IV. DISEASES OF FRUIT CROPS

A. POME FRUITS

APPLE

BRANCH ROT (Daldinia sp.). A split branch sent in from Magrath, Alta., bore Daldinia sp. (W.C. Broadfoot, T.L. Conners). A specimen of D. grandis on Dolga crab was received from Senlac, Sask., late in the season (T.C. Vanterpool).

FIRE BLIGHT (Erwinia amylovora) was prevalent and often severe, at Lethbridge and Edmonton, Alta. (M.W.C.). Only two cases were seen in Saskatoon, Sask. (R.J. Ledingham). A moderate infection was seen at Dauphin, Man., on crab-apples (J.E. Machacek). A trace of twig blight was seen on Secord at Collingwood, Ont. It had not previously been seen locally on this variety. No infection was seen on McIntosh and Delicious in the same block. An isolated block of 34 Yellow Transparent at Aldershot, 20 years old and growing vigorously, was very seriously damaged, with many dead branches and limb and trunk cankers; most of the trees will have to be cut out; damage was also heavy in 1944 (G.C. Chamberlain).

Blight was seen in many localities in Que., but the period of development was short and the damage less than in 1944 (F. Godbout). Specimens were received from Granby (L.T. Richardson). Blight was very heavy near Quebec City at the beginning of July, but stopped spreading by the end of the month. Fruit trees planted along highways have become a serious menace to neighbouring orchards (O. Caron). At l'Islet the worst outbreak for some years occurred. Twig and spur blight were both abundant in most small orchards and in a few commercial plantings. Trees that did not bloom were nearly free from infection. Crab-apples seem to have provided the inoculum (R.O. Lachance).

RUST (Gymnosporangium Juniperi-virginianae) was seen on red cedar and on apples in Elgin Co., Ont. It seems to be increasing there with the growing of susceptible varieties such as Jonathon and Grimes Golden (J.E. Howitt).

ANTHRACNOSE (Neofabraea malicorticis) was moderate on Cox's Orange, and slight on Jonathon, Wagner and Grimes Golden at the Station, Saanichton, B.C. (W. Jones).

PERENNIAL CANKER (Neofabraea perennans). Damage to trees in the Okanagan Valley, B.C., was slight, as in the last few years; but it is estimated that 40,000 boxes of Newton had to be repacked owing to infection that apparently occurred during wet weather at harvest (H.R. McLarty, R.E. Fitzpatrick).

HEART ROT (Pholiota squarrosa). The fungus was found fruiting in the crotch of a tree about 50 years old in an orchard at Lillooet, B.C. The tree had borne a large crop and appeared healthy (G.E. Woolliams).

CANKER (Physalospora obtusa and Valsa leucostoma). Cankers up to 15 inches long occurred on branches of Rhode Island Greening at St. Catharines, Ont., in March, 1945; infection was through stubs in which grafts failed to take in 1944 (G.C. Chamberlain).

BLACK ROT (Physalospora obtusa) severely affected a small number of Alexander fruit near Port Elgin, N.B. (S.F. Clarkson).

CROWN ROT (Phytophthora Cactorum). No change was seen in the general picture in the Okanagan Valley, B.C., about 2% of the mature trees being affected (H.R. McLarty, R.E. Fitzpatrick).

POWDERY MILDEW (Podosphaera leucotricha) caused considerable damage at the Station, Saanichton, B.C., especially to the new growth. Spraying alone has not proved very effective, since the fungus overwinters in the wood tissue; pruning of the affected current year's growth is advocated (W. Jones). Mildew was generally present in the Okanagan Valley; in some orchards it caused appreciable damage to susceptible varieties (R.E. Fitzpatrick, H.R. McLarty). McIntosh in York Co., N.B., showed up to 50% infection by P. sp. with slight to severe damage (S.F. Clarkson).

SCAB (Venturia inaequalis) was common on unsprayed trees in coastal B.C., but was well controlled by spraying at the Station, Saanichton (W. Jones). Infection was very light in the interior, and scab caused no commercial damage in the northern Okanagan Valley where sprays were applied (H.R. McLarty, R.E. Fitzpatrick). Scab was less severe than usual at Edmonton, Alta. It was light on crabs at Olds and heavy at Innisfail (M.W.C.). A trace was seen on a crab at Melfort, Sask. (H.W.M.). At Dauphin, Man., infection was slight on crabs; it was moderate on some leaves in a nursery at Gilbert Plains. At St. Norbert primary infection was found in a commercial orchard on June 26; the owner reported severe damage in 1943 and 1944 (W.L. Gordon).

Scab was severe in most districts in southern Ont. Infection was rampant on McIntosh shortly after bloom and developed freely throughout the summer. Defoliation was heavy in many orchards. In orchards with a set of fruit extra cover sprays were needed to protect it; but in many orchards, owing to frost, there was no fruit and spraying was evidently not thorough (G.C. Chamberlain). Scab was prevalent throughout Ont. It was probably the worst outbreak ever experienced. The only clean fruit was in orchards where spraying was very thorough and extra applications were made. Bordeaux seemed most effective late in the season; it caused some russetting but this was of little consequence this year (J.E. Howitt). Unsprayed McIntosh were severely defoliated at Ste. Anne de Bellevue, Que., but the disease was controlled by mild sulphur sprays (R. Pelletier). Infection in Que. was exceptionally severe and widespread. A few orchards were lightly infected, and some moderately so; but most showed heavy infection, often with almost complete defoliation. A wet spring made timely spraying difficult (F. Godbout). It was one of the worst seasons for scab in many years near Quebec City. Crops were not picked in many orchards. Some growers applied as many as 9-11 sprays and obtained profitable crops for their trouble (O. Caron).

In N.B. May was very wet, which favoured primary scab infection and made it practically impossible to apply the early sprays on time in large orchards. Consequently, scab was very prevalent in some commercial orchards and the apples harvested from them were not graded at harvest but were sold on the "tree-run" basis. The primary ascospore discharge occurred at Fredericton on May 7 during the pre-pink stage. Heavy ascospore discharges were recorded during the pink, advanced pink and bloom stages. Ferric

dimethyldithiocarbamate (Fermate) gave excellent control of scab again this year. Over a four year period this fungicide has given a superior grade of uniform, good-sized, well-coloured apples. Russeting was not a factor with the use of Fermate. It was clearly shown this year that Fermate may be applied during full bloom without either causing fruit russeting or reducing fruit set. This is important, as it is imperative to apply a fungicide at this time, during seasons with a long bloom period, to prevent primary infection (S.F. Clarkson).

The carry-over of scab in N.S. was considerably reduced in the spring. Perithecia were scarce in many orchards and the outlook early in the season was favourable to good control. Wet weather during May and June favoured the fungus and several periods of secondary spread occurred. By the end of June scab was severe on the foliage and during July and August many orchards suffered up to 75% defoliation from this cause. Spring frosts had reduced or eliminated crop prospects in so many localities that orchardists gave up fungicide applications. Those orchardists who continued spraying to protect their crop had from fair to excellent results in scab control. The orchards that suffered severe defoliation are expected to produce a very light crop, if any, in 1946 (J.F. Hockey).

In P.E.I. ascospore discharge was first seen June 18. Infection was moderate on McIntosh and wild apples and very heavy on an ornamental crab in Queens Co. Flotation sulphur was largely used and gave good control until late July when considerable infection showed up in commercial orchards (R.R. Hurst).

CRINKLE MOSAIC (?virus). A 12-year-old seedling at Fredericton, N.B., has shown for 6 years a severe crinkling, mottling and dwarfing of the leaves. The condition seems to limit growth and fruit production (D.J. MacLeod).

MOSAIC (?virus). A single Baldwin in Halton Co., Ont., showed a definite mosaic pattern, suggesting a virus; transmission tests are being made (G.C. Chamberlain). Three Bethel trees at the Station, Fredericton, N.B., have shown a well-defined interveinal mottling for 5 years. It does not seem to affect the growth of the trees (D.J. MacLeod).

BITTER PIT (non-parasitic). No serious bitter pit developed in storage in the 1944 crop in the Okanagan Valley, B.C. (H.R. McLarty, R.E. Fitzpatrick). Bitter pit was quite common in many parts of Ont. (J.E. Howitt). It was severe, affecting 100% of fruit, in Baxter in Queens Co., N.B. (S.F. Clarkson). Bitter pit was prevalent on Stark, Baldwin and Northern Spy in N.S., and some was seen on Cox Orange Pippin (J.F. Hockey).

DROUGHT SPOT AND CORKY CORE (Boron deficiency). No boron deficiency troubles were reported in the Okanagan Valley, B.C. in 1945 (H.R. McLarty, R.E. Fitzpatrick). The entire crop of a tree of Wolf River in Lincoln Co., Ont., was pitted and malformed (G.C. Chamberlain).

FLAT LIMB (Scion-stock incompatibility). A condition seen on 2-to 4-year-old limbs of Haas at Melvern Square, N.S., resembled flat limb of Gravenstein (J.F. Hockey).

FROST INJURY. Two commercial McIntosh orchards in York Co., N.B., were seriously damaged by frost in May. The leaves curled and blackened and some trees were wholly defoliated. The flower parts were killed and fell off (S.F. Clarkson).

LEAF SCORCH (cause unknown) did no serious damage in the Okanagan Valley, B.C., this year (R.E. Fitzpatrick, H.R. McLarty).

RUSSETTING (low temperature). A small percentage of McIntosh in Grey Co., Ont., showed heavy russetting due to cold weather during and just after bloom (G.C. Chamberlain).

SPRAY INJURY. In York, Sunbury and Queens Co., N.B., from a trace to 100% of McIntosh fruit was severely russeted, following the use of Bordeaux mixture (8-25-100 or 5-15-100) for the first cover spray (S.F. Clarkson).

WATER-CORE (non-parasitic) was slight on King and Charles Ross at the Station, Saanichton, B.C. (W. Jones). It was common on King in N.S. and was severe in some orchards (J.F. Hockey).

WINTER INJURY. At Meaford, Ont., 60% of a block of 40 8-year Delicious showed very serious injury to trunks and lower branches, including cankers and splitting and lifting of bark. About 40% of a block of Northern Spy showed slight to severe injury, especially about narrow crotches with bark inclusions; in some instances black rot and Cytospora enlarged the cankers (G.C. Chamberlain).

PEAR

FIRE BLIGHT (Erwinia amylovora). No serious outbreak occurred in the Okanagan Valley, B.C. (H.R. McLarty, R.E. Fitzpatrick). Damage was severe in the orchard at Lethbridge, Alta. (M.W.C.). A local outbreak in a block of Bartlett in Louth Twp., Ont., that was badly affected in 1943 and 1944 was initiated from cankers overlooked in pruning; exudation was seen on twigs and petioles. A Bartlett block in Grantham Twp. suffered severely from infection through spurs, resulting in the loss of large branches. Many infections were found in Bartlett and Gifford at the Vineland Horticultural Station, where blight has been serious for several years; spurs and branches were killed. Blight was less important in the Niagara Peninsula than in 1943 and 1944 (G.C. Chamberlain). Fire blight was prevalent in many sections of Ont. (J.E. Howitt).

STORAGE ROT (Gloeosporium album) was found rotting Nova Scotia pears in storage at the Apple Exchange, Fredericton, N.B. (S.F. Clarkson).

RUST (Gymnosporangium sp.) occurred on the foliage of a few trees of Bartlett, Comice, Manilot and Marguerite at Victoria, B.C. (J. Hibbeson). G. clavipes was severe on Kieffer at Canard and Centreville, N.S., but none was seen on adjacent Bartlett and Clapp's Favorite (J.F. Hockey).

POWDERY MILDEW (Podosphaera leucotricha) did no serious damage in the Okanagan Valley, B.C. (H.R. McLarty, R.E. Fitzpatrick).

SCAB (Venturia pyrina) was unusually prevalent on unsprayed trees in coastal B.C. Infection was very slight on sprayed trees at the Station, Saanichton (W. Jones). Scab was serious in a small area in the Oliver district (R.E. Fitzpatrick, H.R. McLarty). A light crop on eight Flemish Beauty in Lincoln Co., Ont., was almost worthless because of scab; foliage infection was also heavy (G.C. Chamberlain). Scab was very severe in unsprayed orchards in Kings and Annapolis Co., N.S., but only a trace was seen in well-sprayed orchards (J.F. Hockey). A trace was seen on Flemish Beauty at Charlottetown, P.E.I. (R.R. Hurst).

STONY PIT (virus). No change in the situation observed in the Okanagan Valley, B.C. (R.E. Fitzpatrick, H.R. McLarty). Eight trees of Anjou and Flemish Beauty in a localized area of an orchard in Grantham Twp., Ont., bore fruit that was commonly pitted, malformed and worthless; the condition is thought to be due to the stony pit virus, but this has not yet been verified by transmission; boron applications in 1945 did not correct the condition (G.C. Chamberlain).

BLACK END (cause unknown) appeared to be more general on all varieties in the Okanagan Valley, B.C., than in 1944; it was definitely located on a tree on Pyrus communis roots (R.E. Fitzpatrick, H.R. McLarty).

STUNTING (infertility and root rot). One third of a block of 5 or 6-year Bartlett and Kieffer in Grantham Twp., Ont., showed severe stunting. The block had been excessively cultivated for some years. The poor growth of buckwheat and oats used as a cover crop indicated the low level of fertility in comparison with an adjacent peach orchard. Root development was poor, and many roots were partly brown and ended in bunchy tufts (R.S. Willison).

WIND DAMAGE. Extensive injury to Bartlett and Anjou occurred in the more exposed orchards in the Niagara Peninsula, Ont., from high winds in May. Foliage was severely lacerated and showed marginal blackening. Apples also suffered some injury (G.C. Chamberlain).

B. STONE FRUITS

APRICOT

CORYNEUM SPOT (Clasterosporium carpophilum) caused no serious damage in the Okanagan Valley, B.C. (H.R. McLarty, R.E. Fitzpatrick).

BACTERIAL BLIGHT (Pseudomonas ?syringae). Considerable tip blight occurred on Chief at Gilbert Plains, Man. (W.A.F. Hagborg).

BLOSSOM and TWIG BLIGHT (Sclerotinia laxa) caused severe damage on one tree in a home orchard at Saanichton, B.C.; the pathogen was isolated from a twig (W. Jones).

CANKER (Valsa spp.). Valsa sp. (ident. R.S. Willison) was associated with a canker occurring at ground level on a tree at Lethbridge, Alta. (W.C. Broadfoot). In response to an enquiry, Dr. Willison states that apricots are subject to attack by the same Valsa spp. that attack peaches; little attention has been given to apricot canker in reports because apricots are of minor importance in Ont.; however, canker is not uncommon in them and large branches are sometimes killed.

BLACK HEART (Verticillium Dahliae). The disease seems to be dying out of the affected trees in the Okanagan Valley, B.C. See P.D.S. 24: 86. (R.E. Fitzpatrick).

RING SPOT (virus). No additional infections found in the Okanagan Valley, B.C. (T.B. Lott).

CHERRY

BLACK KNOT (Dibotryon morbosum). A specimen was received from Vancouver, B.C. (H.N. Racicot). A heavy infection was found on the new growth of a clump of P. pennsylvanica near Kingsmere, Que. Large branches and main trunks were also involved (R.G. Atkinson). Black knot was heavy on wild cherry in Prince Co., P.E.I. (R.R. Hurst).

LEAF SPOT (Higginsia hiemalis). A scattered infection on Montmorency in Niagara Twp., Ont., was causing yellowing and leaf-fall on June 20; early in July a moderate infection was seen in several orchards and nurseries of Montmorency in Lincoln Co., but damage was usually slight. Heavy rain of July 14-15 caused severe infection of unsprayed trees at Aldershot, but little was seen in an adjacent sprayed block. Late in the season leaf spot became heavy and widespread in the Niagara Peninsula, often causing complete defoliation. In the Laboratory orchard, St. Catharines, little was seen until late Sept. when heavy rain favoured infection (G.C. Chamberlain). Leaf spot was very prevalent on sour cherries and caused early defoliation in unsprayed orchards (J.E. Howitt).

BLOSSOM BLIGHT and STEM ROT (Sclerotinia fructicola). In Lincoln Co., Ont., infection was about 20% on Montmorency, the loss being mainly through stem rot; infection was about 2% on sweet cherries. Blossom infection was 12-20% on unsprayed trees in the Laboratory orchard, St. Catharines (G.C. Chamberlain).

LEAF BLISTER (Taphrina Cerasi) caused slight to moderate damage on a few trees in home orchards at Hope and North Saanich, B.C. (W. Jones).

LAMBERT MOTTLE (virus) was seen in some sweet cherry orchards not previously under observation in the Okanagan Valley, B.C. There are some suggestions of natural spread (T.B. Lott).

LITTLE CHERRY (virus). A few affected trees were seen in one orchard at Brentwood, B.C. (W. Jones). Little cherry is spreading rapidly; it appears to be general at Taghum, Nelson, Willow Point, Longbeach,

Balfour, Harrop and Procter, and to be patchy at Mirror Lake, Kootenay Bay, Crawford Bay, Gray Creek, Boswell, Creston, South Slocan, Bonnington and Robson. The rapid spread already seen in commercial orchards was repeated in the experimental orchard at Kootenay Bay; 19 trees were affected in 1944, and in 1945 all 46 bearing trees in the main part of the orchard showed the disease (W.R. Foster). Surveys in collaboration with W.R. Foster, show this disease to be spreading at a serious rate. Since 1933 it has spread 20 miles north and at least 15 miles west, and has crossed the main Kootenay Lake to reach the Creston district 45 miles southeast. Orchards may become completely infected in 2 years or less (T.B. Lott).

RASP LEAF (virus). No new infections were seen in the Okanagan Valley, B.C. (T.B. Lott).

TWISTED LEAF (virus). No new infections were seen in the Okanagan Valley, B.C. (T.B. Lott).

YELLOWS (virus). Fifty per cent of the trees of Montmorency in an orchard in Stamford Twp., Ont., were infected and showed heavy defoliation by June 18. Infection is general in the district (G.C. Chamberlain).

CRACKING and SPLITTING (wet weather). Up to 75% of the fruit of sweet cherry varieties in Lincoln Co., Ont., showed cracking after the rains of July 14-15 as the fruit was swelling. Similar but much less extensive injury occurred on sour cherries. The trouble was common throughout the Niagara Peninsula (G.C. Chamberlain).

FERTILIZER BURN. Heavy defoliation of 7-year-old Montmorency in Grey Co., Ont., resulted from the application of 2 lb. cyanamid per tree early in the spring; affected leaves were orange-yellow with a marginal scorch (G.C. Chamberlain).

RUSSETING (low temperature). Much of the fruit of Early Richmond sweet cherries was uneven, malformed and russeted as a result of low temperatures during bloom; the extent of the injury varied in different parts of the Niagara Peninsula, Ont. (G.C. Chamberlain).

SUN SCALD. Severe bark splitting occurred on the southwest side of the trunks of 30% of Montmorency in Grey Co., Ont. (G.C. Chamberlain).

NECTARINE

DIE-BACK (Valsa leucostoma) was seen on a few trees in a home orchard at Cobble Hill, B.C. (W. Jones, R.S. Willison).

PEACH

SCAB (Cladosporium carpophilum). A moderate infection was found on Elberta occasionally in Niagara Twp., Ont. It was very prevalent and serious on St. John and Crawford in Middlesex Co., affecting 75% of the fruit (G.C. Chamberlain).

BLIGHT (Clasterosporium carpophilum) caused slight twig damage in a garden in N. Saanich Co., B.C. (W. Jones).

BLOSSOM BLIGHT and BROWN ROT (Sclerotinia fructicola). In the Laboratory orchard, St. Catharines, Ont., Rochester showed 4-22% blossom blight and Elberta 4-14.5%. Blossom sprays gave some reduction in blossom infection, but did not give complete control. Bloom started early, but a prolonged cool, wet spell set in when half the blossoms were open; as a result the bloom period was extended and fairly favourable for infection, and sprays were ineffective unless repeated. Brown rot infection was variable, but was in general high. Control was made difficult by the high incidence of damage by fruit moth and other insects. Although the summer was not excessively wet, considerable rot developed in green fruit, mostly in association with insect punctures. Consequently inoculum was abundant when the fruit ripened and brown rot was prevalent at harvest (R.S. Willison). Brown rot caused much loss in canning peaches brought into P.E.I. (R.R. Hurst).

POWDERY MILDEW (Sphaerotheca pannosa) caused little if any economic damage in the Okanagan Valley, B.C. (R.E. Fitzpatrick, H.R. McLarty).

LEAF CURL (Taphrina deformans) was prevalent in most home gardens in coastal B.C., where control measures were not applied (W. Jones). A specimen was received from Lillooet with the statement that the disease was serious there for the first time (H.N. Racicot). No serious outbreaks were reported in the Okanagan Valley (R.E. Fitzpatrick, H.R. McLarty). Severe outbreaks of leaf curl were seen on Elberta in Lincoln Co., Ont., in a few orchards where the dormant spray was applied late. Specimens of infected fruit of Vidette and Rochester were received in July; leaf infection had been moderate earlier (G.C. Chamberlain). Leaf curl was seen to have defoliated many trees in unsprayed orchards in various districts (J.E. Howitt). Leaf curl was severe on unsprayed trees in Kings Co., N.S. (J.F. Hockey).

BACTERIAL BLIGHT (Xanthomonas pruni). Minor leaf infection occurred in a block of Elberta in Lincoln Co., Ont. The grower applied extra cover sprays of zinc sulphate--lime. Pruning back of terminals is also thought to have been a factor in reducing the incidence of the disease in this orchard (G.C. Chamberlain).

BLOTCH (virus). Symptoms were found on one water sprout on a tree of Marigold in an orchard near Bartonville, Ont. Inoculation has shown that the disease is transmissible, but it is not yet certain whether it is identical with that under observation at the Laboratory, St. Catharines, for several years. The variegation crops up erratically, almost suggesting a transmissible bud-sport variegation (R.S. Willison).

WESTERN X DISEASE (virus). In collaboration with W.R. Foster, Provincial Dept. of Agriculture, a survey was made in five sections of the Oliver and Osoyoos districts, B.C., in which 35,469 trees were examined and 516 were found to be diseased. The rate of disease (1.45%) is only slightly higher than that found in a less extensive survey of the area in 1940. Compulsory eradication has not been adopted but many growers are

removing some or all affected trees, which partly accounts for the small increase in the amount of the disease. Observations in the orchards mapped in 1940 show that a few new infections occur each year. The effect varies from tree to tree, but generally diseased trees are of little value (T.B. Lott, F.C. Mellor).

X DISEASE (virus). In orchards under survey in Niagara Twp., Ont., newly infected trees were found as follows:

Trees in orchard	Newly Infected Trees	
	Number	%
288	1	0.35
280	0	0.0
419	5	1.24
143	0	0.0
800	1	0.12

(R.S. Willison, G.C. Chamberlain).

BORON DEFICIENCY. Considerable die back occurred in some peach orchards in the Okanagan Valley, B.C., where boron had not been applied within 3 years (H.R. McLarty, R.E. Fitzpatrick).

SPRAY INJURY. Elberta, Rochester and Veteran in Louth Twp., Ont., suffered 75% defoliation following the omission of lime from the zinc sulphate shucks spray. Injury was evident three days after the application and defoliation continued for a week (G.C. Chamberlain).

PLUM

CROWN GALL (Agrobacterium tumefaciens). Fifteen out of 100 trees of Fellenberg prune received from a nursery in Lincoln Co., Ont., bore galls at the crown (G.C. Chamberlain).

SHOT HOLE (Cercospora circumscissa). Infection was heavy on leaves in a planting at St. James, Man. (J.E. Machacek). This is the first record on plum in Man.; previously reported on the plum x cherry hybrid, Opata (W.L. Gordon).

BLACK KNOT (Dibotryon morbosum) was seen in small orchards throughout Ont., and seems to be increasing where owners are failing to cut out the knots (J.E. Howitt). A specimen was received from Kingsmere, Que. (H.N. Racicot). Damage was severe in Queens Co., P.E.I., and several enquiries about the disease were received (R.R. Hurst).

SHOT HOLE (Higginsia prunophorae) was severe on Santa Rosa, Becky Smith, Beauty and Maynard, and moderate on Burbank and Albion at the Station, Saanichton, B.C. (W. Jones). Specimens of affected Tecumseh, Mina and Radisson were received from St. Hubert Mission, Sask. (L.T. Richardson).

SHOT HOLE (Phyllosticta circumscissa). Many leaves were severely affected at Gilbert Plains, Man.; the tissue had fallen away to a large extent (W.A.F. Hagborg, W.L. Gordon).

BLOSSOM BLIGHT and BROWN ROT (Sclerotinia fructicola). The average infection in a block of Grand Duke in Lincoln Co., Ont., was 3.4%; infection ran as high as 10% (G.C. Chamberlain). A specimen of rotted blue plum was received from Kingsmere, Que. (H.N. Racicot). Infection was heavy on Victoria in Queens Co., P.E.I. (R.R. Hurst).

BLOSSOM and TWIG BLIGHT (Sclerotinia laxa) was severe on Santa Rosa, Yellow Egg, Monarch, Burbank, Black Diamond, Peach and Micholson at the Station, Saanichton, B.C. (J. Bosher).

PLUM POCKET (Taphrina spp.). T. ?Pruni affected a few trees in a home orchard at New Westminster, B.C. (W. Jones). Specimens of T. communis were sent from Acme, Alta., (G.B. Sanford); a light infection occurred at Indian Head and Steven, Sask. (H.W.M.), and it was seen at Nipawin (T.C. Vanterpool); specimens were received from North Bay and Kenora, Ont. (H.N. Racicot); a heavy infection was reported in one orchard in P.E.I. (R.R. Hurst).

PRUNE DWARF (Prunus virus 6). Two trees out of 50 of Follenberg in an orchard in Niagara Twp., Ont., showed stunted growth and a marked dwarfing and narrowing of the leaves (G.C. Chamberlain).

CHLOROSIS (lime-induced) was severe in occasional plantings near Winnipeg, Man. (J.E. Machacek).

RUSSETING (low temperature). All plums and prunes showed a large amount of russeting in the Niagara Peninsula, Ont., due to low temperatures at blossom time. Gueii proved very susceptible and in Monarch and Reine Claude 40-50% of the fruit was affected (G.C. Chamberlain).

SPRAY INJURY. Lime-sulphur injury was severe and general in an orchard in Queens Co., P.E.I. (R.R. Hurst).

SAND CHERRY

BROWN ROT (Sclerotinia fructicola) caused abundant twig and fruit infection and gummosis on Prunus Besseyi at Dropmore, Man. (W.A.F. Hagborg).

C. RIBES FRUITS

CURRANT

WHITE PINE BLISTER RUST (Cronartium ribicola) was general on red currant in a few gardens at Westholme, B.C. It caused slight damage to black currant at Saanichton (W. Jones). Rust was severe on Boskoop Giant at Goderich, Ont. (G.C. Chamberlain). Many reports were received of severe damage to black currants from different parts of Ont. (J.E. Howitt). Rusted

Currant

black currant leaves were received from Ottawa (L.T. Richardson). Black currants at Ste. Anne de Bellevue, Que., showed 90% infection (R. Pelletier). Rust was very heavy on black currants on the Island of Orleans; it appears to be uncontrollable owing to the proximity of diseased pines, and control experiments have been given up (O. Caron). A trace was seen on black currant in Queens Co., P.E.I. (R.R. Hurst).

ANTHRACNOSE (Drepanopeziza Ribis) caused severe defoliation in Kings Co., N.S., and was also reported from Lockeport (J.F. Hockey).

SEPTORIA LEAF SPOT (Mycosphaerella Grossulariae) was heavy on many leaves at Dropmore, Man. (W.A.F. Hagborg). It was prevalent in southern Ont., and caused severe defoliation in nursery plantings of various varieties (G.C. Chamberlain).

CLUSTER CUP RUST (Puccinia Pringsheimiana) was reported on black currants from Goodsoil, Sask. (T.C. Vanterpool).

GOOSEBERRY

WHITE PINE BLISTER RUST (Cronartium ribicola) was very light on a few bushes of Poorman at Saanichton, B.C. (W. Jones).

ANTHRACNOSE (Drepanopeziza Ribis). Affected specimens of Pixwell were received from St. Hubert Mission, Sask. (L.T. Richardson).

SEPTORIA LEAF SPOT (Mycosphaerella Grossulariae). Affected leaves of Pixwell were received from St. Hubert Mission, Sask. (L.T. Richardson).

DOWNY MILDEW (Plasmopara ribicola Schroet.). A few leaves on which the fungus was fruiting heavily were received from Beeton, Ont. (J.D. MacLachlan). First Canadian record of this fungus.

POWDERY MILDEW (Sphaerotheca mors-uvae). Late infection severely damaged young plants at Lockeport, N.S.; infection was moderate to severe on plants near Meteghan in July (J.F. Hockey).

D. RUBUS FRUITS

BLACKBERRY

ORANGE RUST (Gymnoconia Peckiana) affected 20% of the stools of a planting of Lawton in Niagara Twp., Ont., causing serious stunting (G.C. Chamberlain).

LOGANBERRY

DRY BERRY (Haplosphaeria deformans) caused up to 30% loss in some plantings on Vancouver Island, B.C. (W. Jones).

RASPBERRY

CROWN GALL (Agrobacterium tumefaciens). An entire plantation of Viking was severely damaged in Queens Co., P.E.I. (R.R. Hurst).

GREY MOULD (Botrytis cinerea). Moulded berries were received from Cornwall, Ont. (H.N. Racicot).

SPUR BLIGHT (Didymella applanata). Moderate damage was found in a planting at Red Deer, Alta. (A.W. Henry). Infection was heavy in a planting at St. Andrews, Man.; anthracnose was also present and damage was severe (W.L. Gordon). In late April extensive lesions, resulting in death of the cane, were seen on 10% of a Cuthbert planting in Niagara Twp., Ont. The planting was very weedy in 1944. Spur blight was very common on Latham, Cuthbert and Taylor, especially where the rows were thick, in the Niagara Peninsula. It is an important factor in propagating beds (G.C. Chamberlain). The disease was seen in many plantations, and many specimens of affected canes were received (J.E. Howitt). This disease is common in the region of Quebec City (O. Caron). Affected specimens were received from St. Lambert and Sherbrooke, Que., and Dorchester, N.B. (H.N. Racicot). Spur blight was seen in 12 plantings in P.E.I.; it caused very severe damage in an old Viking plantation (R.R. Hurst).

ANTHRACNOSE (Elsinoe veneta) was moderate on Madawaska and slight on Gatineau at the Experimental Farm, Agassiz, B.C. (W. Jones). Heavy infection was noted at St. Andrews, Man., together with spur blight (W.L. Gordon). In Lincoln and Wentworth Co., Ont., extremely severe outbreaks of this disease were found in several commercial plantings of Taylor and in nursery plantings of Madawaska. In Taylor the fungus kills the cane tips; it is also commonly found on the leaf blades and petioles, causing a shrivelling and defoliation. On other varieties the disease is less common and of minor importance (G.C. Chamberlain). Lightly infected canes were received from St. Lambert, Que. (H.N. Racicot). Anthracnose was very common in the region of Quebec City (O. Caron).

CANE BLIGHT (Leptosphaeria Coniothyrium). A moderate infection was seen in a planting at Woodlands, Man. (J.E. Machacek).

SEPTORIA LEAF SPOT (Mycosphaerella Rubi) was moderate on Washington and slight on Rideau, Trent and Madawaska at the Experimental Farm, Agassiz, B.C. (W. Jones). Leaf spot was present in a clump of canes at St. Norbert, Man., that had been damaged by a foot rot (W.L. Gordon).

YELLOW RUST (Phragmidium Rubi-idaei). Previously Washington has proved resistant to this disease when growing adjacent to rusted Cuthbert. This year yellow rust caused considerable damage in two plantings of Washington at Agassiz and Lulu Island, B.C. (W. Jones).

LATE YELLOW RUST (Pucciniastrum americanum) was common on the foliage of a 5-acre planting of Viking at Penetang, Ont., in Sept., but caused little damage (G.C. Chamberlain).

POWDERY MILDEW (Sphaerotheca Humuli) was very common and caused marked stunting of the cane tips in a large propagating bed of Latham at Campbellford, Ont. Mildew is commonly seen in Latham plantings; it is also occasionally found on Viking, causing a "rat-tail" growth of cane tips (G.C. Chamberlain).

WILT (Verticillium albo-atrum). Scattered infections were found in Viking plantations in Ont., causing wilting and death of a small percentage of the stems (G.C. Chamberlain). A small patch of black raspberries at Wolfville, N.S., was almost wiped out. Fusarium sp. fruited on the stems, but Verticillium predominated in roots and stem bases (J.F. Hockey).

DECLINE (virus) was present, in diminishing sequence, on Washington, Rideau, Ottawa, Gatineau, Trent and Madawaska at the Experimental Farm, Agassiz, B.C. (W. Jones).

LEAF CURL (virus). A planting was moderately affected at Edmonton, Alta. (A.W. Henry). Small amounts were found in Ont. in plantings of Cuthbert, Viking and Latham; its occurrence in the latter two varieties is unusual (G.C. Chamberlain). Three affected plants were seen in one small planting and 4 in another at Fredericton, N.B. (D.J. MacLeod). Two per cent of the canes were infected in a new planting of Viking at Berwick, N.S. (J.F. Hockey).

MOSAIC (virus). Infection was 60% in Ottawa and 10% in Gatineau at the Experimental Farm, Agassiz, B.C. (W. Jones). About 30% infection was seen in a planting at Lethbridge, Alta. (W.C. Broadfoot). Mosaic is readily found in Ont. in the older plantings of Latham. A 5-year-old ½ acre Viking plantation at Cooksville showed 40% infection; diseased plants suffered marked stunting and crop reduction (G.C. Chamberlain). A Latham planting at Maugerville, N.B. showed 2% infection. Infection was 4% in a Viking planting at Springhill. Mosaic was common on wild raspberry in York, Sunbury, Queens, Westmorland, Carleton, Victoria and Gloucester Co. (D.J. MacLeod). Three per cent infection occurred in a small Viking planting at Berwick, N.S. (J.F. Hockey). Traces of mosaic were found in 3 plantations in P.E.I. (R.R. Hurst).

WINTER KILLING. One Viking planting in Queens Co., P.E.I., was severely damaged; Q.263 at the Station, Charlottetown, suffered considerably and Fusarium sp. grew copiously on the dead canes; in general, damage to raspberries was light (R.R. Hurst).

E. OTHER FRUITS

BLUEBERRY

WITCHES' BROOM RUST (Calyptospora Goeppertiana). A 90% infection was noted at Herring Cove, N.B. (J.L. Howatt).

GRAPE

DEAD ARM (Fusicoccum viticola). Scattered infections were seen on Concord in Niagara Twp., Ont. It is becoming more serious in a number of vineyards (G.C. Chamberlain).

ANTHRACNOSE (Gloeosporium ampelophagum (Passer.) Sacc.). Specimens were received from unsprayed grapes at Woodville, N.S. (J.F. Hockey). This is the first report to the Survey of this fungus, which is believed to be a stage of Elsinoe ampelina Shear.

BLACK ROT (Guignardia Bidwellii). Specimens were received from London, Ont. (L.T. Richardson).

DOWNY MILDEW (Plasmopara viticola) was moderately heavy on Concord in a vineyard in Lincoln Co., Ont., in July, causing shelling as a result of pedicel infection. It was also serious on adjacent Fredonia. Downy mildew destroyed all fruit clusters on 50 vines of Fredonia in Brant Co. (G.C. Chamberlain). It was common on unsprayed grapes in the Ottawa district, but was much less serious than in 1943 (D.B.O. Savile). Specimens were received from Buckingham and Howick Station, Que. (L.T. Richardson).

POWDERY MILDEW (Uncinula necator) was again present on European varieties in the Experimental Farm vineyard, Summerland, B.C. (H.R. McLarty).

CHLOROSIS. A chlorosis of unknown cause, but apparently nutritional, was seen on Concord and Niagara in many orchards in the Niagara Peninsula, Ont. Its occurrence is quite localized and is generally on high ground (G.C. Chamberlain).

STRAWBERRY

GREY MOULD (Botrytis cinerea) was severe at Steinbach, Man., following hot, wet weather (J.E. Machacek). In a vigorously growing plantation of Premier near an old plantation in Louth Twp., Ont., a 10% infection occurred. Rot of green fruit was common; infection often spread into the fruit from sepals or pedicels (G.C. Chamberlain).

LEAF SCORCH (Diplocarpon Earliana). Infection was moderate on British Sovereign and nil on Marshall, Gem and Rockhill at the Experimental Farm, Agassiz, B.C. (W. Jones).

LEAF SPOT (Mycosphaerella Fragariae) was moderate on Marshall and Gem at the Experimental Farm, Agassiz, B.C. (W. Jones). Leaf spot was very prevalent on numbered varieties in a trial planting at the Laboratory, St. Catharines, Ont. (G.C. Chamberlain). A specimen was received from Parisville, Que. (H.N. Racicot). Infection was a trace to heavy on Senator Dunlap in Queens Co., P.E.I. (R.R. Hurst).

RED STELE (Phytophthora Fragariae Hickman). In April, 1945, oospores identical with those described by C.J. Hickman (The red core root

disease of the strawberry caused by Phytophthora Fragariae n.sp. Jour. Pomol. and Hort. Sci. 18: 89-118. 1940) were found in diseased strawberry roots at Ladysmith, Bradner and Abbotsford, B.C. The symptoms are those described by Hickman. The dark red colour of the centre of affected roots is considered a reliable symptom; it is distinct in spring, fall and winter. The disease seems to be widely established in the Fraser Valley; it was also found to be causing considerable damage at Willow Point and Wynndel in the Kootenays, and was found in one patch out of ten inspected on Vancouver Island. Mr. G.E.W. Clarke estimated a loss of 600 tons, or 20% of the crop, in the Fraser Valley (W.R. Foster).

POWDERY MILDEW (Sphaerotheca Humuli) caused slight damage in several plantings of Premier in Lincoln Co., Ont. (G.C. Chamberlain).

WITCHES' BROOM (virus). Moderately affected plants were seen at Edmonton, Alta. (A.W. Henry).

JUNE YELLOWS (genetic breakdown) was frequently seen in new plantings of Premier in the Niagara Peninsula, Ont. It is very prevalent in the Waterford district where many growers obtained their planting stock (G.C. Chamberlain). A planting of Premier at Cambridge, N.B. showed 95% yellows (D.J. MacLeod). This condition was more severe and general this spring in Kings Co., N.S., than ever before. Entire fields of Premier were affected. No field of this variety was found free of the trouble, but other varieties were mostly unaffected (J.F. Hockey).

ROOT ROT (cause unknown). Infection was 30% in one planting of Premier in Niagara Twp., Ont.; the disease was most severe in low areas; affected plants made poor growth and lacked runners (G.C. Chamberlain). The disease was seen in many strawberry plantations; an unusual feature was that it often attacked young plants that had just been set out (J.E. Howitt). Infection was about 25% in a number of varieties in the test plots at Ste. Anne de Bellevue, Que. (R. Pelletier). As many as 50-100% of the plants showed severe injury in some plantings of Senator Dunlap, Premier and Catskill, in York and Queens Co., N.B. (S.F. Clarkson).