IV. DISEASES OF FRUIT CROPS

A. POME FRUITS

APPLE

CROWN GALL (Agrobacterium tumefaciens). High incidence of crown-gall was found in nursery stock of apple, pear, and peach at Kelowna and Vernon, B.C., when the trees were dug in the fall of 1954; in some cases, 75% of the trees were rejected upon inspection. (D.L. McIntosh)

FIRE BLIGHT (Erwinia amylovora) caused sev. damage to McIntosh and Wealthy trees at Kelowna, B.C.; a large number of new shoots was blighted (D.L. McIntosh). Fire blight was common on susceptible crab-apple varieties at Calgary and Lethbridge, Alta. (M.W. Cormack). It was also common on apple about Edmonton (W.P. Campbell). Fire blight was fairly common around Saskatoon, Sask., in 1955; specimens were also received from Swift Current (R.J. Ledingham). In a local garden, a wild crab that was not attacked a few years ago was sl.-mod. infected, while a common hybrid crab, mod. infected earlier, only showed tr. infection this year (T.C. Vanterpool). Specimen trees on home grounds at Winnipeg, Man., were mod.-sev. infected (W.A.F. Hogborg). Scattered twig blight infections were observed in McIntosh and Greening trees bordering a Bartlett pear orchard at St. Catharines, Ont. (G.C. Chamberlain). The outbreak of fire blight observed last year in orchards about Hemmingford and Franklin Center, Que., progressed but slightly in 1955. Although the same trees showed live cankers and some new infections, the disease was not observed in new areas. The weather was unfavorable for its spread (L. Cinq-Mars). Infection was trace on a McIntosh tree at Montgomery and very sev. on one at L'Islet (L.J. Coulombe).

RUST (Gymnosporangium spp.). About 25% of the leaves and the odd fruit of various varieties bore infection spots of G. juniperi-virginianae at the Horticulture Station, Smithfield, Ont. (H.N. Racicot, J.A. Parmelee). Traces of G. clavipes were present in most orchards visited in the Annapolis Valley, N.S., but 8% of the fruit were infected in one of Red Delicious (J.F. Hockey).

BROWN ROT (Monilinia fructicola). A few infected fruits were found at harvest and in storage at St. Catharines, Ont.; infection occurred through some injury (G.C. Chamberlain).

ANTHRACNOSE (Neofabraea malicorticis). A few cankers were found on occasional McIntosh trees in an orchard at Queens Bay, B.C. (D.L. McIntosh).

PERENNIAL CANKER (Neofabraea perennans). Scattered cankers were present in orchards on Newtown, Rome Beauty, and Wagener, at Kamloops, Vernon, Kelowna, and Penticton, B.C., being most apparent on poorly-cared-for or abandoned orchards. In some orchards, vigor of certain limbs was reduced (M.F. Welsh, F.W.L. Keane).

BLUE-MOLD ROT (Penicillium expansum). A sl. amount of rot was found in a shipment of apples from Ont. to Winnipeg (J.E. Machacek). Specimens were received from the market at Quebec (D. Leblond).

BLACK ROT (Physalospora obtusa) was much more prevalent than usual in N.S.; tr.-2% calyx-end infections were observed in many orchards (J.F. Hockey). Black rot was sev. in one lot of apples on the local market, Charlottetown, P.E.I., on 20 April (R.R. Hurst).

PHYTOPHTHORA ROT (P. cactorum). Fruit infections were observed on Delicious apple, Bartlett pear, and Moorpark apricot in one orchard at Oliver, B.C., where water from sprinklers played over the lower branches of the trees. In 1954, the organism was isolated from green McIntosh fruit lying on the orchard floor in orchards at Penticton and Rutland (D.L. McIntosh).

POWDERY MILDEW (Podosphaera leucotricha) was present throughout the Okanagan Valley. Leaves and one-year shoots were sev. infected, but fruit infection was not found (D.L. McIntosh). Powdery mildew was common in the Laboratory orchard, St. Catharines, Ont., where organic fungicides other than dichlone were used in the spray program. Sulphur was also effective. Terminal shoots were commonly stunted and foliage dried out (G.C. Chamberlain). Traces occurred on a few trees at the Horticulture Station, Smithfield (H.N. Racicot). Infection was mod. on seedling trees but very slight on nearby young apple trees in a nursery, St. Jean Baptiste, Que. (J. Ringuet). A sev. infected twig was received from Aulac, N.B. (D.W. Creelman). A tr. occurred on wild apple trees in Kings Co., P.E.I. (R.R. Hurst).

PINK-MOLD ROT (Trichothecium roseum) was rather common on McIntosh and Winesap apples, with a large number of scab lesions per fruit at Oliver, Kelowna, and Vernon, B.C., when examined 15 Dec. 1954. Some infection also occurred through the lenticels (D.L. McIntosh).

SCAB (Venturia inaequalis). In 1955, losses from apple scab in the B.C. interior were confined to the Salmon Arm and Kootenay districts. Unsprayed trees about Salmon Arm were heavily infected and fruit unmarketable. About Creston, heavy losses occurred as a result of heavy infection in early June, followed by abundant rainfall in June and July. In 1954, the Okanagan Valley suffered sev. losses from summer and late season scab (D.L. McIntosh). Scab was not common in Saskatchewan in 1955. It was seen in a Saskatoon garden (R.J. Ledingham), and scabby specimens were received from Fairlight (T.C. Vanterpool).

Scab infection was sev. on unsprayed trees in the Laboratory orchard, St. Catharines, Ont., but good control was obtained with all the fungicides tested except Consul colloidal sulphur. There were 4 well-marked infection periods, two occurring at the cluster-bud stage on 20 and 25 April. First infection on the leaves was observed on 11 May at early petal fall when a 3rd infection period occurred. A 14-hour wetting period on 25 May spread infection to the fruit, which was observed 9 June. From then on there was very little further development of scab. In general, scab was well controlled in local orchards, although sev. infection was observed in a few orchards. Last spring, it was common on Winesap apples received from Lambton Co. and in McIntosh from the Brighton district; it was also present on Winesap apples from B.C., taken at Toronto (G.C. Chamberlain). A tr. of scab occurred in 2 orchards examined at Smithfield, and 10-15% of the fruit were scabby in a third (H.N. Racicot).

In s.w. Que., weather conditions were unfavorable for scab development. The first ascospore discharge occurred 25 April, before the buds were open on trees in most districts. Light infection periods occurred on 8, 19, and 25 May and 12 June, but there was no difficulty in keeping the trees protected with fungicides. In consequence, most orchards were exceptionally clean. In a few, late scab developed in September from early infections that had not been properly controlled (L. Cinq-Mars).

Apple scab was sev. in orchards and garden stands examined at L'Islet, L'Isletville, Montmagny, and Charny, on the lower St. Lawrence. The trees had apparently not been sprayed; McIntosh was the most sev. affected (L.J. Coulombe).

In the Saint John River Valley, N.B., ascospores were mature on 17 May, and the first discharge took place on 26 May, when McIntosh buds were at the full pink stage. On 31 May, when the weather was very favorable for infection, a heavy discharge occurred during full bloom. Growers were advised to spray during the bloom period and, because it was prolonged, some growers applied 2 separate sprays. During the rest of the season, the weather was mostly fine and dry. Several large growers used concentrate mist sprayers and professed that they were well satisfied with the results. In general, the apple crop was exceptionally free of scab (S.F. Clarkson).

Ascospores of V. inaequalis were mature at Kentville, N.S., before the buds had broken at the tips. An 80-hr. infection period occurred as the earliest varieties were showing green tips. It was followed by another sev. infection period about 10 days later; whereupon no further infections were possible for 3 weeks. The infrequent wet periods did not interfere with spraying. Apple scab was not serious in 1955. Five well-timed applications were sufficient to counteract the sev. infection periods. Primary leaf infections were observed 22 May, and by mid-July, not over 11% scabby foliage was present on any sprayed plot, while in most plots, less than 1% was scabby. No appreciable amount of pin-point scab developed in the fall (J.F. Hockey).

There were only 2 heavy ascospore discharges in P.E.I. in 1955. Growers who sprayed regularly grew a crop showing little scab infection on leaves and fruit (G.W. Ayers). However, scab was severe in an unsprayed orchard examined in Queens Co. (W.L. Seaman).

MOSAIC (virus). Infection was 100% in trees newly grafted to Bough Sweet at Lakeville, N.S.; the infection was traced to the source of the scions (J.F. Hockey).

'PITTING' (?virus) was found affecting trees in orchards in 5 districts in the Okanagan Valley, B.C. So affected were about 80% of all trees where Virginia Crab was used for the framework. These trees are weakened, framework limbs are bent and twisted, and the bark on the trunk is longitudinally depressed. The diagnostic symptom is an irregular growth of wood beneath the cambium so that the bared surface resembles that of a peach pit. The presence of this pitting apparently accounts for the breakdown of Virginia Crab as a framework stock in B.C. and other parts of North America. Transmission of the disease is being attempted (M.F. Welsh, F.W.L. Keane).

MAGNESIUM DEFICIENCY. Typical symptoms of magnesium deficiency was observed on McIntosh and Melba in an orchard at St. Laurent (Ile d'Orleans), Que.; leaves were mod. injured (J. Ringuet, H.N. Racicot)

RUSSETTING (spray injury) was very prevalent in the Saint John River Valley, N.B.; 25-30% of the harvested fruit was affected (J.L. Howatt).

SCALD. Scattered fruits and leaves showed extensive scald areas on McIntosh in an orchard in Welland Co., Ont.; temperatures had been high and a heavy residue of sulphur paste was present (G.C. Chamberlain).

PEAR

FIRE BLIGHT (Erwinia amylovora) affected a small percentage of Bartlett fruits in several orchards at Naramata, B.C. The infections were noted following a hail storm that damaged the fruit. The rot in these fruits was firm and typical of symptoms observed when green pears are inoculated with E. amylovora. In 1954, fire blight was general in an orchard of Anjou at Kelowna and caused the death of a large number of limbs in the affected trees (D.L. McIntosh). Scattered infections were observed on Bartlett in an orchard at Bronte and one of young trees at St. Catharines, Ont.; damage was sl.-mod. In experiments in 2 local orchards, satisfactory control of fire blight was obtained with 3 applications of streptomycin sulphate at 100 p.p.m. made during bloom. However, some injury was noted on the leaves on the lower part of the trees. In one orchard, chlorotic areas (Fig. 2) were conspicuous on scattered leaves for a week until they again assumed their normal green. Some leaves cracked about the chlorotic area and then became ragged. There was no defoliation. In the other orchard, where an air-blast sprayer was used, the injury was more prevalent and pronounced and chlorosis persisted longer. It is believed that the injury appeared where too much spray was applied (G.C. Chamberlain).

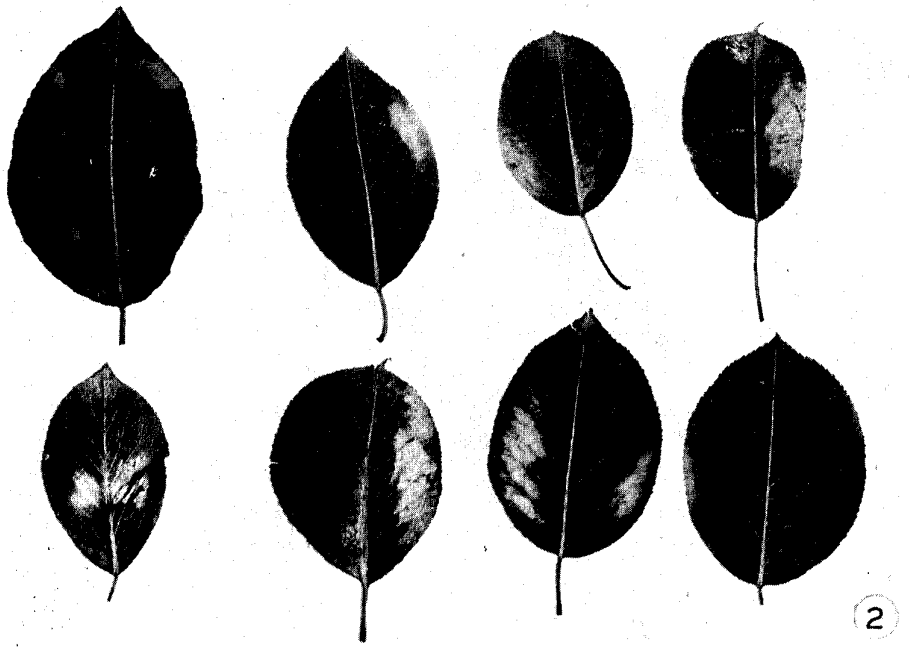

Fig. 2. Chlorotic areas on leaves of Bartlett pear as a result of application of streptomycin to the foliage.

SOOTY BLOTCH (Leptothyrium pomi) caused extensive blotching and clouding of Bartlett fruits in an orchard at Port Dalhousie, Ont. Sooty blotch was commonly observed on Kieffer and was reported from a number of orchards in the district (G. C. C.).

BROWN ROT (Monilinia fruticola) affected a few Bosc fruits showing insect or other injuries at St. Catharines, Ont. (G. C. C.).

PHYTOPHTHORA ROT (P. cactorum) affected a few low-hanging clusters of fruit at St. Catharines, Ont. (G. C. C.).

SCAB (Venturia pirina) sev. infected 75% of the fruit of Flemish Beauty in an orchard at St. Catharines, Ont.; foliage infection light. In Lincoln Co., about 20% of fruit on Bartlett trees in a sheltered part of the orchard were sev. blemished (G. C. Chamberlain). Scab affected 2% of the fruit on Bartlett pear at Kentville, N.S. (C.O. Gourley). The only pear tree in an orchard at Brackley Point, P.E.I., was severely defoliated by scab (W.L. Seaman).

STONY PIT (virus). An inspector, who submitted affected Anjou pears, reported 9% of the fruit in a car lot shipment from B. C. received in Ottawa were so affected (H. N. Racicot). What appeared to be stony pit was found affecting 13 out of 20 Flemish Beauty trees in an orchard at Summerland, B. C.; all fruits unmarketable. Although not recorded previously on this variety, the symptoms were identical with those of stony pit on Bosc; transmission attempted (M. F. Welsh, F. W. L. Keane). Fruit from two affected Anjou trees at St. Catharines, Ont., were unmarketable (G. C. Chamberlain).

DIE-BACK (non-parasitic) was prevalent on Kieffer trees at Vineland, Ont. A die-back of young branches and of fruiting branches during bloom was associated with poor drainage and damage of the crown (G. C. C.).

SPRAY INJURY. A mod. amount of foliage injury occurred in a Bartlett orchard at Port Dalhousie, Ont., following application of parathion when the temperature was 90°F. (G. C. C.).

QUINCE

LEAF BLIGHT (Fabraea maculata). Sev. infected leaves were received from Kitchener, Ont. (H. N. Racicot) and from a nursery near St. Thomas (H. S. Thompson).

RUST (Gymnosporangium clavipes) affected a few fruits at Kentville, N. S. (C. O. Gourley).

B. STONE FRUITS

APRICOT

BLACK ROT (Dibotryon morbosum). A tr. infection was observed at the Farm, Kentville, N. S. (C. O. Gourley).

WILT (Verticillium albo-atrum). A small percentage of trees were found affected in some orchards in the South Okanagan Valley, B. C. (G. E. Woolliams).

RING POX (virus). See Twisted Leaf of Cherry.

CHERRY

BLACK KNOT (Dibotryon morbosum) was mod. infecting young cherry trees in plantings at Loretteville and St. Cyrille, Que. (L. J. Coulombe). A sl. infection was observed on P. virginiana along a fence at St. Thomas d' Aquin (R. Crete). A sev. infection was recorded on sour cherry at Charlottetown, P. E. I. (J. E. Campbell).

LEAF SPOT (Higginsia hiemalis) caused moderate defoliation of sour cherries in the Collingwood district, Ont., where growers had not sprayed. Sev. premature defoliation occurred also in unsprayed blocks of sour cherries at St. Catharines (T. R. Davidson). The disease was more prevalent in the district than usual as it continued to develop quite late in the season (G. C. Chamberlain). Leaf spot appeared to be general on P. pensylvanica about Fredericton, N. B. (R. H. Bagnall). Sl. defoliation was noted on sweet cherry at Tupperville, N. S. (C. O. Gourley).

BROWN ROT (Monilinia fruticola) caused almost complete loss of the sweet cherry crop in the West Kootenay, B. C.; the spring was wet and cool, and rains were heavy at picking time (J. M. Wilks). Brown rot was not an important disease of cherries in the Niagara Peninsula, Ont. About 10% of the fruit were destroyed on unsprayed sweet cherry trees at St. Catharines; it also caused mod. damage in a sour cherry orchard at Port Dalhousie where the fruit was bruised by a storm and the cherry fruit fly was not well controlled (G. C. Chamberlain). A tr. of blossom blight was noted on one sweet cherry variety at Kentville, N. S. (C. O. Gourley).

CROWN ROT (Phytophthora cactorum). Only 2 cases of crown rot were observed on Van cherry this year at Eriksson, B. C., in comparison to a very heavy infection in 1954. In both cases, the trees were showing some decline and the rot had started to move up the trunk (J. M. Wilks).

POWDERY MILDEW (Podosphaera oxyacanthae) affected about 20% of the fruit in a Lambert cherry orchard at Okanagan Falls, B. C. (D. L. McIntosh).

WILT (Verticillium albo-atrum). About 25% of the sweet cherries in a block at the Farm, Summerland, B. C., are affected in varying degrees. The condition of the trees was somewhat improved over that of 1954 (G. E. Woolliams).

BLACK CANKER (virus). What appears to be this virus disease was found for the first time in the Kootenays, B. C., when it was observed sev. infecting 3 Lambert trees and spreading into an adjacent one in an isolated orchard at Broadwater, B. C. The trunk and lateral branches were affected by large black cankers. Removal of trees was recommended (J. M. Wilks). Although the disease has not previously been reported to the Survey, it was first found in the Okanagan Valley in a number of Royal Ann trees at Penticton. Transmission was obtained in one tree inoculated in 1939, symptoms appearing in 1942 (T. B. Lott).

LITTLE CHERRY (virus). Symptoms were much milder this season in the Creston Valley, B. C., than for several years. Sev. symptoms were less prevalent and fruit attained a better size and stage but were still lacking flavor (J. M. Wilks). This serious disease is still unreported in the Okanagan Valley (T. B. Lott).

MOTTLE LEAF (virus). Two Bing trees were found mildly infected in the Creston Valley, one at Wynndel and the other at Erickson, B.C.; two trees were found previously (J.M. Wilks).

NECROTIC RUSTY MOTTLE (virus) was found for the first time in the Kootenays, B.C.; one tree at Renata was affected by a sev. strain which caused almost complete defoliation, whereas the other at Eriksson was affected by a mild strain. Removal of trees recommended (J.M. Wilks). Some workers consider necrotic rusty mottle to be the same as Lambert mottle which has been recorded at least once previously in the Kootenays (M.F. Welsh).

RASP LEAF (virus). This very slow-acting virus disease was found in 1954 in one old tree and in about 12 young trees in an orchard at Vernon, B.C.; this orchard is about 40 mi. n. of the nearest previously known infection in the Okanagan Valley (T.B. Lott).

SMALL BITTER CHERRY (virus). One Bing tree was found in the Okanagan Valley in 1955. It is now recognized that small bitter cherry in sweet cherry is caused by the same virus which causes Western X-disease in peaches and chokecherry. For some years, Western X-disease has been less conspicuous than formerly in the Okanagan Valley (T.B. Lott).

Paul R. Fridlund and T.H. King (Plant Dis. Reptr. 39: 540-546. 1955) report finding chokecherries infected with X-disease virus in 76 out of the 87 counties in Minnesota. They conclude that "it probably is present in all adjacent States and Canadian Provinces". It has been reported in Wisconsin by E.M. Stoddard (Plant Dis. Reptr. 22: 386. 1939).

TWIST LEAF (virus) of Sweet Cherry (Fig. 3) and RING POX (virus) of Apricot (Fig. 4) have shown slow but steady spread in recent years in the Okanagan and Similkameen Valleys, B.C. It is of commercial importance in only a few orchards. Under natural conditions, they have shown a strong tendency to occur in the same orchards or the same locality. Experimentally twisted leaf has been obtained in cherry by budding from apricot naturally infected with ring pox. Ring pox or a disease very similar to ring pox was obtained in apricot when the reciprocal experiment was made. The relationship between the two diseases is not yet clear. Twisted leaf is now known to infect sweet cherry with or without symptoms, sour cherry with or without symptoms, and peach and apricot with symptoms not yet determined. In 1954, in one sweet cherry orchard of 700 trees, about 10% were affected; some trees very severely (T.B. Lott). Twisted leaf was observed on a Bing tree at Erickson, the first report in the Kootenays. Fruit symptoms, which are rarely observed, were also present (J.M. Wilks).

YELLOWS (virus). Symptoms of yellows were very prevalent and appeared earlier than usual in Lincoln Co., Ont. Affected sour cherry trees ranged from zero to 45% in the various orchards. Defoliation in affected trees ranged from a tr. to 50% of the leaves. Old trees appeared to be more sev. affected by yellows than young ones. The very early spring, which induced early

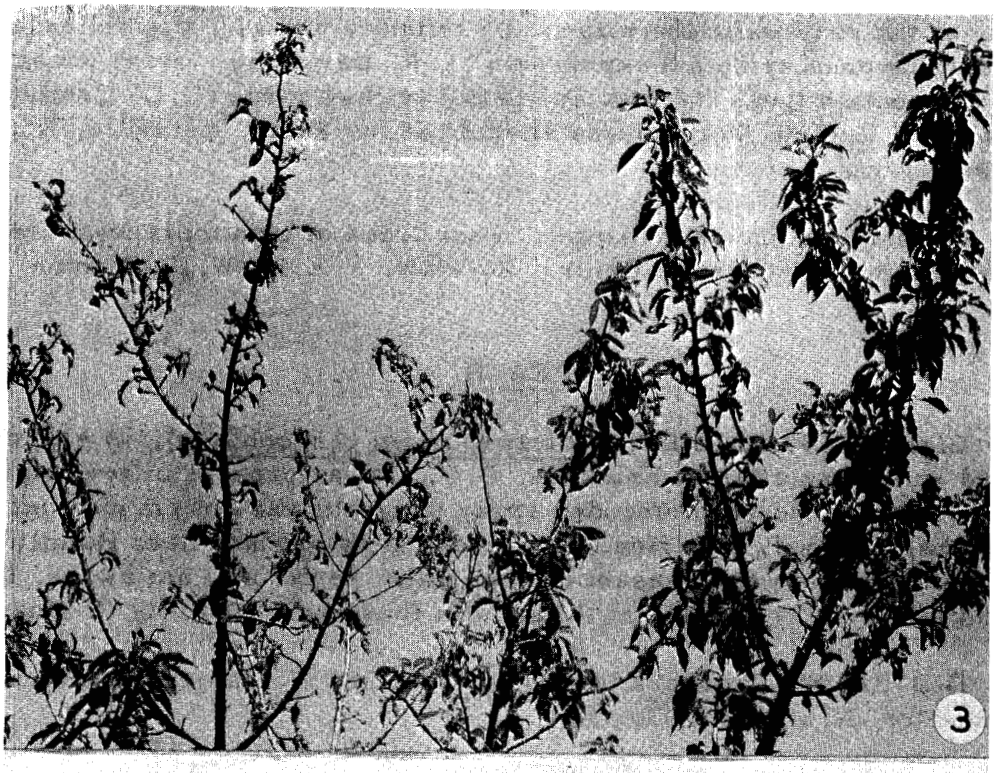

Fig. 3. Effect of infection by twisted leaf on sweet cherry trees.

Fig. 4. Apricot fruit from tree affected by apricot ring pox.

unfolding of the buds while the mean daily temperature was slightly under 60°F., undoubtedly favored symptom expression (T. R. Davidson). Many orchards in the district contain trees infected by cherry yellows virus (G. C. Chamberlain). An odd tree of English Morello was affected at the Farm, Kentville, N. S. (C. O. Gourley).

GUMMOSIS (cause unknown). Four trees of Montmorency were mod.-sev. affected in an orchard at Central Royality, P. E. I. (W. L. Seaman).

PEACH

CORYNEUM BLIGHT (Clasterosporium carpophilum). A sl. infection was noted on all varieties at Erickson, B. C.; it was present in sev. form only in orchards where the recommended spray program was not carried out (J. M. Wilks). A mod. infection was present in an orchard near Hamilton, Ont.; many minute lesions were present on the fruit. As far as I am aware, this is the first time in many years that it has been found in s. Ont. (G. C. Chamberlain).

DIE-BACK (Cytospora leucostoma) caused sl. damage in an orchard nr. Grand Pre, N. S. (C. O. Gourley).

SCAB (Fusicladium carpophilum) disfigured 50% of the Red Haven fruit in an orchard at Annapolis, N. S. (C. O. G.).

BLACK KNOT (Dibotryon morbosum). Stromata were present in orchards at Grand Pre, Avenport, and Canard, N. S., although few mature perithecia with ascospores were found (C. O. G.).

BROWN ROT (Monilinia fructicola) caused sev. damage to a carlot of Elberta peaches from California examined at Lethbridge, Alta. (M. W. Cormack). Brown rot caused extensive losses to packaged fruit from the Niagara Peninsula in storage, during transit, and at market outlets. Delay in disposing of the fruit increased the loss. About 5-15% of the fruit rotted in the orchard, following damage by hurricane Connie, but by far the greatest loss occurred in harvested fruit (G. C. Chamberlain). Brown rot caused 10% loss of fruit in an orchard at Tupperville, N. S. (C. O. G.).

CANKER (Nectria cinnabarina). Trace observed in an orchard at Grand Pre, N. S. (C. O. G.).

POWDERY MILDEW (Sphaerotheca pannosa) was quite general on some early varieties at St. Catharines, Ont.; most terminal twigs were infected on one variety only (G. C. Chamberlain).

LEAF CURL (Taphrina deformans) occurred on unsprayed trees growing nr. Okanagan Lake, B. C., where humidity of the air is higher than elsewhere in the area. About 1% of the foliage was affected (G. E. Woolliams). One of the

worst epidemics ever observed occurred in the Niagara Peninsula, Ont., in 1955. The disease was present in most orchards, and in some the trees were completely infected. In a few instances, twig and fruit infection occurred. On account of the early season, some growers did not spray their trees in time to protect them (G.C. Chamberlain). Infection was sev. on 3 trees in a home garden at Beaverton (H.N. Racicot). A tr. was observed in several orchards in Kings Co., N.S. (C.O. Gourley).

WILT (Verticillium sp.) was observed on a single tree at St. Catharines, Ont. In a nursery planting of 2-year-old trees of 2-3 acres, 10 trees were affected at Fonthill (G.C. Chamberlain).

BACTERIAL SPOT (Xanthomonas pruni) developed and spread rapidly in the St. Catharines-Jordan area, Ont., as a result of wind-blown rain and damp weather in August. Infection was mod.-sev. on leaves, causing partial defoliation, and sl. on the fruit (G.C. Chamberlain). Traces present on the leaves at Grand Pre, N.S. (C.O. Gourley).

YELLOWS (virus). An affected branch was received from Simcoe, Ont.; a single tree said to be affected in the orchard (G.C. Chamberlain).

CHEMICAL INJURY. Trees in the first 3-4 rows along the edge in an orchard at St. Catharines, Ont., suffered rather sev. foliage injury from drift of powdered cyanamid applied to an asparagus planting alongside (G.C. Chamberlain).

PLUM

BLACK KNOT (Dibotryon morbosum) had infected 29 of 40 trees in a nursery at Rougemont, Que. (J. Ringuet). Diseased specimens were received from Ste. Scholastique (H.N. Racicot). Neglected or uncared-for cultivated plums as well as wild chokecherry were 100% infected about Kentville and Wolfeville, N.S. New infections appeared about 10 June, and about 25% of the new growth had to be pruned out to remove these infections (C.O. Gourley). Affected branches of Damson plum were received from Jamestown, Bonavista Bay, Nfld. (H.N. Racicot).

SCAB (Fusicladium carpophilum). Affected specimens were received from Ste. Scholastique, Que. (H.N. Racicot).

SHOT HOLE (Higginsia prunophorae). What appeared to be this disease caused mod. damage in a 2-acre planting of Italian prune nr. Abbotsford, B.C.; no fungicide had been applied (R. Stace-Smith).

BROWN ROT (Monilinia fruticola). Tr. infections of blossom blight and later of brown rot were observed on plum at the Farm, Kentville, N.S. (C.O. Gourley).

POWDERY MILDEW (Podosphaera oxyacanthae) specimens received from Manning, Alta. (A.W. Henry).

PLUM POCKETS (Taphrina communis). Specimens were received from 3 widely scattered places in Sask. (R.J. Ledingham, T.C. Vanterpool), from Victoriaville and St. Damien in Que. (D. Leblond) and from a garden at Moncton, N.B. (P. Grainger). A small block of unsprayed Burbank trees were completely affected at the Farm, Kentville, N.S. The disease was widespread in the Annapolis Valley, and where no control measures were applied most of the fruit were infected. (C.O. Gourley).

PRUNE DWARF (virus) affected the odd Burbank tree at the Farm, Kentville, N.S. (C.O. Gourley).

CHLOROSIS (lime-induced) was sev. on plum and mod.-sev. on sand cherry at Oak Bluff, Man. (J.E. Machacek).

SCALD (high temperatures) affected 25% of the fruit of Shiro plum in an orchard at St. Catharines, Ont.; damaged fruit developed brown rot (G.C. Chamberlain).

SAND CHERRY

POWDERY MILDEW (Podosphaera oxycanthae). Specimens received from Manning, Alta. (A.W. Henry).

C. RIBES FRUITS

CURRANT

WHITE PINE BLISTER RUST (Cronartium ribicola) sev. infected black currants at Montmagny and L'Islet and caused premature defoliation; a poor crop was harvested (L.J. Coulombe). Rust was heavy in garden patch at Moncton, N.B. (S.R. Colpitts). Rust was already causing defoliation of Kerry and Clipper black currants at the Farm, Kentville, N.S., by 20 July (C.O. Gourley). At the Farm, Charlottetown, P.E.I., rust was absent on Crusader and very heavy on Climax, Niagara and Saunders black currants; and tr. on Stephens and Red Cascade and mod. on Red Lake red currants (R.R. Hurst). A mod. infection was noted on black currants at Springfield (J.E. Campbell).

ANTHRACNOSE (Drepanopeziza ribis). A 10% infection was recorded on red currant at East Lawrencetown, N.S. (C.O. Gourley). Infection was mod.-sev. on Red Lake currants in a garden in Queens Co., P.E.I. (R.R. Hurst).

LEAF SPOT (Mycosphaerella ribis). A tr. infection was seen on currants and gooseberries at the Farm, Kentville, N.S. (C.O. Gourley).

POWDERY MILDEW (Sphaerotheca mors-uvae) was sl.-mod. on black and red currants in gardens at Lethbridge and sev. on a black currant specimen received from Medicine Hat, Alta. (F. R. Harper).

GOOSEBERRY

BERRY ROT (Glomerella cingulata) affected most of the fruit on a few bushes in a home garden at Ottawa, Ont. This parasite appears to be rare on cultivated gooseberry although reported by Weiss on currants in the U.S. (D.B.O. Savile).

LEAF SPOT (Mycosphaerella ribis (Fckl.) Feltg.) mod. infected O271 in the plots at Charlottetown, P.E.I. (R.R. Hurst, D.B.O. Savile).

RUST (Puccinia caricina) Pycnia and aecia found on gooseberry leaves received from Beaverlodge, Alta. (W.P. Campbell). A tr. was found on Captivator at the Station, Kentville, N.S. (C.O. Gourley).

POWDERY MILDEW (Sphaerotheca mors-uvae) was noted on a few bushes at Medicine Hat, Alta. (F.R. Harper). In a White Smith planting at Waterville, N.S., 85% of the fruit in an estimated crop of 2000 qt. was worthless on account of mildew. All young shoot growth was infected in this and a 1/2-acre planting of non-bearing bushes. This variety is very susceptible (C.O. Gourley).

D. RUBUS FRUITS

RASPBERRY

CROWN GALL (Agrobacterium tumefaciens) affected 10% of the Trent and 1% of the Newburgh plants in a nursery at Compton, Que., and 55% of the Newburgh plants in a 2-acre planting at St. Amable (J. Ringuet).

GREY MOLD (Botrytis cinerea) was generally present on fruit in the Lower Fraser Valley, B.C.; losses were up to 20% in some plantings (H.N.W. Toms). About 20% of the plants were affected by a wilt in a planting at Truro, N.S.; isolations yielded B. cinerea (D.W. Creelman).

SPUR BLIGHT (Didymella applanata) caused mod. infection of all varieties in the Lower Fraser Valley, B.C. (R. Stace-Smith). The disease was heavy in a garden patch at Edgewood (M.F. Welsh). Spur blight was observed in several gardens in Saskatoon, Sask., and diseased specimens were received from Prince Albert (R.J. Ledingham). A tr. was found on commercial varieties and seedlings at Smithfield, Ont. (H.N. Racicot). Spur blight was common, causing tr.-sev. infections in Que.; sev. infected specimens received from Nicolet and Giffard (D. Leblond). Infection was tr. on Newburgh

at Berwick, N.S. (C.O. Gourley), tr. on Rideau and very sev. on Madawaska in a garden at Charlottetown, P.E.I. (R.R. Hurst).

ANTHRACNOSE (Elsinoe veneta) was present on specimens received from St. Louis, Sask. (T.C. Vanterpool), and tr. infection on Rideau in a garden at Charlottetown, P.E.I. (R.R. Hurst).

CANE BLIGHT (Leptosphaeria coniothyrium). Diseased specimens received from Meadow Lake, Sask. (T.C. Vanterpool). Sl. infection in a planting at Altona, Man. (J.E. Machacek). A few Viking canes infected in a garden at Kentville, N.S. (K.A. Harrison).

YELLOW RUST (Phragmidium rubi-idaei). Sl. infection observed on Washington in the Lower Fraser Valley, B.C. (R. Stace-Smith).

LATE YELLOW RUST (Pucciniastrum americanum) was fairly heavy on Viking, Newburgh, and Indian Summer at Berwick, N.S. (C.O. Gourley).

LEAF SPOT (Septoria rubi) caused about 50% defoliation of the lower leaves of Trent at Berwick, N.S. (C.O.G.)

POWDERY MILDEW (Sphaerotheca humuli) mod.-sev. infected commercial varieties and seedlings in the plots at Smithfield, Ont. (H.N. Racicot).

WILT (Verticillium sp.) caused mod. damage in a planting at Medicine Hat, Alta. (M.W. Cormack). Wilt was sev. in one row in a home garden at Normandin, Que., where the soil had remained wet for some time early in the season (D. Leblond). It caused mod. damage to Latham in the plots at the Farm, Ste. Anne de la Pocatiere (L.J. Coulombe).

MOSAIC (virus). A general sl. infection was present in a nursery at Calgary, Alta. (R.P. Stogryn). Mod.-sev. infections were noticed at Montmagny and St. Pacome, Que. (L.J. Coulombe). Traces of aucuba mosaic and leaf curl were observed on Viking at Berwick, N.S. About 2% of the plants were also affected by common mosaic (C.O. Gourley).

CHLOROSIS (lime-induced) was mod.-sev. in plantings examined at Arden, Grandview, Oak Bluff, and Pine Falls, Man. (J.E. Machacek).

E. OTHER FRUITS

BLUEBERRY

BLOSSOM and TWIG BLIGHT (Botrytis cinerea and Monilinia vaccinii-corymbosi) was prevalent in many fields in Cumberland and Kings counties, N.S. A 7% ferbam dust gave good commercial control (J.F. Hockey). In Charlotte Co., N.B., infection ranged as high as 70% in second-crop fields and was about 15%

in first-crop fields. Mostly the leaves were affected (I. V. Hall).

GRAPE

DEAD ARM (Fusicoccum viticola) is common in vineyards in the Niagara Peninsula, Ont. As high as 35% of the vines may be infected, and probably some infection may be found in any vineyard 1 acre or more in extent (G. C. Chamberlain). This fungus is actually a Phomopsis, and Goidanich in 1937 made the transfer. This binomial, however, is a later homonym of P. viticola Sacc. 1915.

DOWNY MILDEW (Plasmopara viticola) was prevalent in vineyards of Fredonia about St. Catharines, Ont. (G. C. C.).

POWDERY MILDEW (Uncinula necator) A sl. infection was observed on foliage of Seneca at St. Davids, Ont. (G. C. Chamberlain). One variety was sev. infected at the Farm, Kentville, N. S. (D. W. Creelman).

STRAWBERRY

GREY MOLD (Botrytis cinerea) caused a loss of 30% of the crop in the Lower Fraser Valley, B. C. Captan was ineffective owing to abnormally wet weather before and at harvest (H. N. W. T.). Affected specimens received from Naicam, Sask. (T. C. Vanterpool). Grey mold caused about 1% loss of fruit in Kings Co., N. S. (C. O. Gourley).

LEAF BLIGHT (Dendrophoma obscurans) caused considerable infection in a 3-year-old planting of Premier at Port Waller, Ont. (G. C. Chamberlain). Three plants with the older leaves sev. infected received from the Montreal district, Que. (H. N. Racicot) A tr. was found on Senator Dunlap at Port Williams, N. S. (C. O. Gourley).

LEAF SCORCH (Diplocarpon earliana) sev. infected a representative collection of commercial varieties at Smithfield, Ont. (H. N. Racicot). A sl. infection was noted on Louise at Waterville, N. S. (C. O. Gourley). Infection in the Farm plots, Charlottetown, P. E. I., was as follows: McKenzie, very heavy; Louise, heavy; Temple, Premier, Fairland and Robinson, tr.; and Senator Dunlap, Dresden, Midland, Red Rich, Swanee, Sparkle, Catskill, King, Dorsett, Valetine, and Pathfinder, none (R. R. Hurst).

LEAF BLOTCH (Gnomonia fruticola) Tr. infection observed at Port Williams, N. S. (C. O. Gourley).

ROOT KNOT NEMATODE (Melidogyne sp.) was observed on virus-free Senator Dunlap and Premier plants imported from the eastern U. S. and planted at Kentville, Berwick, and Melvern Square, N. S. Root nodules were present

when the plants arrived in April 1955 (C.O. Gourley). M. hapla was numerous on strawberry roots from Kentville, N.S. (A.D. Baker).

LEAF SPOT (Mycosphaerella fragariae) caused sl. infection in a planting at Altona, Man. (J.E. Machacek). Leaf spot was widespread in strawberry-growing areas at Woodstock, Gagetown, Memramcook, N.S. It was sev. if the plantings were not treated or burnt over (S.R. Colpitts). Tr. infection on Senator Dunlap at Port Williams, N.S. (C.O. Gourley). Infection in the Farm plots, Charlottetown, P.E.I., was as follows: Sparkle, mod.; Red Rich, Senator Dunlap, Louise, Catskill, Dorsett, Valentine, Fairland, Robinson, and McKenzie, tr.; and nil on the other 7 varieties listed above (R.R. Hurst).

POWDERY MILDEW (Sphaerotheca humuli). A sl. infection on strawberry seedlings was observed at the Farm, Kentville, N.S. (C.O. Gourley).

ROOT ROT (fungus complex). Sev. damage occurred in patches in plantings at Lethbridge and Taber, Alta. (M.W. Cormack). Black root rot was prevalent in plantings where good drainage was lacking about St. Catharines, Ont. A number of complaints were received of poor growth and dying of plants at fruiting (G.C. Chamberlain). Root rot was general in plantings about Woodstock, Gagetown, and Memramcook, and became progressively worse as the season advanced; it caused sev. injury as a drought occurred during the picking period (S.R. Colpitts).

GREEN PETAL (?virus) affected about 5% of the plantings of Senator Dunlap and Catskill about Blomidon, N.S. An account of the disease is given in the Plant Dis. Reptr. 39:808-809. 1955. (C.O. Gourley).

XANTHOSIS (virus). A tr. infection was observed about Berwick, N.S., on Premier (C.O.G.)

CHEMICAL INJURY. Five applications of Crag Herbicide (3,4-dichlorophenoxyethyl sulphate) at about 4 lb. per acre were applied to planting of Premier at Beamsville, Ont., instead of 2-3 applications of 2 lb. per acre. As a result, some plants were markedly stunted with aborted buds at the crown; usually only the leaves were deformed, typical of hormone injury (G.C. Chamberlain).

JUNE YELLOWS (genetic breakdown) was evident on the new growth in many plantings about St. Catharines, Ont.; in some, 5-10% of the plants were affected (G.C. Chamberlain). Some 25% of the Sparkle plants were affected in a planting at Norton, N.B. (S.R. Colpitts).