loss of marketable fruit occurred in some cases (S.R.C.).

MAGNESIUMDEFICIENCY. Mild symptoms were observed in 2 fall greenhouse crops in s.w. Ont. (C.D. (McK.).

MANGANESE TOXICITY. Moderate to severe injury due to excess manganese was frequently encountered in greenhouse crops in Essex Co., Ont. Tissues analyses showed manganese levels as high as 2500 ppm (J.R.R.).

SMOKE INJURY. Malfunction of the fan on the draft of a coal-fired boiler resulted in severe injury to half of a 1-acre greenhouse planting in s. w. Ont. Severe necrosis of the tops of plants resulted in the loss of 3 to 4 sets of fruit **(J.R.R.).**

TOP NECROSIS (genetic) occurred in a yield trial of 'Erie Cross BB' at Kentville, N.S. late in the season. This is a prominent necrosis that is easily recognized and it affects the late yield of this cultivar (K.A.H.).

DISEASES OF FRUIT CROPS

A. Pome Fruits

APPLE

COTTONY MOLD (Alternaria spp.). The term, cottony mold, refers to a superficial mold growth over fruit, containers and walls of cold storages where humidity is high. The main organisms involved are species of Alternaria. No damage is done to the fruit but cleaning is difficult and is impossible at the stem and blossom ends. The condition is present in many new cold storages and was observed in 1965 at Oliver and Osoyoos, B. C. (L.E.L.).

FRUIT SPOTTING (Alternaria sp.) caused heavy damage in 1 grower's crop in storage at Osoyoos, B.C. Lesions were black and about $\frac{1}{4}$ inch in diameter. A species of Alternaria could be recovered from the underside of skin lesions (L.E.L.).

BLACK MOLD [Aureobasidium pullulans (de Bary) Arn. = Pullularia pullulans (de Bary) Berkh.). Specimens received from St. Hilaire, Que. had a superficial blackmold which was confined to the stem end of the fruit. At the stage when the fruit was examined there appeared to be no rotting of the fruit but the stems separated easily and the fruit was rendered unsightly. The fungus was determined by S.J. Hughes (P.K.B.).

FROG-EYE LEAF SPOT (Botryosphaeria obtusa) caused considerable spotting on 'Idared' in an orchard nr. Harrow, Ont. The orchard had been heavily damaged by fire blight in 1964 (C.D.McK.).

STORAGE ROT (Botrytis cinerea) was found affecting 'Red Delicious', 'McIntosh' and 'Newtown' in 3 packing houses at Kelowna, B. C. Most of the rot was centered around the blossom and stem ends but some fruits were completely rotted by the end of 1964. This condition has apparently been present for some years but since no surface mycelium or spores are produced the inspectors have been recording it as 'storage breakdown'. It was also seen in 'Delicious' from controlled atmosphere storage at Oliver, B. C. in May. Lenticel spotting was evident and some fruits were completely rotted. Incidence was low (L.E.L.).

CANKER (Cytospora sp.). Specimens were received from Two Hills and from Three Hills, Alta. (A.W.H.).

FIRE BLIGHT (Erwinia amylovora). Infections in current season's shoots and in blossoms were found in small numbers in several orchards in the Okanagan Valley, B. C. Damage in 1965 was negligible (D.L.McI.). It was prevalent in the Edmonton district and was reported from 17 other localities in Alta. (A.W.H.). Fire blight infections were general on apple and crabapple in Saskatoon, Sask. (R.J.L.) and its incidence in Man. was low, judging from the low number of specimens received for identification (W.A.F.H.). It developed rapidly in early June in Essex Co., Ont. but progressed slowly thereafter. Its incidence was much lower than in 1963 and 1964 (J.R.C.). Fire blight recurred in s. w. Que. in 1965. At Franklin Center, Huntingdon Co., it was found on 'Astrakhan', 'Lobo', 'Northern Spy', 'Cortland', 'Yellow Transparent' and 'McIntosh'. At St. Grégoire, Iberville Co., 200 young trees of 'Quinte' were severely affected (R.D.). Damage was severe in a small orchard at St. Hilarion, Charlevoix Co., Que. (D.L.).

STORAGE ROT (Gloeosporium spp.). G. perennans caused a blossom-end rot, early in the storage season, on 'Newtown' at Summerland, B.C. Typical bull's-eye rot symptoms developed later but incidence was much lower than usual (L.E.L.). Losses from storage rots in Dec. 1964 were 10% at Coldbrook, N.S. Gloeosporium album was responsible far 40% of the rots and G. malicorticis for 20% (C.L.L.).

CORAL CANKER (Nectria cinnabarina) was responsible for moderate die-back of new growth of 'Rome Beauty' at Morristown and 'Gano' at Sheffield Mills, N.S. The organism appeared to infect through the previous season's fruit scars (R.G.R.).

EUROPEAN CANKER (Nectria galligena) was severe at Westbank and Penticton, B. C. At Westbank, 40 trees, mostly 'McIntosh', had to be removed from one orchard (L.E.L.). Damage was light in 7/67 orchards visited in N. B. (S.R.C.).

PERENNIAL CANKER (Neofabraea perennans). Extension of existing cankers was 2-4 times normal in the Okanagan Valley, B. C. in 1965 and development persisted much later into the summer. Many cankers were treated too soon and spores were pro-

duced under the protective paint. At Kelowna there was a very heavy canker development in young 7-year-old 'Golden Delicious' trees. All infections originated at pruning stubs (L.E.L.).

COLLAR ROT (Phytophthora cactorum) caused the death of trees in several orchards in the Okanagan Valley, B. C. In a planting of 318 4 to 7-year old trees at Summerland, 30% were infected and 66 trees, or 21% had to be removed. The rootstocks infected were either 'E. M. II' or M. M. 104' (D.L.McI.).

POWDERY MILDEW (Podosphaera leucotricha) was moderate in home plantings in the Vancouver, B.C. area (H.N.W.T.). It was present on the foliage of susceptible cultivars throughout the interior of B.C. but infections were much less in evidence than in the past several years. Its low intensity is attributed to the reduction in inoculum following low winter temperatures (D.L.McI.). Infections were light but were a nuisance in several orchards in Essex Co., Ont. (J.R.C.). A specimen was received from St. Catharines, Ont. where it was reported to be heavy on McIntosh. Cleistothecia were abundant on the specimen (D.W.C.).

SCAB (Venturia inaequalis) was present in several B.C. fruit growing districts but was adequately controlled where appropriate control measures were applied (D.L.McI.). It was reported from St. Paul and the Edmonton area (A.W.H.) and was moderate on the crabapple 'Royalty' in a nursery at Calgary, Alta. (F.R.H.). There were scattered sepal infections on 'Red Delicious' in several orchards in Essex Co., Ont. Grade-out was no more than 3% in the orchards (J.R.C.). Despite unfavorable conditions for scab infection in s.w. Que., the lack of or poor timing of sprays resulted in the disease being more widespread than in 1964. By the end of June, leaf scab, and to a lesser extent, fruit scab, appeared in every district. Applications of dodine gave good control and by the end of the season most orchards were "commercially clean". Some orchards, however, around Farnham had 5-80% scabby fruits. Isolated cases of pin point scab were observed (R.D.). Traces of infection were found in 17/61 orchards visited in N.B. (S.R.C.) and the disease was well controlled in N.S. (R.G.R.).

FLAT LIMB (virus). In one orchard in Essex Co., Ont., 60-70 5-year-old trees of 'Idared' in 2 rows showed flat limb symptoms. Six-year-old trees of the same variety were not affected (J.R.C.).

LEAF PUCKER (virus). Foliage symptoms in 'McIntosh' were severe in all affected orchards in the Okanagan and Similkameen valleys in B.C. Fruit symptoms were moderate to severe at Summerland and mild at Cawston. Full bloom of 'McIntosh' was on 14 May and the heat units for the period 15-20 May at Summerland totalled 345 compared to the 23-year average of 900. This is further evidence that cool weather at this season intensified the severity of symptoms (M.F.W.).

RING RUSSETING (virus). In most seasons the severity of fruit symptoms on 'Newtown' has been comparable in all parts of the Okanagan Valley, B.C. In 1965 symptoms were moderate to severe from Penticton south and very mild to mild north of Penticton. Full bloom at Summerland was on 18 May and it was 4-6 days earlier in the southern districts. Heat units were low from 15-20 May and high between 21 and 26 May. The lower heat units during full bloom in the southern areas could have brought on the more severe symptom expression there (M.F.W.).

STEM PITTING (virus). In an experimental planting of 'Virginia Crab' trees on commercial apple seedling stocks at Summerland, B. C., a high proportion of the trees indexing 'Malling IX' displayed severe pitting of wood tissue in the rootstock portions of the trees. Most of these displayed stem pitting symptoms in the 'Virginia Crab' position also, but some trees had wood pitting of the rootstocks only. Most affected trees suffered severe loss of vigor (M.F.W.).

RUBBERY GROWTH (?virus). Typical symptoms of rubbery growth were observed in one large limb of a 'Delicious' tree at East Kelowna, B. C. Symptoms have not previously been found in commercial apple cultivars in B. C. and this may be an indication that severe strains of the virus can affect 'Delicious' (M.F.W.),

BITTERPIT (physiological) caused 10-25% losses in a 70-acre planting of 'Spartan' and 'Delicious' in the Okanagan Valley, B. C. The orchard suffers annually from the disorder and losses in 1965 were heavy, particularly in stored fruit. The portion of the orchard higher up on the "bench" was not affected so severely. Calcium sprays are to be used in an attempt to reduce the incidence of the disorder (J. M.W.).

BORON DEFICIENCY. In specimens received from Two Mountains Co., Que., drought spot and internal cork were moderate on 'Melba', 'Fameuse' and 'McIntosh' and severe on 'Duchess' and 'Yellow Transparent' (R.C.).

FRUIT DEFORMITY (low-temperature injury). There were many abnormalities in apple fruits of the 1965 crop in the Okanagan Valley, B. C., most of which can be attributed to tree damage sustained during subzero weather in December, 1964 and heavy spring frosts in March. At Salmon Arm, many 'Delicious' fruits were severely deformed at the calyx end with fluting extending toward the stem end. Milder fruit deformities occurred on 'Delicious' in other northern districts. In most parts of the region 'Delicious', "Winesap', and occasionally other cultivars bore numerous tiny fruits with swollen stems. In districts from Summerland north, most cultivars bore many fruits that developed sunken, pigmented areas underlaid by necrotic flesh. This varied from symptoms indistinguishable from bitter pit to sunken rings encircling the fruits near the calyx ends. This symptom occurred on 'Spartan' in only one orchard,

at East Kelowna, and was confined to trees showing a barkcankering symptom suspected to have a virus etiology. In many orchards a large proportion of 'McIntosh' fruits were abnormally long, sometimes flattened on one side. In at least one orchard, at East Kelowna, this abnormal shape was accentuated on fruits from king blossoms (M.F.W.). Similar deformities were observed and described on a number of cultivars at Collingwood, Ont. They, too, were attributed to low-temperature effects. Fruit deformities were also reported from N. B. and N. S. (see Davidson, T. R. and W. R. Allen. Can. Plant Dis Surv. 46: 7. 1966.) (D.W.C.).

CALYX-END ROT (cause undetermined) was seen in 3/11 orchards examined at Prince William and Gagetown, N. B. (S.R.C.). A calyx-end rot caused by Sclerotinia sclerotiorum has been frequently reported from N. S. (D.W.C.).

INTERNAL BROWNING (low-temperature injury). Low temperatures in Oct. caused discoloration and early breakdown of 'Cortland' apples from Prince William and Gagetown, N.B. Some fruits showed discoloration while still on the trees and losses in storage were considerable (S.R.C.).

IRON DEFICIENCY was responsible for chlorosis in crabapple trees in Sask. The application of iron chelates usually results in improved vigor in this area (R.J.L.).

MAGNESIUM DEFICIENCY. Dry conditions in 1965 accentuated this condition in N.B. Leaf scorch, reduction in fruit size and fruit drop were observed in 11/17 orchards visited (S.R.C.).

WINTER INJURY. There was considerable killing of the more tender cultivars following subzero temperatures in December, 1964 in the Okanagan Valley, B.C. The 1965 crop was reduced by one million bushels. A number of breakdown conditions in storage were assessed as secondary results of winter injury (M.F.W.). Severe injury was seen in a young orchard of 'Delicious' at Burton, N.B. Internal wood had turned brown and there was considerable die-back of twigs and leaders. Bark splitting was seen in an orchard at Prince William (S.R.C.).

SCALY BARK (cause undetermined) caused some damage on 'Red Delicious' in 3 orchards in Essex Co., Ont. Many trees that showed symptoms in 1964 appeared to be recovering in 1965 (S.R.C.).

PEAR

FIRE BLIGHT (Erwinia amylovora) reached moderate levels in districts of the Okanagan Valley, B.C. where it had occurred in 1964 but other districts were relatively free of the disease (M.F.W.). Specimens, with reports of heavy infection, were received from Peace River, Alta. (A.W.H.). Only scattered trees of 'Bartlett' were infected in a number of orchards in Essex Co., Ont. Incidence was much lower than in 1963 and 1964 (J.R.C.).

BULL'S-EYE ROT (Gloeosporium perennans) was severe on fruits from controlled atmosphere storage tests at Summerland. It was not encountered in pears held in common storage in the area (L.E.L.).

TRELLIS RUST (Gymnosporangium fuscum). The infestation at Chilliwack, B.C., the only one known on the mainland of Canada, appears to have been eradicated. On the other hand, the amount of infection in the Oak Bay district of Vancouver Island was nearly double that of 1964. It was also observed in the adjacent areas of Victoria, Esquimalt and Ten Mile Point (W.R.F.).

BLOSSOM AND TWIG BLIGHT (Monilinia laxa) was severe on 2/65 trees on the Experimental Farm, Saanichton, B. C. The pathogen was readily isolated from blossom peduncles, leafpetioles and fruit spurs (R.G.A.).

SCAB (Venturia pirina). Specimens bearing moderate infections were received from 2 Vancouver, B. C. gardens (H.N.W.T.). Infections were trace at Keswick, N. B. (S.R.C.).

FRECKLE PIT (virus). Moderate symptoms were observed on 'Anjou' pears in the Okanagan Valley, B. C. (J.M.W.).

STONY PIT (virus). Mild symptoms were observed on scattered trees of 'Anjou' and 'Bosc' throughout the Okanagan Valley, B.C. Fruit from infected trees is mostly unmarketable. Severity of symptoms varies from year to year in individual trees (J.M.W.).

ANJOU PIT (cause unknown) caused moderate damage where present in the Okanagan Valley, B. C. Because of the light crop many growers reduced the amount of irrigation water. This resulted in periodic dry periods in these orchards, a condition that seemed to be correlated with the incidence of Anjou pit. It also seemed to be favored by the larger fruits produced in 1965 (J.M.W.).

CHEMICAL INJURY (2,4-D or MCPA) was seen on 'Clapp's Favorite' at Blomidon, N.S. The sprayer had been used for weed control in grain and later in the orchard. Leaf petioles were twisted and new growth was stunted. The crop of 10 trees was lost (R.G.R.).

B. Stone Fruits

CHERRY

CROWN GALL (Agrobacterium tumefaciens). Large galls were found on old sweet cherry trees at various locations throughout the St. Catharines district, Ont. They did not appear to cause much damage as the trees were all 30-50 years old (T.R.D.).

BLACK KNOT (Apiosporina morbosa) was common on wild and cultivated cherry trees in Que. (D.L.). Twenty-four 'Montmorency' trees were infected in a nursery at Ste. Foy, Que. (J.R.).

LEAF SPOT (Higginsia hiemalis). A 10% infection was noted at Moncton, N. B. (S.R.C.).

POWDERY MILDEW (Podosphaera clandestina) was observed on terminal leaves of most of the new growth of a sour cherry tree at Summerland, B.C. It was probably general throughout the Okanagan Valley (G.E.W.).

BACTERIAL CANKER (Pseudomonas mors-prunorum). Slight infections were found on sweet cherry in an orchard at Kentville and in one at Avonport, N.S. The identity of the pathogen was confirmed by workers in Great Britain (C.O.G.). This is the first authentic record of the presence of P. mors-prunorum in North America (see Gourley, C.O. Can. Plant Dis. Surv. 45: 101-102. 1965.) (D.W.C.).

SHOT HOLE (Pseudomonas syringae) was found in trace amounts on sour cherry at Kentville, N. S. (C.O.G.).

CORYNEUM BLIGHT (Stigmina carpophila) affected a small percentage of sweet cherry fruits at Creston, B. C. (D.L.McI.).

LITTLE CHERRY (virus). Symptoms on all sweet cherry cultivars were severe in the Kootenay Valleys, B.C. Four seedlings showing some resistance have been selected from a breeding program for propagation and limited distribution (J.M.W.).

NECROTIC RING SPOT (virus) continues to spread very rapidly in the Niagara Peninsula, Ont. in sour cherry orchards that are over 4 years of age and that have 5-10% of the trees infected. The distance between newplantings and older diseased trees is all-important in the initial stage. Three sour cherry orchards have been studied in detail since they were planted in 1953. One of these, with old diseased trees along one side had 8% of the new trees infected by 1956 and, after 6 years of rapid virus spread, was 9570 infected by 1962. This orchard had passed the initial stage of virus build-up by the time it was 3 years old. The other two orchards with isolation of 75 yards from older diseased trees did not reach this crucial stage until 1961, at 8 years of age. By 1965 infection in the two orchards was 85 and 6870 with 37 and 33%, respectively, of the spread recorded in 1965 (T.R.D.).

YELLOWS (virus). Leaf drop caused by sour cherry yellows was less severe in the Niagara Peninsula, Ont. in 1965 than normal because of the cool, late spring. The peak drop occurred between 25-30 June, a week later than normal. In some orchards yellowed leaves were still seen as late as 22 July (T.R.D.).

WINTER INJURY was responsible for considerable injury to or killing of cherry trees in the Okanagan Valley, B.C. (M.F.W.). Many sweet cherry trees planted in 1963 and 1964 in the Niagara Peninsula, Ont. were severely damaged or killed by low temperatures during the winter of 1963-1964. The effects, gradual wilting and death of the trees, were not manifest until mid-July. In some cases, sunken areas under the bark were observed. These "cankers" often exuded gum through cracks in the bark. Roots were not affected. The greatest amount of injury occurred on the sunny side of the trunk and main branches and, as a rule, relatively few trees were affected in any given orchard. In one orchard of over 200 trees, however, the condition was accentuated by excessive fertilization and over one-third of the trees were dead and others were injured. The crop for at least 7 years prior to the planting of cherries was heavily fertilized. There is a danger that further extensive injury will occur in this orchard before the effects of heavy fertilization can be overcome (T.R.D.).

PEACH

CROWN GALL (Agrobacterium tumefaciens). Large galls were occasionally seen on old peach trees in the St. Catharines, Ont. district (T.R.D.).

BROWN ROT (Monilinia fructicola) was severe in a home garden in the Vancouver, B.C. area. Fruit loss was 90% but no protective sprays had been applied (H.N.W.T.).

LEAF CURL (Taphrina deformans). Frequent inquiries about this disease were received from home gardeners in the Vancouver, B.C. area (H.N.W.T.). Its incidence, induced by brief but heavy rains in April, was high in the Okanagan Valley, B.C. (M.F.W.). Trace infections were present on an unsprayed tree in a garden at Kentville, N. S. (K.A.H.).

WILT (Verticillium dahliae) was observed in a number of orchards in s.w. Ont. Incidence was 30% in a 3-acre block of 5-year-old 'Kelhaven'; it was 8% in a 4-year-old orchard of 'Elberta' and ranged from 1-19% in 4 varieties in a 4-year-old planting at Kingsville (C.D.McK.).

BACTERIAL SPOT (Xanthomonas pruni) caused slight damage on 'Kelhaven' in Essex Co., Ont. (J.R.C.) and trace infections were seen on peach foliage at Kentville, N. S. (C.O.G.).

WINTER INJURY caused a heavy loss of trees in the Okanagan Valley, B.C. There was no commercial crop in 1965 (M.F.W.). Trees were severely affected in Kings and Annapolis Counties, N.S. during the winter of 1964-65. Fruit buds were completely killed in all parts of Annapolis County and trees were 3 weeks later than normal in leafing out in most areas (C.O.G.).

PLUM

CROWN GALL (Agrobacterium tumefaciens). A number of old trees, 50-55 years old, at Queenston, Ont. had numerous galls on the lower trunk and upwards to 5 feet above the ground. Some galls were old and others obviously still growing (T.R.D.),

BLACK KNOT (Apiosporina morbosa) was present on many farms in the lower Fraser Valley, B.C. Little pruning is done and spraying for control is not practiced (H.N.W.T.). A specimen was received from St. Romuald, Que. (D.L.). It is very common and troublesome on home garden trees in N.B. Many

native Prunus trees are severely infected (S.R.C.). Black knot was general throughout N. S. on uncared for trees. Wild Prunus carried heavy infections in most areas (C.O.G.). Infection was slight on 'Mount Royal' plum at Charlottetown, P.E.I. Dry weather in both 1964 and 1965 kept levels of infection in the province low (G.W.A.). It was also light at Freetown, P.E.I. (J.E.C.).

BROWN ROT (Monilinia fructicola). Infection was heavy in a home garden at Vancouver, B.C. (H.N.W.T.).

POWDERY MILDEW (Podosphaera clandestina). A specimen was received from Giffard, Que. (D.L.).

PLUM POCKETS (Taphrina communis). Specimens showing a slight infection were received from Moose Jaw, Sask. (R.J.L.). The disease was very prevalent in the Interlake region of Man. (W.C.McD.). Specimens were received from Chicoutimi, Que. (D.L.) and all fruits of a Japaneseplum tree at Bangs Falls, Queens Co., N.S. were affected (A.A.MacN.).

SHOT HOLE (Xanthomonas pruni). Trace infections were seen on plum foliage at Kentville, N.S. (C.O.G.)

C. Ribes Fruits

CURRANT

BLISTER RUST (Cronartium ribicola) was found on red and black currants in 8 nurseries in Que. Seventy-four infected plants were destroyed (J.R.). Infectionwas heavy oncurrants at Brown's Flats, N.B. (S.R.C.) and black currants at Port Blandford in the Bonavista Bay district of Nfld. were 100% infected (O.A.O.).

CLUSTER CUP RUST (Puccinia caricina) was recorded on black currants in a home garden at Gimli, Man. (W.C.McD.).

POWDERY MILDEW (Sphaerotheca mors-uvae). Specimens of black currant bearing cleistothecia were received from Penticton and it was observed on the same host at Summerland, B.C. (G.E.W.). Infected specimens of currants were received from Calgary, Flatbush, Ponoka, Castor and Red Deer, Alta. Those from the last two localities were 100% infected (A.W.H.).

D. Rubus Fruits

BLACKBERRY

CANE AND LEAF RUST (Kuehneola uredinis). Slight infections were seen on the cut-leaf trailing blackberry, Rubus laciniatus, at Royal Oak, B.C. (W.R.O.).

RASPBERRY

GRAY MOLD (Botrytis cinerea) was seen on raspberries at Bon Accord, Alta. (A.W.H.). Gray mold wilt caused damage in plantings at St. Raphael, Bellechasse Co. and at St. Antoine de Tillyand Fortierville, Lotbiniere Co., Que. (D.L.).

SPUR BLIGHT (Didymella applanata). Specimens were received from Lac la Biche, Rolling Hills, Winterburn, Ponoka, Ellerslie and Wetaskiwin, Alta. At Wetaskiwin one-half of the planting was affected (A.W.H.). Infection was rated 40% in 1/8 plantings examined at Perth, N. B. (S.R.C.).

ANTHRACNOSE (Elsinoë veneta) caused slight damage in a garden at St. Pie, Bagot Co., Que. (R.C.) and was troublesome in home garden plantings in N.B. (S.R.C.).

YELLOW RUST (Phragmidium rubi-idaei). A specimen was received from Lotbiniere, Que. (D.L.).

BACTERIAL TIP BLIGHT (?Pseudomonas syringae) occurred as a minor disease in 4 plantings at Peardonville, nr. Abbotsford, B.C. The tips and some young lateral growth were attacked and the symptoms resembled those caused by Ps. syringae on lilac. A similar condition was seen in the area in 1964 (H.S.P.).

POWDERY MILDEW (Sphaerotheca macularis) was observed at Crossfield, Alta. (A.W.H.) and was severe at Deschambault, Que. in Sept. (D.L.).

LEAF CURL (virus) affected 50% of a planting at Lac la Biche, Alta. (A.W.H.) and 8% of a plantingat Sussex, N.B. (S.R.C.).

MOSAIC (virus) was reported from Byemoor, Alta. (A.W.H.) and infections ranged from tr. -40% in 7/8 plantings examined in N. B. (S.R.C.).

WINTER INJURY. Some damage to raspberries was caused by unusuallylow temperatures at the B.C. coast in December, 1964 (H.N.W.T.). Damage was heavy in all districts of N. B. (S.R.C.).

E. Other Fruits

BLUEBERRY

CROWN GALL AND CANE GALL (Agrobacterium tumefaciens, A. rubi). There was a sudden increase in the incidence of both diseases in B. C. following extreme low temperatures in December, 1964 (W.R.F.). Crown gall was severe in a large planting at Pitt Meadows, B. C. where the grower had neglected to prune out previously diseased canes. Nearly 30% of all canes had to be removed (H.S.P.).

RED LEAF (Exobasidium vaccinii). About 1% of the plants were infected in a lowbush field at Berwick, N.S. (C.L.L.). Heavy infections, damaging about 4% of the plants, occurred at the Blueberry Substation, Avondale, Nfld. Disease incidence was considerably greater than in 1964 (O.A. O.).

CANKER (Godronia cassandrae Pk. f. vaccinii Groves) (See Groves, J.W. Can. J. Bot. 43: 1195-1276. 1965). Canker was present in most highbush blueberry plantings in peat soils in the lower Fraser Valley, B.C. Fewer infected canes died than in 1964, probably reflecting a greater availability of moisture (H.N.W.T.). The amount of infection observed at Kentville, N. S. was as follows: on 'Johnson', 14%; 'Berkeley', 10%; 'Bluecrop', 3. 3%; 'Burlington', 10% and 'Coville', 1.6% (C.L.L.).

POWDERY MILDEW (Microsphaera penicillata var. vaccinii). Infection was rated at 5% in lowbush blueberries at Coldbrook, N. S. (C.L.L.).

BLOSSOM BLIGHT (Monilinia vaccinii-corymbosi) affected about 15% of the blossom trusses and the leaves thereon in a 3-acre planting of highbush blueberries at Pitt Meadows, B. C. (H.N.W.T.).

WITCHES' BROOM (Pucciniastrum goeppertianum). Infection was light on native blueberries at Avondale, Nfld. (O.A.O.).

FASCIATION (?genetic). One twisted highbush blueberry cane with typical striated, straplike appearance at its base was seen at Vancouver, B.C. Other bushes in the same planting were said to be normal (H.N.W.T.).

FROST DAMAGE. A mid-June frost damaged fruits of a certain size on early-maturing highbush cultivars at Pitt Meadows, B. C. By 7 July sectors of less than 180° of nearly ripe fruits were withered and had a tendency to drop when touched. Loss of fruit was about 10% (H.N.W.T.).

GRAPE

CROWN GALL (Agrobacterium tumefaciens) was locally severe in several vineyards in the Okanagan Valley, B.C. Infections of up to 35% were seen. Circumstantial evidence indicated that the preceding severe winter was responsible for the sudden increase in the number of affected vines and the amount of damage (A.J.H.). Two vines in an experimental planting at Gaspereaux, Kings Co., N. S. were killed by crown gall (C.O.G.).

ANTHRACNOSE (Elsinoë ampelina). Trace infections were seen at Gaspereaux, Kings Co., N. S. (C.O.G.).

STEM AND ROOT GIRDLING (Roesleria ?——gaea Thüm & Pass.) was found in 3 vineyards in the Niagara Peninsula, Ont. Affected vines showed a gradual decline in vigor and a sudden collapse and death as a result of girdling of the underground stem or death of the larger roots. It was confined to spots in wet, heavy soils and there was evidence of spreading. A species of Roesleria was found fruiting on all dead stems and roots. Its pathogenicity is as yet untested (H.F.D.).

DAGGER NEMATODES (Xiphinema spp.). X. americanum Cobb was found in all soil samples examined from vineyards in the Niagara Peninsula, Ont. but X. index Thorne & Allen, the vector of soil-borne grape viruses, was not found (H.F.D.).

FANLEAF (virus). Growth from roots of winter-injured grapevines in the Okanagan Valley, B.C. showed unusually distinct symptoms of fanleaf and other viruses (M.F.W.). In the Niagara Peninsula, Ont., fanleaf-like symptoms were observed in some vines of 'Agawam', 'Delaware', 'Elvira', 'Pinot Chardonnay', 'Seibel 10878' and 'Seibel 14660'. Characteristic symptoms were also seen in some plants of the imported rootstock, Vitis riparia x rupestris '3309'. Fanleaf virus was recovered from 2/62 vines of '3309' but not from the other cultivars tested (H.F.C.).

OTHER VIRUS DISEASES. Leafroll symptoms were frequently observed in 'Veeport' in the Niagara Peninsula, Ont. but the extent of involvement of the leafroll virus is not yet known. No symptoms of Pierce's disease, yellow mosaic, yellow vein or corky bark were seen in the vineyards surveyed (H.F.D.).

WINTER INJURY. Many mature vines were killed *to* ground level in the Okanagan Valley, B.C. but, as most plantings were self-rooted, they regenerated. 1965 crops, however, were eliminated or greatly reduced (M.F.W.).

STRAWBERRY

GRAY MOLD (Botrytis cinerea) was found in 31/42 plantings examined in N. B. but in only 2 was it severe. Dry weather kept infections in check (S.R.C.). It was extremely rare in Kings Co., N.S. in 1965 and infection never exceeded 1% (C.O.G.).

LEAF SCORCH (Diplocarpon earliana). Infections ranged from 5-20% in plots at L'Assomption, Que. (R.C.). Traces were found in 3/30 fields examined at Gagetown, N.B. (S.R.C.) and no infections were seen in Kings Co., N. S. (C.O.G.).

LEAF BLOTCH (Gnomonia fructicola). Trace infections were seen on 'Redcoat' at Kentville, N. S. (C.O.G.).

LEAF SPOT (Mycosphaerella fragariae), Extensive infections occurred at Viking, Alta. (A.W.H.). Infection was general throughout N.B. and was severe on 'Cavalier'. Little infection was seen in May and June (S.R.C.). Dry weather in N. S. kept infection at a very low level (C.O.G.).

RED STELE (Phytophthora fragariae). Infections in B. C. plantings that survived the low winter temperatures were not significant (H.N.W.T.). Severe infections in spacing trials at Kentville, N.S. destroyed 40% of the plants of 'Redcoat' (C.L.L.).

POWDERY MILDEW (Sphaerotheca macularis). Specimens showing light infections were received from Pincher Creek, Alta. (P.E.B.). Powdery mildew was general in 4 nurseries surveyed in Kings Co., N. S. and in 2 nurseries 'Cavalier', 'Surecrop' and 'Grenadier' were severely infected (C. L. L., A. A. MacN.). It caused considerable damage to 'Senator Dunlop' at Mount Stewart, P.E.I. (G.W.A.).

WILT (Verticillium dahliae) caused minor damage in a planting at Gagetown, N.B. (S.R.C.). It was found in only 3 areas of Kings and Lunenburg Counties, N. S. Based on the season's observations 'Catskill' and 'Senga Srngana' were resistant to wilt; 'Sparkle', 'Talisman', 'Red Gauntlet', 'Surecrop' and 'Cavalier' were intermediate and 'Guardsman', 'Redcoat', 'Acadia' and 'Ozark Beauty' were susceptible (A.A.MacN., C.O.G.).

CRINKLE (virus). Trace infections were seen in 'Sparkle' at Cambridge, N.S. (C.L.L.).

GREEN PETAL (virus). A field at Ste. Louise, L'Islet Co., Que. had 15% of the plants infected. Damage was slight to moderate. Infection was severe in a 1-acre field in Bellechasse Co. (H.G.). Infections ranging from trace-50% were seen in 7/40 fields examined in N.B. (S.R.C.), A survey in N. S. of 8 commercial fields involving 24 acres revealed the presence of green petal as follows: 10% infection in 17 acres of 'Sparkle', 18.9% infection in 2.5 acres of 'Surecrop', 8% infection in 1.5 acres of 'Guardsman', 1% infection in 0.2 acres of 'Catskill' and no infection in 3.5 acres of 'Cavalier' (C.L.L., A.A.MacN.). Infections were general in 'Sparkle', 'Acadia', 'Catskill', 'Redcoat' and 'Senator Dunlop' throughout P.E.I. The heaviest infections were in 'Sparkle' (C.B.W.).

LEAF ROLL (virus). Infection averaged 0.6% in 17 acres of 'Sparkle' examined in N.S. in June. None was found in 7 acres of 4 other cultivars. In Oct. trace infections were seen in a 5-acre field of 'Sparkle' and 1% infection in a 2-acre field of 'Cavalier' in Kings Co. (C.L.L., A.A.MacN.).

WITCHES' BROOM (virus). Trace amounts were seen in 'Sparkle' at Morristown, N.S. (C.L.L., H.S.).

CHEMICAL INJURY. A slight yellow mottling of leaf margins at Digby Neck, N. S. was attributed to injury from the herbicide, simazine (A.A.MacN.).

POTASSIUM DEFICIENCY was responsible for a marginal necrosis on outer leaves in a field at Morristown, N.S. (A.A.MacN.).

WINTER INJURY. Extremely low temperatures in mid-December, 1964 caused heavy losses of plants at the B. C. coast and in the lower Fraser Valley, It was necessary to replant large acreages (H.N.W.T.). The absence of snowcover in Que. during the winter of 1964-65 resulted in the loss of nearly 2 million certified plants out of a total of $5\frac{1}{2}$ million produced in the provincial certification program. Fruit production in 1965 was reduced by 35-40% (J.R.).

STORAGE MOLD (various organisms) caused plant losses averaging 1.8% in 840,000 plants in 4 cold storages in N.S. In one storage, where temperatures fluctuated widely, the loss was 25% of 43,000 plants (C.L.L., A.A.MacN.). Breakdown was severe in one storage at Fredericton, N.B. (S.R.C.).