Lac. A trace of blight was present on a tree of Pyrus baccata in Missisquoi county.

In eastern Quebec the epidemic of fire blight that reached its height about 1931 has not completely subsided for most orchards are still moderately infected. The varieties affected in descending order of severity are Alexander, Wolf River, crabs, Wealthy, Yellow Transparent and Duchess. Since the winter of 1933-34, when most of the McIntosh and Famouse trees were winter-killed, the Wealthy is the dominant variety and as it is generally affected it appears to be the

most susceptible. When, however, Alexander is present, it is found to be more severely diseased. Fire blight infections were noted as follows: slight amount along the north shore of the St. Lawrence from Quebec to St. Joachim; moderate at Ste. Famille, Isle of Orleans, and on the south shore around St. Nicolas and at St. Michel; slight at St. Valier, St. Roch and Village des Aulnaies; and on one tree of Fameuse at Ste. Anne de la Pocatiere.

Fire blight was heavy on a few trees in an abandoned orchard in P.E.I.

BLACK ROT (Physalospora obtusa (Sphaeropsis malorum). Pycnidia of the fungus were found on a black rot canker on May 11 at Ste. Anne de la Pocatiere, Que. (C. Perrault). As a leaf spot the disease was less severe in N.B. than in previous years and consequently little defoliation occurred in affected orchards. It caused moderate leaf infection in a few orchards in York and Sunbury counties. Black rot caused a trace of damage on Duchess at Kentville, N.S.

RUST (Gymnosporangium clavipes). A trace of rust was present on Melba at Ste. Anne de la Pocatiere, Que.; aecia were mature about July 10.

POWDERY MILDEW (Podosphaera leucotricha) slightly infected McIntosh at Summerland, B.C.

ANTHRACNOSE (Neofabraea malicorticis) caused 20% damage in a 10 acre orchard of Ontario at Duncan, B.C. The disease is fairly general over Vancouver Island and the lower mainland. Northern Spy is apparently more resistant than other varieties grown. The disease is best controlled by spraying with Bordeaux before the fall rains begin. "Buisol" also is fairly effective and has the advantage that it does not discolour the fruit (W.R. Foster and W. Jones). From examinations of material from B.C., Dr. W. J. Groves, now at the Ottawa Laboratory, and who has been making a study of the Dermateaceae in Ontario, has concluded that this fungus is not a Pezicula. In his opinion it should be retained in the genus Neofabraea, which Jackson erected with N. malicorticis as the type species. (I.L. Conners)

EUROPEAN CANKER (Nectria galligena). About 8 cankers of various size were found on a large 20 year old McIntosh tree

in an orchard in Levis county, Que.; a few trees had 1 or 2 cankers each, while the other 50-60 trees were clean. Mature perithecia present on the dead bark agreed with the description of N. galligena. (H.N. Racicot and F.S. Thatcher). It was present on a few small trees at the Experimental Station, Kentville, N.S.

CROWN ROT (Non-parasitic) affected several trees at the Station, Summerland, B.C.

DROUGHT SPOT and CORKY CORE (Non-parasitic) was severe on untreated trees, sometimes all the apples on a tree being affected in the Okanagan valley, B.C. Nevertheless success obtained in the control of these types of physiological disorders by means of boric acid has resulted in the addition of 40,000 boxes of perfect fruit to the 1936 harvest of the Okanagan growers. (H.R. McLarty)

It occurred sporadically on McIntosh and Fameuse in York and Sunbury counties, N.B.

BITTER PIT (Non-parasitic) was severe on Baxter and Wealthy apples in Queens and Sunbury counties, N.B. Tree injections with borax did not appear to be beneficial.

Bitter Pit of the Blotchy Cork type was severe on Stark in the Annapolis valley, N.S. in 1936. From 40 to 50% was found in different parts of the valley. In one orchard with a very light crop, 83% of the fruit was affected. In another in the same district, but on a different type of soil, less than 1% was injured. (K. A. Harrison)

WATER CORE (Non-parasitic) affected the fruits, which were larger than usual, on one tree of Melba at Cap Rouge, Que. The fruit from a few trees have been found affected in N.B. The number showing water core may vary from a trace to 90%. The trouble apparently disappears during prolonged storage. (J. L. Howatt)

TWIG BLIGHT (Nectria cinnabarina). A trace was found at Ste. Anne de la Pocatiere, Que. It is occasionally seen on trees weakened or injured during the winter of 1933-34 in York and Sunbury counties, N.B.

WOOD ROT (Schizophyllum commune) was found on the trunk of a tree in the University orchard, Saskatoon, Sask.; some of the limbs of the tree are dying. It is found in orchards throughout N.B., where the trees were badly injured in the winter of 1933-34.

SILVER LEAF (Stereum purpureum). A slight infection was reported at Morden, Man. A few among about 1,000 seedling trees were found affected at the Stations at Fredericton, N.B. and Kentville, N.S. It was found on 65% of the trees in one orchard in Queens county, P.E.I., as well as on wild trees.

CANKER (Cytospora sp.) was severe on one tree each at Saskatoon and Swift Current, Sask.; it was also reported from Indian Head. As a twig blight it is common on trees which have suffered winter injury.

STORAGE ROTS. The following fungi were found causing rot on apples in storage at the Station, Fredericton, N.B. from Dec. 1935 to April 1936: Botrytis sp., trace; Sclerotinia americana, trace; Penicillium ?candidum, 1%, determined by Dr. J. Dearness; Fusarium sp., trace; Rhizopus nigricans, trace; Alternaria Mali, trace; Dasycarpoma allantoideum (Peck) Dearness, 6% of 10,700 apples examined. This is a new storage disease which was found on Dudley, Wealthy, McIntosh, Fameuse, Milwaukee and Golden Russet; 18.1% of the Fameuse were affected. Dr. Dearness has erected a new genus for the fungus which was formerly known as Gloeosporium allantoideum. (J.L. Howatt and S. Clarkson)

PINK ROT (Tricothecium roseum) was affecting a few scabby apples at Fredericton, N.B. in Nov. 1936.

SCORCH (Potassium deficiency). A large orchard in York county, N.B. was found with several trees affected with what was thought to be leaf scorch.

WINTER INJURY was severe on young trees and grafts up to 7 or 8 years old in the Okanagan valley, B.C. The injury was mostly in the trunk, but in some cases the branches were also affected. The temperatures were: Oct. 31, 15°F; Nov.1, 14°F; Nov. 2, 13°F; and Nov. 3, 13°F.

JONATHON SPOT (Non-parasitic) affected all the Macoun apples in store at the Station, Fredericton, N.B.

SUN SCALD and WINTER INJURY caused rather extensive dead areas on the south-west side of the trunks, partially girdling them, in an orchard of Duchess apples and Barlet pears in Wentworth county, Ont. The orchard has an exposed location.

SUN SCALD of all exposed fruit was common following the extreme heat in early July in Lincoln county, Ont.

FROST slightly injured young apple leaves on May 16 at Burton, N.B.

LEAF SPOT (Cause unknown). A leaf spot, usually associated with the leaves in a fruit cluster, was very prevalent in the St. John River valley, N.B. Affected leaves showed numerous, pinpoint, ragged, red spots. Such leaves were usually small and dropped early.

SPRAY INJURIES on the foliage were common in the Annapolis valley, N.S., and were aggravated by frost, and aphid injuries. A variety of injuries from different spray schedules have been found, some of which have not been accounted for. (J. F. Hockey)

APRICOT

WINTER INJURY was severe in some places in the southern Okanagan valley, B.C. in Feb. 1936, possibly affecting 5% of the trees. The injury was most severe on the trunks and buds and the crop was a complete failure. The temperatures were:

Feb.	7	-16°F.	Feb.	12	9°F.	Feb.	16	-8°F.
"	8	-15°F.	"	13	-8°F.	"	17	-8°F.
"	9	-10°F.	"	14	-11°F.	"	18	-5°F.
"	10	1°F.	"	15	-10°F.	"	19	-1°F.
"	11	8°F.						

The apricots came through the November cold spell very well, but it caused severe injury to apples (See Apple).

BLACKBERRY

SEPTORIA LEAF SPOT (S. Rubi) was moderate on cultivated blackberry at Lennoxville, Que., in 1934.

CHERRY

SHOT HOLE (Higginsia hiemalis (Cylindrosporium hiemale) caused slight damage on Vancouver island, B.C., and in the Fraser River valley. It was present on specimens from Oakville, Ont., received at Ottawa. A slight infection was noted at the Experimental Station, Charlottetown, P.E.I.

BROWN ROT (Sclerotinia americana) caused 5% damage at Elk Lake, B.C. It also was present on the lower mainland. A trace of brown rot was recorded at Kentville, N.S.

BLOSSOM BLIGHT (Sclerotinia cinerea) was present on most trees on Vancouver Island and in the Fraser River valley, B.C., the damage ranging from 0 to 50%.

WITCHES' BROOM (Taphrina Cerasi) was found on one tree in an orchard at Elk Lake, B.C.

SPLITTING caused heavy losses to sweet cherries on Vancouver Island, B.C. on account of rain when the fruit were ripe; in some orchards almost all the fruit were affected. Where the orchards were sprayed with Bordeau or Buisol the percentage of cherries affected was reduced considerably. Sour cherries were not affected as these varieties were not yet ripe. (W. R. Foster and W. Jones)

ARMILLARIA ROT (A. mellea). A few trees were killed by this fungus at the Sidney Experimental Station, B.C. The symptoms of chlorosis, die back, and gumming present in some orchards seem to indicate that it may be more general than supposed. The fungus was responsible for the death of numerous wild cherries (Prunus emarginata) in the Milner district, B.C. and has also been found on wild trees around Sidney. (W. Jones)

HEART ROT (Fomes applanatus). The fungus was found fruiting on a sweet cherry tree at Summerland, B.C.

GUMMOSIS (Cause unknown) was less prevalent on sour cherries than usual in Queens county, P.E.I., only traces being observed. (R. R. Hurst)

FROST caused slight injury to scattered Montmorency trees in an orchard in Lincoln county, Ont., causing a

failure of bloom, and a spotting and stunting of the foliage mostly on the upper parts of the tree (G.C. Chamberlain). Frost caused some injury to the young leaves of cherries in York county, N.B. on May 16.

CRANBERRY

RED GALL (Synchytrium Vaccinii) was severe in a bog at Port Mouton, N.S. The disease was reported from the same bogs in 1933 (see P.D.S. 13:51. 1934).

RED LEAF SPOT (Exobasidium Vaccinii) slightly infected one bog at Egmont Bay, P.E.I., out of 4 visited on July 8. (E. H. Saunders)

CURRANT

WHITE PINE BLISTER RUST (Cronartium ribicola J.C. Fischer) was general on Vancouver Island and in the Fraser River valley, B.C. and caused moderate damage. It was severe on black currants at Summerland.

The currant and gooseberry plantings of the Horticultural Division, Ottawa, Ont. were inspected at regular intervals during July and August. Although the rust was not as severe as it was last year, several varieties which were free from infection in 1935 were slightly affected this year. Of the red varieties, Viking, Franco German, and Ribes Manchurica (?manchuricum)were free both years; the latter was accidentally omitted from the list last year. Of the black currants, bush 19/11 of a variety from the Siberian Horticultural Station was found free of rust; bush 9/4 from the same source, although not affected last year, was slightly rusted in 1936 (H.J. Read). Rust was prevalent on red currant at Farnham, Que. Blister rust was common in York and Sunbury counties, N.B., on red and white cultivated currants and on wild species of Ribes. Traces were found on gooseberry (J.L. Howatt). This rust was abundant in plantations of black currant at Kentville and Amherst, N.S. Rusted specimens were also received from Lunenburg, Annapolis, and Halifax counties. Rust was reported on red currant at Charlottetown, P.E.I.

POWDERY MILDEW (Sphaerotheca mors-uvae) moderately infected red, white, and black currants at the Station, Summerland, B.C. It caused moderate damage to black currant at Saskatoon, Rosthern, and Codette, Sask.

SEPTORIA LEAF SPOT (S. Ribis) slightly infected red and black currants at Indian Head, Sask.; it was also present on the flowering currant. Black currants were found infected at the Station, Kapuskasing, Ont. (4024), in 1935. A moderate infection was noted in one garden in York county, N.B.

ANTHRACNOSE (Gloeosporium Ribis) slightly infected the lower leaves of red currant at Indian Head, Sask.

CORAL SPOT. A number of canes, bearing Nectria cinnabarina, was pruned out of a garden at Kentville, N.S.

GOOSEBERRY

POWDERY MILDEW (Sphaerotheca mors-uvae) was severe on Poorman at the Station, Summerland, B.C.; none was found on Oregon Champion. It was heavy on the fruit of Industry, an English variety, in a garden in Lincoln county, Ont. A moderate infection was noted in one garden in Queens county, P.E.I.

WHITE PINE BLISTER RUST (Cronartium ribicola). All varieties of gooseberries were more or less rusted in the plantings of the Horticultural Division, Ottawa, Ont. (H.J. Read). Specimens of the rust on gooseberry were collected by Miss Watts and have been preserved in the Division of Botany herbarium (I.L. Conners). Rust was moderate at Farnham and slight at Cap Rouge, Que.

SEPTORIA LEAF SPOT (S. Ribis) caused a slight infection in one garden in York county, N.B.

ANTHRACNOSE (Gloeosporium Ribis) was serious in some plantations on Vancouver Island and in the Fraser River valley, B.C. Lime Sulphur has not given control on the lower mainland. (W. Jones)

GRAPE

DEAD ARM (Fusicoccum viticola) was present on about 10% of the vines of Concord in a vineyard at Port Dalhousie, Ont.

WINTER INJURY. Several complaints about the dying of grape vines, principally of the Niagara variety, were inves-

tigated in Lincoln county, Ont. The tissue of the crown had been killed; the vines leafed out, but died as soon as the weather became warm and dry. In most vineyards cultivation in the previous year had been continued until quite late (end of July) which may have prevented the wood from maturing before winter. (G.C. Chamberlain)

SHELLING (Mineral deficiency?) was found occurring on a few vines in one area in Lincoln county, Ont. Soil samples analysed by the "Rapid Soil Analysis" method, indicated a potash deficiency where shelling was most marked. Tissue analysis also showed that the affected vines were low in potash, while healthy vines had a high potash content. (G.C. Chamberlain)

LOGANBERRY

ANTHER and STIGMA BLIGHT (Haplosphaeria deformans) was prevalent at Elk Lake, B.C. and caused 10% damage. A slight infection was present at Gordon Head. The disease is most prevalent in humid areas where air drainage is poor. (W.R. Foster)

NECTARINE

POWDERY MILDEW (Sphaerotheca pannosa) was slight at the Station, Summerland, B.C.

PEACH

LEAF CURL (Taphrina deformans) caused a slight infection on most varieties in Lincoln county, Ont.; the damage was virtually nil.

POWDERY MILDEW (Sphaerotheca pannosa) was moderate on several trees at the Station, Summerland, B.C. A moderate infection developed on June Elberta in an orchard in Lincoln county, Ont. The orchard was close to a bush and the weather had been foggy. Late Elberta in the same orchard was not affected.

BROWN ROT (Sclerotinia americana) was practically absent from orchards in Lincoln county, Ont. and was not evident in stored peaches during 1936. Low humidity and

extreme drought, which prevailed until early September, probably served to reduce the incidence of the disease. (R. S. Willison)

YELLOWS and LITTLE PEACH (virus). Outbreaks of virus diseases, particularly of little peach, and often of considerable extent, were observed in various parts of the Niagara peninsula, Ont. Several cases of little peach and a few of yellows were identified in the Laboratory orchard, St. Catharines. (R.S. Willison)

BUMPY FRUIT (Undetermined, probably non-parasitic). This trouble, first reported in 1935 in an orchard in Lincoln county, Ont., was not so serious in 1936, although a few fruit were affected. A similar case was observed by Mr. M.L. Schenk in an orchard on the north shore of Lake Erie; affected fruits were brought to the St. Catharines Laboratory. (R.S. Willison)

WINTER INJURY was severe in the southern Okanagan valley, B.C. in February 1936 (see under Apricot). Injury to the buds and twigs cut the crop to half the usual amount. In most cases the trunks were severely browned, but the cambium remained alive. In a very few instances, however, the trees were killed. (H.R. McLarty)

COLLAR ROT (Low soil temperature) was observed in Lincoln county, Ont. Injury was usually evident at the soil level or a few inches below. The amount of damage varied from complete girdling to small brown areas on the trunk. Roots near the surface of the soil also showed signs of injury. The soil temperature in February, 1936 was much lower than normal; on one occasion at Vineland it was 13°F. There were indications that this type of damage may vary with cultural practices and fertility levels. (R.S. Willison)

LEAF SCORCH (Potash deficiency). A 2-year old orchard was observed showing marked symptoms of marginal scorch. When the soil was analyzed by the "Rapid Soil Snalysis" method, it showed no potash or phosphate and low nitrate and nitrite. The soil was slightly alkaline, probably high in lime. The trouble is becoming of increasing importance. (G. C. Chamberlain)

WILT (Verticillium sp.) affected 5% of the Vidette trees in a 5-year old orchard of mixed varieties in Lincoln

county, Ont. Diseased branches were defoliated. The orchard was intercropped for 2 years with tomatoes. (G.C. Chamberlain)

SCAB (Cladosporium carpophilum) caused a scattered infection of St. John and Rochester in an orchard in Lincoln county, Ont.

FRUIT BREAKDOWN (Non-parasitic) was moderate in Elberta peaches, especially when the fruit was held in cold storage at 33-36°F. for several days in Lincoln county, Ont. The signs were: (1) First a reddening of the flesh in line with the suture of the pit, with browning within red areas especially near the stem end; (2) Later a browning of the flesh sometimes preceeded by a diffuse reddening, with or without the early signs. The first symptoms were not evident in Rochester peaches studied at the same time, but the second appeared in some cases after storage for several weeks. Weather conditions at the time of ripening may be a predisposing factor. (R. S. Willison)

CROWN GALL (Phytomonas tumefaciens) affected 30 to 50% of trees of various varieties in an orchard in Wentworth county; there was a heavy growth of gall at the crown of young budded stock. The soil was a heavy clay with slightly acid reaction. (G.C. Chamberlain)

PEAR

FIRE BLIGHT (Erwinia amylovora). Diseased fruit of Flemish Beauty were sent from Erickson, B.C. by Mr. C. B. Twigg, District Agriculturist, to the Summerland Laboratory. It was general at Summerland. Many old fire blight cankers were seen in an old neglected pear orchard containing 17 varieties at Port Dalhousie, Ont.; blossom and twig blight was slight to a trace. In another orchard of 1,300 Barlet trees, twig infection occurred on 3 trees. In a commercial orchard at St. Catharines, Ont., some old cankers were observed, but no new infection was present. (H.N. Racicot)

SCAB (Venturia pirina) was general on Vancouver Island and on the lower mainland of B.C. In an unsprayed orchard at the Station, Sidney, it was heavy and caused 50% damage on Anjou, the worst infected variety. Scab was present on all pear trees grown in P.E.I. in 1936, but the damage was slight.

WINTER INJURY occurred on a quarter of the trees belonging to different varieties in an extensive 3-year old planting on East Malling root stocks A, B, and C. The injury showed up this spring. Trees on C stock appear to be the worst affected. (G.C. Chamberlain)

PLUM

BLACK KNOT (Dibotryon morbosum). A trace was recorded at Brancon, Man. A very heavy and unusual outbreak of black knot was observed in a 4-year old orchard of Lombard plums in Lincoln county, Ont. Not a limb, branch, or twig was free from serious infection. Of the 30 trees of this variety, 24 were so seriously involved that they would have to be destroyed. Italian Prune growing along side were slightly affected. The source of infection was apparently diseased wild plum and cherry trees in a neighbouring bush (G.C. Chamberlain). Specimens of black knot were received from Ste. Justine and Ormstown, Que. The disease was observed occasionally in York and Sunbury counties, N.B. Black knot was found in several orchards about Kentville, N.S. A severe outbreak of black knot occurred in P.E.I. on both cultivated and native plums. It is suggested that the unusually rainy season of 1936 favoured the disease. (R.R. Hurst)

PLUM POCKET (Taphrina Pruni). A trace was reported from Brandon, Man. Diseased specimens were received at Ottawa from Iroquois, Ont., and Chambly, Que. It affected 10% of the plums in 2 small orchards out of 6 examined at scattered points in Que. (B. Baribeau). The crop was almost a total loss on unsprayed trees in an orchard in Inverness county, N.S.; practically perfect control was obtained in Kings county, where the trees were sprayed (J.F. Hockey). Plum pocket was severe in a small orchard in P.E.I.

A trace of plum pockets (T. communis) was found in the orchard at the Experimental Farm, Indian Head, Sask.

BROWN ROT (Sclerotinia americana) was general in Vancouver Island, B.C. For some varieties, 80% of the fruit were destroyed at the Sidney Station. Victoria and Ponds Seedling were the worst affected. Brown rot affected up to 60% of the fruit on some unsprayed trees in the Gaspereaux valley. Traces of brown rot occurred on Magnum Bonum in an orchard in Queens county, P.E.I.

RUST (Tranzschelia Pruni-spinosae) appeared late in the season at the Station, Sidney, B.C. (4220). It caused no appreciable damage.

SHOT HOLE (Higginsia prunophorae (Cylindrosporium prunophorae). A trace was observed at Morden, Man. Diseased specimens were received from Oakville, Ont. Shot hole was general on wild and cultivated plums in York and Sunbury counties, N.B. The disease was general on cultivated plums in Kent county, N.S. and caused some defoliation (J.A. Boyle). Shot hole caused heavy leaf injury in 1936 in P.E.I. and it has not been successfully controlled by spraying. Quackenboss and Glass Seedling, although sprayed 6 times with Lime Sulphur and Iron Sulphate, were severely defoliated, suffered moderate twig injury, and dropping and shrivelling of the fruit, due to shot hole. The varieties, John A. Latchford, Lombard, Gage, and Columbia, were note seriously affected. (G.C. Warren)

A CHLOROSIS, accompanied by more or less severe leaf scorch, was observed on several varieties of plums in the 8-year old orchard of the Laboratory at St. Catharines, Ont. A virus disease is suspected, probably similar to yellows or little peach. Affected trees are being kept under observation and grafting experiments are being carried out to determine if the trouble is transmissible. (R.S. Willison)

QUINCE

RUST (Gymnosporangium clavipes). One rusted fruit was sent from Melvern Square, N.S. to the Kentville Laboratory (K. A. Harrison). Leaves affected with rust (G. clavariaeforme) were collected at the Station at Kentville in 1926 by J.F. Hockey, but the organism was not determined until July, 1936. This year about 5% of the leaves were found rusted in the same orchards according to J.A. Boyle, but specimens were not kept. (I.L. Conners)

RASPBERRY

SPUR BLIGHT (Didymella applanata) is widely distributed on Vancouver Island and the lower mainland, B.C.; the damage is apparently slight (W. Jones). The disease was moderate on canes of Brighton sent from Middlesex county, Ont., to the St. Catharines Laboratory; a trace was observed at Dunrobin.

Spur blight was rare in Quebec in 1936. Traces were present in most plantings of Latham and Herbert inspected; however, it was severe in Shefford county, in one planting of Latham, where the rows were too wide and the canes very thick. Traces only were found in one planting each of Marlboro, Cuthbert, Newman, and Chief (H. N. Racicot). The disease caused slight to severe damage in plantings in York, Sunbury and Westmoreland counties.

SEPTORIA LEAF SPOT (S. Rubi) was seldom seen this year in Lincoln county on account of unfavourable weather conditions, although it is usually quite common; a slight infection was recorded on Viking (G.C. Chamberlain). A trace was found on Herbert at Dunrobin. It was observed in a garden patch in Wright county, Que.

MOSAIC (virus) is uncommon in the raspberry growing areas of B.C. However, it affected 5% of the plants in a Lloyd George plantation on Vancouver Island and 50% of the plants of an unnamed English variety near Vancouver. Other reports were 10% of mosaic on Newman at Salmon Arm and 50% of the stray plants at the Station, Summerland. In Alta., a trace was found on Latham at Lacombe, the disease was apparently masked this year.

A survey of several commercial plantations in Northumberland county, Ont., showed that mosaic was prevalent. In one Cuthbert planting, mosaic affected 80% of the plants and infections ranging from 25 to 40% were common. The disease was more prevalent on Cuthbert than on either Viking or Latham (G.C. Chamberlain). Mosaic affected 3% of the Latham plants and 1% of Starlight at Dunrobin. The disease probably spread from infected wild raspberries growing near the plantation. (H. N. Racicot)

The percentage of mosaic found in the nursery plantations inspected in Que. was usually small. The highest recorded for Latham was 15%, for Newman, 2%, Herbert, trace and Viking 1.7%. Traces were also observed on Cuthbert, Chief, Brighton, Golden Queen and Marlboro, while Newburg was free. In fruiting plantations the highest percentages recorded were: in one of Newman, 19.5%; in one of Chief, 19%; in one of King, 6%; the percentages in Latham and Viking were 1% or less and no mosaic was seen in Newburg, Adams 87, and Ulster. (H. N. Racicot)

Mosaic was widespread in N.B. and was found on all commercial varieties; the percentage of infected plants varied from a trace to 100% (J.L. Howatt). A few plants

were rogued out of the Station plantation at Kentville, N.S. on account of mosaic. Mosaic was found in all 3 counties of P.E.I.; infection ranged from slight to severe. It has been troublesome except in well rogued plantations, but certified Viking stock grown locally is being used to establish more and more disease-free plantations. (R.R. Hurst)

LEAF CURL (virus) affected from 1 to 10% of the plants in all Cuthbert plantings visited during a survey in Northumberland county, Ont. Leaf curl was not observed in the 94 nurseries inspected in Que., and only traces were found in two plantations of Viking in Rouville county. Growing near one of these plantings of Viking were Newman, Latham, Chief, Newburg, King, and Adams 87, which were all free from the disease (H. N. Racicot). Leaf curl was found in 2 gardens near St. John, N.B. and in one near Fredericton. (D. J. MacLeod)

ANTHRACNOSE (Elsinoe veneta). Infection was general on leaves and petioles of fruiting canes of Lloyd George at Agassiz, B.C. The current season's canes were slightly infected. Lloyd George is apparently more susceptible than any of the other popular varieties (W. Jones). Little anthracnose was observed in 1936 in Que. In nurseries infection was light on 5% or less of the canes of Newman, while traces were observed on Herbert, Viking, Cuthbert, Brighton, and Marlboro and none on Latham, Chief, Newburg and Golden Queen. It was not observed in fruiting plantations (H.N. Racicot). Anthracnose was found on 20% of the fruiting canes in one patch in Kings county, N.S. Anthracnose was severe on Lloyd George at the Experimental Station, Charlottetown, P.E.I.

YELLOW BLOTCH (virus). Apparently a new virus disease, tentatively named Yellow Blotch on account of the unusual blotchy-yellow character of the mottle, has been transmitted by grafting at the Laboratory farm, St. Catharines, Ont. The original diseased cane was found in 1935 in the Cuthbert variety in a nursery being inspected for certification. (G.C. Chamberlain and G.H. Berkeley)

YELLOW RUST (Phragmidium Rubi-idaei)was general on Cuthbert and Viking on Vancouver Island and the Fraser River valley, B.C., and caused moderate damage. The leaves were injured before the fruit were fully formed, resulting in drier berries and a lower yield. The disease was more

severe than in previous years (W. Jones). It was common on stray plants at the Summerland Station.

LATE YELLOW RUST (Pucciniastrum americanum) was less prevalent in Quebec than in 1935, although a trace was present in most Viking plantings. It was heavy in one plantation of Viking on low ground in Rouville county. Rust was moderate in two commercial plantings in York county, N.B.

POWDERY MILDEW (Sphaerotheca Humuli) was general in Latham plantings in Lincoln county, Ont.; it stunted the growth of the cane tips and the leaves. The extremely hot weather in early July, when the daily maximum was 99-104°F., caused considerable scorching and dropping of affected leaves (G.C. Chamberlain). A slight infection was recorded on Latham at Dunrobin. Powdery mildew was prevalent everywhere in Quebec on Latham. In the 23 nurseries inspected, infection varied from slight to severe. The disease was severe in one fruiting plantation at Shefford. A trace was found on Chief in Rouville county (H.N. Racicot). A slight infection developed on Brighton, Count, and Newman at the Station, Cap Rouge. Traces were observed in a plantation at Kentville, N.S.

VERTICILLIUM WILT (V. sp.) was found in the Hatzig and Victoria districts, B.C., on Cuthbert, St. Regis and Newman varieties. Infection was confined to individual plants or several adjacent plants in the same row. (W. Jones)

Wilt was severe in a 2-year old planting of Cuthbert in Lincoln county, Ont.; it caused a total loss of fruiting canes and a considerable reduction of new canes. The planting was on land previously planted to tomatoes. A slight infection was noted on Viking. (G.C. Chamberlain)

CROWN GALL (Phytomonas tumefaciens) was commonly encountered in nursery plantations when virus-infected plants were being rogued out. It appears to have no adverse affect on growth of cane (G. C. Chamberlain). A single affected plant was found in a planting of Herbert in Queens county, P.E.I.

CANE BLIGHT (Leptosphaeria Coniothyrium) was found in a few plantations on the lower mainland of B.C.

SUN SCALD and SCORCH caused a loss of 50% of crop in early and mid-season varieties of raspberries throughout the Niagara Peninsula, Ont., due to the extreme heat and drought. There was a heavy drop and much sun scald of fruit.

FROST caused much injury to the young leaves of raspberries on May 16, in York county, N.B.

Armillaria mellea was found attacking and killing many plantations located at Hatzig, Burneby, and Huntington, B.C. respectively (W. Jones).

STRAWBERRY

LEAF SCORCH (Diplocarpon Earliana (Marssonia Fragariae) was moderate on British Sovereign, Red Heart, and Kanner King; slight on New Victoria, and Empire Red, while only a trace or none was found on the remaining 41 varieties being grown at the Experimental Station, Sidney, B.C. It was general on British Sovereign on Vancouver Island and in the Fraser River valley, but the damage was slight (W. Jones). This disease was moderate on strawberries at the Station, Cap Rouge, Que.; Paul and Dick were the worst affected.

LEAF SPOT (Mycosphaerella Fragariae (Ramularia Tulasnei). Only a trace of leaf spot developed on Early Bird, British Sovereign, Clare, Bennett, Wm. Belt, Deutsch Evern, Fairfax, Dorset, Madame Kooi, and Charlie, while infection was moderate to severe on the other 33 varieties under test at the Station, Sidney, B.C. (W. Jones). Diseased specimens were received from Morewood and Oakville, Ont. It was present on all varieties at the Station, Cap Rouge, Que., but Florence and Howard were the least affected (C. Perrault). Leaf spot was present throughout N.B. and was reported to have caused slight to moderate damage in York and Westmoreland counties, N.B. (J. L. Howatt). It was very common in N.S.; infection was slight to heavy.

POWDERY MILDEW (Sphaerotheca Humuli) caused heavy losses in P.E.I. in 1936. The disease was worst in the Montague district where the crop was a failure in several plantings. Nevertheless, fair crops were obtained in well cared-for plantings. (R. R. Hurst)

JUNE YELLOWS (cause undetermined) was observed on Premier and Blackmore in Lincoln county, Ont. The trouble is

fairly common in plantations. The yellowing is often marked and the plants appear stunted, but the damage is negligible. (G. C. Chamberlain)

YELLOWS (virus). Up to 75% of the plants were affected in some patches of Blackmore at Kentville, N.S. A few yellowed plants were also found in Jessie, Dunlop, Bennet, and Thompson. (J. F. Hockey)

MOSAIC (virus). A few plants with leaves exhibiting mosaic-like pattern were seen at the Station, Fredericton, N.B.

BASAL ROT (Sclerotinia sclerotiorum) slightly affected a patch in Queens county, P.E.I.

A late FROST caused about half the berries to be misshapen in a plantation in Peel county, Ont. Injury was confined to the part of the plantation covered with buckwheat straw; where other straw was used no damage occurred (G.C. Chamberlain). Frost caused slight injury to strawberry flowers on May 16, in York county, N.B. (S. Clarkson)

Up to 10% of the strawberry plants were winterkilled in some plantations at Keetings, B.C., while up to 30% were destroyed on Lulu Island.