SMUT CONTAMINATION. A sample of timothy seed from the Plant Products Seed Laboratory at Saskatoon, Sask. was found to be contaminated with spores of Ustilago reticulata, probably from Polygonum scabrum according to D.B.O.Savile (B.J.S.).

POA - Bluegrass

STEM RUST (Puccinia graminis) was extremely heavy in a lawn of pure Merion blue grass at Ottawa, Ont. (A.E.S.).

LAWNS AND TURF

SNOW MOLD (low-temperature basidiomycete) was fairly extensive at Drumheller (A.W.H., U.S.) and was rated 2-tr. 6-sl. 2-mod. 14-sev. in the Red Deer and Edmonton areas, Alta.. (J.B.L.).

MELTING-OUT (Bipolaris sorokiniana) occurred at Vulcan, Alta. (A.W.H., D.S.).

ANTHRACNOSE (Colletotrichum graminicola) caused fairly extensive damage in one lawn at Edmonton, Alta.. (A.W.H., D.S.).

LEAF SPOT (Drechslera poae (Baudys) Shoem. = D. vagans (Drechs.) Shoem.) was sev. in a lawn at Lethbridge, Alta. (J.B.L.).

POWDERY MILDEW (Erysiphe graminis) was fairly extensive at Mannville, Alta. and was also conspicuous in lawns at Edmonton (A.W.H., D.S.).

FAIRY RING (Marasmius oreades) was sev. in 7 lawns at Lethbridge, Alta. (J.B.L.) and was common but not damaging in lawns at Saskatoon, Sask. (B.J.S.).

SLIME MOLD (Physarum cinereum). Specimens were received from a lawn at Nicholsville, Kings Co., N.S. (R.G.R.).

DISEASES OF VEGETABLE CROPS

ASPARAGUS

DIE-BACK (Fusarium sp.) was sev. in a large, old planting nr. Milton, Ont. that has shown a decline for several years. The disease was patchy in the field with 5-10% of the plants showing symptoms. Fusarium sp. was isolated from the crowns of several affected plants (J.F.B.).

BEAN

GRAY MOLD (Botrytis cinerea). Infection on pole beans in the Lower Fraser Valley was generally light, about 3-5% kill. Two extremely wet fields, however, were reported to have suffered 50% damage (H.N.W.T.). All 7 fields visited in the Florenceville, N.B. area were affected with the average damage estimated at 4% (S.R.C.). Mod. infections were common in home gardens in P.E.I. (J.E.C.).

ANTHRACNOSE (Colletotrichum lindemuthianum). A large field of green beans nr. Woodbridge, Ont. was 90% infected and loss was sev. Earlier plantings were free nf the disease (J.F.B.). It was tr.-sl. in e. Ont. (R.V.C.). It was tr. in 7/7 fields observed at Florencevible, N.B. (S.R.C.). Fields of 'Jacob's Cattle' beans at Morristown and Grafton, N.S. had 75-100% infection with consequent sev. losses. Tops were dead by mid.-July (K.A.H.). It was widespread in home gardens in P.E.I. (J.E.C.).

HALO BLIGHT (Pseudomonas phaseolicola) is not common in coastal B.C. It was found in 1964 in 1 field in the Matsqui region (H.N.W.T.). Infection was mod. in 1/4 fields of garden beans nr. Bow Island and sl. in 2/2 field bean plantings nr. Burdett, Alta. (F.R.H., J.S.H.). Some centers of slight infection were observed in 2 plantings of 'Michelite' field beans in the Ste. Martine region, Que. (E.L.). Infection was sev. on 50% of the plants in a field of 'Jacob's Cattle' beans also affected by anthracnose at Morristown, N.S. The field was ploughed under to protect an adjacent field of canning beans (K.A.H.).

STEM CANKER (Rhizoctonia solani) affected 2% of the plants of 'Golden Wax' in a home planting at Ottawa, Ont. (D.W.C.)

WILT (Sclerotinia sclerotiorum). Infection of mature pole beans in the Lower Fraser Valley, B.C. was generally light. However, one field at Queensborough on Lulu Island and one on Barnston Island had 100% and 95% kill respectively. Infection was greater on young plants before climbing (H.N.W.T.). It was seen on the variety 'Saginaw' in 1/27 field bean plantings surveyed in s.w. Ont. (M.D.S., V.R.W.). Wilt was tr. in 7/7 fields visited at Florenceville, N.B. (S.R.C.).

RUST (Uromyces phaseoli var. phaseoli) was mod.-sev. in pole bean fields in B.C. where the poles or posts had not been treated. Where they had been dipped in formaldehyde

infection was tr.-sl. late in the season (H.N.w.T.).

COMMON BLIGHT (Xanthomonas phaseoli). An infected specimen of snap beans was received from Woodlands, Man. (W.A.F.H.). It was found in 1 field of 'Sanilac' and 1 of 'Saginaw' out of 27 fields inspected in s.w. Ont. (M.D.s., v.R.w.). It was present in 2,700 acres of canning beans in the Florenceville, N.B. region but only in limited areas did it cause extreme damage. Some pods showed lesions but infection was late so that losses were minimized (S.R.C.).

FUSCOUS BLIGHT. (Xanthomonas phaseoli var. fuscans) was observed in only 1/27 fields surveyed. in s.w. Ont. (M.D.S., V.R.W.).

MOSAIC (bean mosaic virus) affected a few plants of 'Golden Wax' in a home garden at Ottawa, Ont. (D.W.C.).

YELLOW MOSAIC (bean yellow mosaic virus). Ten per cent of the plants of a green-podded variety were affected in a home planting at Ottawa, Ont. (D.W.C.)

CHEMICAL INJURY (residual herbicide effect). Bush beans, planted on the site of corn herbicide plots (Tordon) at Ladner, B.C., were severely affected. Some seedlings had emerged by 22 July but did not grow beyond the cotyledon stage. On these few plants the taproots bore many flattened, sac-like, deformed laterals just below the soil surface. Plants immediately adjacent to the 1963 Tordon plots showed a severe downward cupping of the leaflets and some chlorosis (H.N.w.T.).

CHEMICAL INJURY (herbicide drift). Damage from 2,4-D drift was mod.-sev. in some home gardens at Ottawa, Ont. (D.W.C.). Drift from an aerial application of 2,4-5-T completely arrested growth in 11 fields and caused an estimated 80% damage at Oromocto, N.B. (S.R.C.).

DROWNING. Many inadequately-drained bean fields in s.w. Ont. suffered from retarded growth, deterioration of leaf tissues and defoliation (R.N.W.).

FROST INJURY was sev. on several acres of early-planted beans at Ste. Clotilde, Que. (R.C.).

SUNSCALD was general in all 27 fields surveyed in s.w. Ont. in 1964 (M.D.S., V.R.W.). Hot, sunny weather following dull conditions caused damage to young foliage in a market garden at York, P.E.I. (J.E.C.).

BEET

SUGAR BEET NEMATODE (Heterodera schachtii) caused a 40% loss in a 4-acre field of table beets at Woodbridge, Ont. The normal yield is 2250 bunches per acre. Second stage larvae of the nematode were recovered at the rate of 4100 per pound of soil (J.L.T.). This represents the first report of H. schachtii on table beets in Canada (D.W. Creelman).

SCAB (Streptomyces scabies) was sl.-mod. in a 15-acre field at Sherrington, Que. (R.C.).

BORON DEFICIENCY caused 20% loss in a planting at Oromocto, N.B. (S.R.C.).

BROAD BEAN

WILT (Fusarium oxysporum f. fabae) was observed at Ste. Foy and specimens were received from L'Ascension and Levis, Que. (D.L.).

BROCCOLI

CLUB ROOT (Plasmodiophora brassicae). About 80% of the transplants in a field at Florenceville, N.B. were affected. Little death of plants occurred but yield was reduced (S.R.C.).

BORON DEFICIENCY caused 10% loss in a field at Florenceville, N.B. (S.R.C.).

BRUSSELS SPROUTS

CLUB ROOT (Plasmodiophora brassicae) was observed in 7/8 fields in the Rogersville area, N.B. Five per cent of the plants died in the fields and yields were reduced (S.R.C.).

CHEMICAL INJURY (2,4-D). About half of a 6-acre field at Mt. Buchanan, P.E.I. was severely damaged when an improperly washed sprayer was used. Loss of plants in the affected portion of the field was 50% (J.E.c.).

WHIPTAIL (molybdenum deficiency) was general in 8 fields at Rogersville, N.B. Yield reductions were experienced (S.R.C.).

INTERNAL BREAKDOWN (physiological) caused serious losses in commercial plantings of brussels sprouts in the Fraser Valley, B.C. (A.R.M.).

CABBAGE

NEMATODES (Heterodera schachtii) affected cabbage at Burlington, Ont. The sugar beet nematode has been spread in an area immediately n. of Hamilton to Toronto as a result of growing rhubarb which is also a host. Second stage larvae were recovered at the rate of 234 per lb. of soil (J.L.T.).

CLUB ROOT (Plasmodiophora brassicae). A specimen was received from Ste. Rose,

Dorchester Co., Que. (D.L.). A field at Oromocto, N.B. suffered about 40% damage (S.R.C.). Reports from Bonavista to Ferryland indicate that club root caused considerable losses in e. Nfld. in 1964. The growing season was cool and very wet (O.A.O.).

BLACK ROT (Xanthomonas campestris). Infection was 20% in a canning crop nr. Chatham, Ont. The transplants were imported from Georgia, U.S.A. and the disease was probably introduced with them (C.D.McK). Two fields at Ridgetown, Gnt. suffered 20 and 40% losses, respectively. The plants, like those above, were from the U.S.A. (H.C.P.).

BORON DEFICIENCY caused a trace of damage in 5/7 fields visited at Oromocto, N.B. (S.R.C.).

CARROT

LEAF BLIGHT (Alternaria dauci). Infection was general over 10 acres at St. Sulpice, Que. Little damage was evident at the time of the observation in July but severe damage could be expected by the end of the season (E.L.). Infection was light at Ste. Clotilde, Que. in 1964 (R.C.) and was about 50% in a 10-acre field at Berwick, N.S. in early Aug. (C.O.G.)

STORAGE-ROTS (Botrytis cinerea, Erwinia carotovora, Sclerotinia sclerotiorum) caused about 7% loss in the crop of about 90 acres at Oromocto, N.B. Continuous cropping to carrots by the grower seems responsible (S.R.C.).

LEAF BLIGHT (Cercospora carotae) was very light in intensity and caused no visible damage at Ste. Clotilde, Que (R.C.).

BLACK MOLD (Chalaropsis thielavioides) occurred on washed roots in a Marketing Board warehouse in the Lower Fraser Valley, B.C. It was reported on carrots from the same warehouse in 1961 (H.M.w.T.).

?CRATER ROT (?Rhizoctonia carotae). A field of about 5 acres at St. Hyacinthe, Que. was 100% infected in Sept. with a dense white mold at the bases of the leaf stalks. According to the growers this disease causes a serious problem in storage (E.L.).

SCLEROTINIA ROT (S. sclerotiorum). Specimens were received from Colinton, Edmonton, Fort Saskatchewan and Nanton, Alta. (A.W.H., D.S.).

BLACK ROT (Stemphylium radicinum). Infection was tr. in stored carrots at Grand Pre, N.S. (C.O.G.).

ASTER YELLOWS (aster yellows virus). A high incidence was reported in a field at Rosemary, Alta. (A.W.H., D.S.). There was a 14% infection in plots at the Research Laboratory, St. Catharines, Ont. but the disease was of minor importance in the district (T.R.D.). Incidence was extremely low at St. Clotilde (R.C.) and was mod. at Ste. Foy, Que. (D.L.). It was widespread in N.B. All fields visited in the Oromocto and Gagetown districts showed infections ranging from 7-40% (S.R.C.). Losses in some districts of P.E.I. were slightly greater than in 1963 and ranged, in untreated fields, from 20-46% (L.S.T.).

CHEMICAL INJURY. Drift from an aerial application of 2-4-5-T caused sev. stunting of late-planted carrots at Oromocto, N.B. Some 20% of the roots also developed wart-like growths. Early-planted crops were not affected (S.R.C.).

WIND DAMAGE. Strong, dry winds caused sl.-mod. damage in 20 acres of carrots at Sherrington, Que. (R.C.).

CAULIFLOWER

BLACK ROT (Xanthomonas campestris) became a serious problem in a few crops on the muck soil of the Bradford and Holland Marshes, Ont. and on the surrounding high land in Sept. and Oct. (C.C.F.).

BORON DEFICIENCY caused about 3% losses in 9/11 fields examined at Oromocto, N.B. It resulted in a breakdown of heads permitting soft rot organisms to invade (S.R.C.).

WHIPTAIL (molybdenum deficiency) affected 90% of the plants in a field at Oromocto, N.B. (S.R.C.).

CELERY

SOFT ROT (Erwinia carotovora) caused fairly extensive damage at Brooks, Alta. (A.w.H., D.s.).

BACTERIAL BLIGHT (Pseudomonas apii) occurred as a slight infection on most plants of the variety 'Utah 1611' in a field nr. Sherrington, Que. (R.C.).

ASTER YELLOWS (aster yellows virus). Infection was tr. in a large commercial field nr. St. Catharines, Ont. (T.R.D.). Its incidence was extremely low at Ste. Clotilde, Que. (R.C.).

CUCUMBER

LEAF BLIGHT (Alternaria cucumerina) affected 75$ of the foliage in a greenhouse at Grand Pre (C.O.G.) and the variety 'Marketer' was 40% infected in a field at Habitant, N.S. (C.L.L.). 'Highmoor' was 100% infected in a late planting at York, P.E. I. (J.E.C.).

GRAY MOLD (Botrytis cinerea). Infection was mod. on stems and blossoms of 'Burpee Hybrid' in greenhouses in Essex Co., Ont. Most of the damage seen resulted from blossom infection. Dyrene seemed to be the best fungicide for control (J.R.R.).

SCAB (Cladosporium cucumerinum) was again reported on fruits of pickling cucumbers on Lulu Island, B.C. (H.N.W.T.). Infections in experimental plots at L'Assomption, Que. did not appear until 31 Aug. as compared with 19 Aug. in 1963. Only by 11-19 Sept. did the disease become general in all plots. However, there were some reasonably heavy infections in growers' fields by mid.-Aug. In a test of varieties for scab resistance at L'Assomption the following mean percentages of scab were recorded: 'Fletcher', 0.8; 'Windermoor', 5.4; 'Polaris', 14.4; 'Ashley', 22.5; 'Palomar', 25.2; 'Marketer', 28.8; 'Saticoy', 45.6 (E.L.). Scab was found in 18/24 fields examined in N.B. The average rate of infection was 40%. Cool Aug. weather was ideal for spread and many growers took serious losses. Resistant varieties stood up well (S.R.C.). Night temperatures above 58°F were the exception rather than the rule in the Annapolis Valley, N.S. in the summer of 1964 and scab was widespread and severe. Plants in several fields were severely affected before they began to fruit. Fungicidal sprays did not control the disease and the estimated average loss was 50% of the fruits (C.O.G.).

BACTERIAL WILT (Erwinia tracheiphila) was sev. in 1 field at Ste. Dorothée, Laval Co., Que. where the grower had failed to apply an insecticide for the control of striped cucumber beetle (E.L.).

POWDERY MILDEW (Erysiphe cichoracearum). Infection was mod. in both greenhouses and fields in Essex Co., Ont. Although not as serious as in some years it still presented a problem (J.R.R.). It was heavy in a home garden at Ottawa, Ont. (D.W.C.).

ANGULAR LEAF SPOT (Pseudomonas lachrymans). A specimen was received from Swift Current, Sask. (R.J.L.). Moderate infections occurred in all 10 fields of pickling cucumbers surveyed in the Winnipeg, Man. area by Prof. J.D.Campbell (W.A.F.H.). Specimens were received from Lotbiniere and Levis, Que. (D.L.). Infection averaged 60% in 22/24 fields surveyed in N.B. (S.R.C.).

SCLEROTINIA ROT (S. sclerotiorum) caused sev. damage to about 75% of the plants in a commercial greenhouse at Summerland, B.C. Affected plants were killed soon after they came into production (G.E.w.).

WILT (Verticillium albo-atrum) was present in most fields of both pickling and slicing cucumbers in the Annapolis Valley, N.S. Infection was generally estimated to be in the range of 2% although it reached 10% in a field at Habitant (C.O.G., C.L.L.).

MOSAIC (cucumber mosaic virus) was seen in 11/24 fields in the Oromocto district, N.B. Infection averaged 20% (S.R.C.).

DILL

BLIGHT (Phoma anethi) occurred on dill at Redvers, Sask. The identity of the organism was confirmed by Dr. D.B.O.Savile (R.D.T.). The only previous report, to the Survey, of the disease in Canada is from Streetsville, Ont (C.P.D.S. 23: 50. 1943) (D.W.Creelman).

EGGPLANT

BLIGHT (Phomopsis vexans) was sev., late in the season, in a 1-acre field at the Research Station, Harrow, Ont. (C.D.McK.).

WILT (Verticillium dahliae) occurred in most plantings in the Kelowna, Vernon and Kamloops districts of B.C. (G.E.W.). All plants were infected and yield reduction was estimated at 20% in a small planting nr. Hamilton, Ont. (J.F.B.). Infection was tr. at the Research Station, Kentville, N.S. (C.O.G.).

LETTUCE

GRAY MOLD (Botrytis cinerea) caused 10% loss in a field at Oromocto, N.B. (S.R.C.).

ROOT-KNOT NEMATODE (Meloidogyne sp.). One flat of lettuce transplanted in a garden at Kentville, N.S. was 100% infected and the plants were a complete loss. Evidence points to the presence of the nematodes surviving in the garden soil since the commercial grower from whom the flat was obtained had no infection in his fields (K.A.H.).

BOTTOM ROT (Rhizoctonia solani). Three/7 fields at Oromocto, N.B. were affected. The average damage was 5%. In one of the fields it caused a soft rot affecting 30% of the plants (S.R.C.).

DROP (Sclerotinia sclerotiorum) was tr. in a large field at Grand Pre, N.S. in June (K.A.H.).

ASTER YELLOWS (aster yellows virus). Incidence in an unsprayed experimental plot nr. Winnipeg, Man. was 65% (C.C.G.). It was tr. in a large commercial planting nr. St. Catharines, Ont. (T.R.D.) and in the Ste. Clotilde region, Que. (R.C.). Infections ranged from tr.-7% in 3/7 fields

visited at Oromocto, N.B. (S.R.C.). Aster yellows in head lettuce was not as sev. in P.E.I. as in 1963. Losses, however, in unsprayed fields ranged from 40-60% (L.S.T., G.w.A.).

ONION

NECK ROT (Botrytis allii) had begun to appear in Nov. on stored onions grown in the Okanagan Valley, B.C. (G.E.W.). There was a trace in onions at the Research Station, Kentville, N.S. (C.O.G.) and it caused about 20% loss in harvested onions from a home garden at Charlottetown, P.E.I. (J.E.C.).

LEAF BLIGHT (Botrytis cinerea) was widespread on the Thedford Marsh, Ont. following hail damage in late June. A thorough and tightly-scheduled spray program prevented major losses (L.F.M.). A light, general infection occurred in late Aug. and early Sept. at Kentville, N.S. Sclerotia were present on necks and outer scales of harvested onions (K.A.H.).

GRAY MOLD ROT (Botrytis cinerea) caused a 25% loss at Ste. Foy, Que. Infection began in the field but developed mainly between harvest and storage (D.L.).

SMUDGE (Colletotrichum circinans) affected 50-60% of the plants in low areas in a planting of several acres nr. St. Catharines, Ont. (J.F.B.).

STEM AND BULB NEMATODE (Ditylenchus dipsaci). There were isolated outbreaks on several farms on the Leamington Marsh, Ont., probably accentuated by above-normal rainfall. Infestation was sev. in spots. The nematode was identified by Dr. R.M. Sayre, Research Station, Harrow (J.R.C.).

BULB ROT (Fusarium oxysporum f. cepae) occurred in nearly all commercial onion fields in the Okanagan Valley, B.C. (G.E.W.). Incidence was light in the Thedford Marsh, Ont. (L.F.M.).

PINK ROOT (Fusarium solani) was general in onion fields in the Okanagan Valley, B.C. (G.E.w.).

DOWNY MILDEW (Peronospora destructor). Infection was generally sev. in varietal plots at Cloverdale, B.C. by mid.-Aug. (H.N.W.T.). It was general in the Kelowna, B.C. area following above-normal summer rains. Tops of unsprayed or poorly-sprayed plants were killed but proper spraying kept it in check in other fields. It developed too late in the season to significantly affect bulb size (G.E.W.).

PINK ROOT (Pyrenochaeta terrestris) was widely distributed in commercial onion fields in the Okanagan Valley, B.C. (G.E.W.).

WHITE ROT (Sclerotium cepivorum) was found on 17 farms in the Okanagan Valley, B.C. at Oliver, Kelowna and Vernon. With one exception, the disease occurred on fall-planted, Spanish type onions that had been imported in the spring from Walla Walla, Wash., U.S.A. where the disease has been causing trouble for several years. In the excepted field, the disease occurred in a portion of a field of spring-planted onions where fall-planted onion plants, also imported from Walla Walla, had been grown in 1963 (J.A.M., G.E.W.). This is the first report of white rot on onions from B.C. although it was reported on garlic from Steveson, B.C. in 1952 (C.P.D.S. Ann. Rep't. 31: 50). Isolated outbreaks on onion have been reported from Man. (C.P.D.S. Ann. Rep't. 39: 50. 1960) and Que. (C.P.D.S. 43: 90. 1963) (D.W.Creelman).

SMUT (Urocystis magica Pass. = U. cepulae Frost) appeared on the foliage of bunching onions in a market garden at West Point Grey, B.C. It has not been previously encountered in the coastal areas of the province (H.N.W.T.) It was widespread in nearly all fields in the Kelowna, B.C. area with rates of infection varying from sl.-sev. (G.E.W.). It was not well controlled by treatments at the recommended rates on some seeding dates on the Holland and Bradford Marshes, Ont. Weather conditions after seeding seemed to influence the amount of smut (C.C.F.).

PARSNIP

CROWN ROT (Cylindrocarpon radicicola). Isolations from a tan-colored crown infection on roots from Aylesford, N.S. yielded only C. radicicola (C.O.G.).

SCLEROTINIA ROT (S. sclerotiorum) was observed at Colinton, Alta. (A.W.H., D.S.).

BLACK ROT (Stemphylium radicinum) caused extensive crown infections on parsnips grown on a peat bog at Aylesford, N.S. (C.O.G.). Neither S. radicinum nor C. radicicola (see above) have previously been reported to the Survey as pathogens of parsnip. (D.W.Creelman).

STORAGE ROT (bacteria and yeasts) occurred on sample lots of parsnips stored in plastic bags at Brooks, Alta. (A.W.H., D.S.).

PEA

FOOT ROT (Ascochyta pinodella). Infections of 10-20% occurred at Edmonton and Westlock and of 50% at Ponoka and Strathmore, Alta. (A.w.H., D.S.).

GRAY MOLD (Botrytis cinerea). Practically all pea fields in Kings Co., N.S. deveioped a rotting of the lower foliage after 2 weeks of showery weather in July (K.A.H.).

POWDERY MILDEW (Erysiphe polygoni) was sev. at Ponoka, Alta. (A.W.H., D.S.). It was the most important pea disease in the Ottawa, Ont. area. All fields examined had sl.-mod. infections which intensified as the crop matured. The variety 'Arthur' seemed more susceptible than 'Century' or 'Chancellor' (V.R.W.). It was widespread in home gardens in N.B. (S.R.C.).

ROOT ROT (Fusarium oxysporum f. pisi) affected 15% of the plants in a small planting at Kentville, N.S. (K.A.H.).

MYCOSPHAERELLA BLIGHT (M. pinodes) affected a few plants of 'Arthur', 'Chancellor' and 'Century' in the Ottawa., Ont. district (V.R.W.). It caused complete destruction of a 20-acre field a.t Florenceville, N.B. (S.R.C.).

SEEDLING BLIGHT. (Pythium spp.) caused practically no damage from seedling blight in 8 fields of canning peas examined in s. Alta.. in early June. Cool weather and widespread use of captan as a seed protectant were probably the limiting factors (F.R.H.).

ROOT ROT (Pythium spp., Fusarium spp., Rhizoctonia spp.) was rated 4-tr. 1-sl. 3-mod./8 fields surveyed in s. Alta.. in early June. Cool weather during the remainder of the season checked further development and all 8 fields yielded well (F.R.H.). It caused 50% damage in a field at Fredericton, N.B. (S.R.C.).

RUST (Uromyces fabae). Infection was sl. on a few plants of 'Arthur' in 1 field in the Ottawa, Ont. district (V.R.W.).

ENATION MOSAIC (pea. enation mosaic virus) was seen on a few plants of 'Chancellor' and 'Century' in the Ottawa, Ont. district (V.R.M.).

MOSAIC (pea mosaic virus) was observed on 2 plants of 'Arthur' in experimental plots at Ottawa, Ont. (V.R.W.).

STREAK (virus) was tr. in a field of 'Arthur' in the Ottawa, Ont. district (V.R.W.).

PEPPER

STEM CANKER (Botrytis cinerea) affected a few plants at Sheffield Mills, N.S. (C.O.G.).

WILT (Verticillium dahliae) affected at least a few plants in most commercial pepper fields at Kelowna and Vernon, B.C. All varieties were affected (G.E.W.). Five/9 fields surveyed in Carleton, Peel, Norfolk and Essex Counties, Ont. were infected. Estimated rates of infection ranged from 3% in Essex and Norfolk to 6% in Peel (A.T.B.).

BACTERIAL SPOT (Xanthomonas vesicatoria). Moderate infections were seen in starter houses in Essex Co., Ont. and resulted in slight losses. The disease was checked when the plants were transplanted to the field (J.R.R.). Trace infections were seen at Sheffield Mills, N.S. (C.O.G.).

CHEMICAL INJURY. Peppers following corn in a field where the herbicide Atrazine had been used were badly stunted. The estimated loss on the small acreage involved was 50% (J.R.R.). Drift from an aerial application of 2,4-5-T at Florenceville, N.B. caused damage ranging from tr.-100% in 12 pepper fields (S.R.C.).

POTATO

EARLY BLIGHT (Alternaria solani) occurred in all seed-producing areas in the Interior of B.C. (N.M.). It was widespread in c. Alta. (A.W.H., D.S.) and was rated sl.-mod. in 40 and sev. in 4 fields of early varieties in s. Alta. (R.P.S.); was prevalent in n. and n.e. Sask though less sev. than in 1963 (A.C.); and was 81.-mod. in many fields of early varieties in Man. and n.w. Ont. (D.J.P.). It was not serious in w. and s.w. Ont. (L.F.M., G.T.A.F.). Early blight was reported in 22% of the seed fields in Que., being most prevalent and showing a 100% increase over 1963 in the Chicoutimi and Lake St. John districts (G.E.). It was general in N.B. but caused little loss (S.R.C.) and sl. infections were seen in N.S. (C.O.G.).

GRAY MOLD (Botrytis cinerea) attacked foliage in scattered loci in 2 fields at Grand Falls, N.B. and caused some defoliation (S.R.C.).

BLACK DOT (Colletotrichum coccodes). Infection was mod and damage slight on 'Green Mountain' at La Pocatière, Que. Dry weather in Sept. favored the development of symptoms on foliage as well as stems and tubers. The plants were killed at an earlier date than usual (H.G.).

BACTERIAL RING ROT (Corynebacterium sepedonicum). Incidence in seed fields in Canada decreased in 1964 although it remained the principal cause of rejection in Que. and N.B. It was not found in seed fields in N.S., Sask. and B.C. The decreased incidence was particularly marked in P.E.I. where there were only 7 positive cases diagnosed as compared with 22 in 1963 (D.S.MacL.). The remaining reports in this

paragraph refer primarily to table stock fields (D.W.C.). Ring rot was found on 5 farms in the Interior of B.C. but none was found at the coast (W.R.F.). In Alta. positive identification was made in 46 samples from Lethbridge, 16 from Edmonton, 11 from Brooks and 2 from Calgary (A.W.H., D.S.). Specimens were received from Yorkton and Montmarte, Sask. (R.J.L.). A sharp increase in the number of positive samples of diseased potatoes received from table and seed stock sources in 1964 suggests an increase in the incidence of ring rot in Man. (W.A.F.H.). There were 11 positive cases on the Bradford Marsh, Ont. (C.C.F.) and a specimen was received from Trinity Bay, Saguenay Co., Que. (D.L.).

SLIMY SOFT ROT (Erwinia aroideae) was prevalent on tubers of 'Norland' at harvest or shortly afterwards in a packing house at Vernon, B.C. (G.E.W.).

BLACK LEG (Erwinia, atroseptica) was the principl cause of rejection of seed fields in 1964. The disease was undoubtedly favored by the cool, damp spring. Emergence in many areas was poor and, in some cases, was below 50% (D.S.MacL.). Black leg was fairly common in c. Alta. (A.W.H., D.S.). It was sl. in mid.-June in a field of early potatoes in Middlesex Co. (L.F.M.); ranged from 0.5-5% in seed fields in s.w. Ont. (G.T.A.F.) and a few seed fields of 'Sebago' were badly infected in tne Guelph, Ont. district (J.W.G.). Black leg was the most commonly encountered disease in the 1964 seed crop in N.S. showing a definite increase over 1963 (R. C.L.). It was widespread in P.E.I. in the variety 'Sebago' with infection rates varying from tr.-10% (J.E.C.). Infections were widespread and mod.-sev. in e. Nflcl. with most fields having 2-8% of the plants affected. Heavier infections of 15-20% were seen at Pleasantview in the Notre Dame Bay area and at St. John's. Treatment of seed with Semesan Bel in 1 field at Pleasantview reduced infection to 2% (O.A.O.).

SOFT ROT (Erwinia carotovora) developed on harvested tubers of 'Norland' at Vernon and Kelowna, B.C. The tubers had been washed at harvest; sacked, while still wet, and placed in temporary storage in the packing house. Economic losses were sustained (G.E.W.). Specimens, exhibiting a spotted, lenticel rot, were received from St. Pierre, Ile Orleans, Que. (D.L.).

DRY ROT (Fusarium spp.) was reported from Calgary and Sunnybrook, Alta. (A.W.H., D.S.). Specimens were received from Rockhaven and Kindersley, Sask. (R.J.L.) and at Guelph,, Ont. during the winter and spring seasons. 'Sebago' seemed the most susceptible variety (L.V.B.). It was sl. on damaged tubers in a few bins in e. Ont. (G.E.B.F.) and was seen, mostly on 'Keswick', in a few bins in Que. (G.E.). F. sambucinum f. 6 caused mod. losses in 'Sebago' in storage at O'Leary, P.E.I. Only isolated cases were seen in the 1964 crop in P.E.I. (G.W.A.). Dry rot was sev. on 'Warba' at Brown's Arm in the Grand Falls area of Nfld. (O.A.O.).

SEED PIECE DECAY (Fusarium spp.) resulted in poor plant stands and up to 10-15% misses in some fields in the Thedford and Grand Bend Marshes, Ont. Replanting was necessary in some cases (L.F.M.). It was sev. in 'Sebago' and 'Kennebec' in Essex Co., Ont. causing losses in 2 fields of 50%. Potatoes planted in early May seemed more seriously affected than those planted earlier or later (J.R.R.).

SILVER SCURF (Helminthosporium eavirens). There were a few infections on harvested tubers early in the season in the Barrie, Ont. district (H.W.W.). Silver scurf was sl. on 'Green Mountain' at La Pocatière, Que. (H.G.).

RHIZOCTONIA (Pellicularia filamentosa) occurred in all regions of B.C. causing losses in the Interior and on Vancouver Island (N.M.) and in all parts of n. Alta. where it was not as serious as in 1963 (R.P.B.). It was found in most of the 73 fields examined in Sask. but was sev. only in one (A.C.). Rhizoctonia was by far the most serious disease in seed potatoes in the Barrie, Ont. district (H.W.W.). It was mod.-sev. at Ste. Clotilde and Deschambault and sl. at Ste. Foy and Normandin, Que. (H.G.). Damage averaged 5% in 3/5 fields at Keswick and St. Quentin, N.B. (S.R.C.). It was sev. on 15-20% of the tubers of a crop grown on virgin peat bog soil in N.S. (R.C.L.) and was widespread in P.E.I. with tr.-5% infections in most 'Sebago' fields (J.E.C.). Some stem cankers were seen in most potato fields in e. Nfld. though incidence was generally lower than in most years (O.A.O.).

LATE BLIGHT (Phytophthora infestans) occurred, but was not serious, on the Lower Mainland and Vancouver Island, B.C. There was some tuber rot in storage. It was recorded, for the first time in many years, in the B.C. Interior (N.M., H.N.W.T.). Infection was sl. in a few fields at Portage la Prairie, Man. (D.J.P., w.A.F.H.). It caused some damage in Brant Co. (J.W.G.) and tuber rot was seen in 2/28 bin lots in e. Ont. (G.E.B.F.). In Que. it was first reported on 30 July from Matane Co. and it was general in the province by mid.-Aug. although its intensity was not sev. Dry weather, frost

and top-killing checked the disease in Sept. and little tuber rot developed. The greatest losses from tuber rot, up to 15%, were in the Quebec City region (H.G.). Late blight was at a very low level in N.B. in 1964 (S.R.C.) and was general, but only sl., in N.S. by 15 Aug., Some losses were reported in non-commercial crops (R.C.L.) . About 70 acres in the Truro, N.S. area had the tops completely killed by late blight by 17 Aug. (C.O.G.).

LEAK (Pythium ultimum) caused some losses in bin storage in B.C. These losses were compounded by the presence of Erwinia carotovora (H.N.W.T.). It was reported from Vegreville, Alta. (A.W.H., D.S.). -Traces were observed . on 'Teton' at digging time at La Pocatibre and it was reported sl. in 5 bin lots inspected in Que. (H.G., G.E.). Infection was heavy on several varieties at Bay Roberts, Nfld. (O.A.O.).

POWDERY SCAB (Spongospora subterranea) was sl. in a few bins in the Lower St. Lawrence, Que. district (G.E.) . It was abundant on 'Green Mountain' in a 10-acre field on sandy loam at La Pocatière, Que. Cool weather conditions in July and Aug. favored disease development (H.G.) .

COMMON SCAB (Streptomyces scabies). Most fields in the Lacombe, Alta. wrea were affected. It was sev. in 1 field of 'Red Pontiac' (R.P.B.) and most plantings of smooth-skinned varieties in s. Alta. had slight infections (R.P.S.) . Specimens were received from Pierceland, Sask. (R.J.L.). Scab was sl.-mod. in many fields in Lambton, Huron and Middlesex Counties, Ont. (L.F.M.) and it averaged 3% in 7/28 bins inspected in e. Ont. (G.E.B.F.). It was found, mostly as slight infections, in 64.5% of the bins inspected in Que., mostly in the Chicoutimi, Lake St. John and Lower St. Lawrence areas (G.E.). Two extremely heavy infections, 30-50% in a field of 'Hunter' and 50-60% in a field of 'Kennebec' occurred on old orchard land nr. Port Williams, N.S. (R.C.L.) . Infection was relatively light at the Exp. Farm, St. John's West, Nfld. (O.A.O.).

WART (Synchytrium endobioticum). Infections were widespread and sev. in e. and c. Nfld. in 1964. In some instances crop losses were as high as 50% but, in general, were in the range of 10-15% (O.A.O.) .

PINK EYE (Verticillium spp.) was very prevalent and is increasing in importance in Ont. All cases seen were associated with verticillium wilt. Both V. albo-atrum and V. dahliae were isolated from affected tubers of 'Kennebec', 'Cherokee' and 'Irish Cobbler' (L.V.B.). It occurred in high proportions in some table stock fields in N.S. (R.C.L.).

WILTS (Verticillium spp., Fusarium spp.) were observed in 13 fields of 'Kennebec' on Lulu Island and incidence was high in 1 field of 'Norland' at Grand Forks, B.C. (N.M.). Wilts were seen in 50/114 fields in s. Alta. (R.P.S.) and were tr.-1% in 11/73 fields in Sask. (A.C.). Seventy/104 fields surveyed for verticillium wilt in s. Ont. were infected; V. albo-atrum was found in 41, V. dahliae in 26 and V. nigrescens in 3. The last-named species was found at Leamington, nr. Strathroy and nr. Mono Mills (L.V.B.). Wilt was sev. in 2 large fields of 'Sebago' nr. St. Catharines. V. dahliae was isolated from another field with 20% wilted plants in the same area (J.F.B.) . Infections were sl.-mod. in 'Kennebec' in Joliette Co., Que. (H.G.). Wilts were not serious in seed crops in N.S. but infections in 'Kennebec' in table-stock fields were as high as 50% where that variety had been planted for a number of years (R.c.L.)

CALICO (alfalfa mosaic virus) was tr. in a field of 'Norland' and 1 of 'Netted Gem' in s. Alta. (R.P.S.).

LEAF ROLL (potato virus M) appeared for the first time in the Cariboo district of B.C. in 1964 (N.M.). Its incidence in n. Alta. increased over 1963 levels, probably due to the long, warm growing season in 1963. It was seen in 54/60 fields inspected (R.P.B.) . Leaf roll occurred in 48/73 fields in Sask. (A.C.). A specimen was received from Bellechasse Co. and the disease was sev. on 'Sebago' at Ste. Foy, Que. (D.L.). It was tr. in nearly every field of 'Hunter' in P.E.I. (J.E.C.).

MOSAICS (virus) were the most important virus diseases in seed fields in Canada in 1964. Undoubtedly, most of the disease was caused by strains of potato virus X. (D.S.MacL.).

PURPLE TOP (aster yellows virus). Traces were seen in 4 fields in s. Alta. (R.P.S.) and it was more prevalent in Sask. than in recent years (A.C.). It was seen in 1 seed field in e. Ont. (G.E.B.F.) and was tr. in a number of fields in N.S. (R.C.L.) and P.E.I. (G.c.R.).

SPINDLE TUBER (virus) caused the rejection of a number of seed fields in N.B. and P.E.I. (D.S.MacL.). It was sl. in 4 fields of 'Netted Gem' in s. Alta. (R.P.S.); tr. in 3/73 fields in Sask. (A.C.); 1-5% in 14% of the seed fields in Man. (D.J.P.); and occurred in 3/54 fields in e. Ont. (G.E.B.F.).

WITCHES' BROOM (virus). Trace amounts occurred in all areas of B.C. except in the Lower Mainland and the Pemberton areas (N.M.) . It was tr. in 12/60 fields in n. Alta. and in 1 field of 'Warba' in s. Alta. (R.P.B., R.P.S.).

CHEMICAL INJURY. The herbicide Stam F-34 applied at low pressure to fields in Essex Co., Ont. resulted in mod.-sev. injury to foliage and caused blossom drop. Decrease in yield was estimated to be 25% in one field (J.R.R.).

FROST. Damage was heavy in all areas in the Guelph, Ont. district with as much as 40% grade-out. About 20% of the late crops were affected (J.W.G.). Injury was found in 12/28 bins inspected in e. Ont. with the amount of damage ranging from 1-23% and averaging 6.5% (G.E.B.F.). Frost damage was reported in 63% of the bins inspected in Que. Losses in some lots were from 20-30% (G.E.).

GIANT HILL (genetic) was sl. in 5 fields of 'Netted Gem' in s. Alta. (R.P.S.) and it was seen in a number of varieties in N.S., particularly in 'Green Mountain', 'Netted Gem', 'Irish Cobbler', 'Keswick' and 'Red Pontiac' (R.C.L.).

HOLLOW *HEART* (physiological) was sl. in 'Irish Cobbler' and 'Kennebec' in 2/28 bin lots in e. Ont. (G.E.B.F.). It was recorded in seedling lines under trial in Que. as follows: Deschambault, 22 sl. 12 sev./93 seedlings; L'Assomption, 5-sev./13 seedlings; Les Buissons, 11-sl. 5-sev./51 seedlings and, at Ste. Clotilde, traces only (H.G.).

BLACKHEART (physiological). Specimens were received from Penhold and Strathmore, Alta. (A.w.H., D.S.).

PUMPKIN

POWDERY MILDEW (Erysiphe cichoracearum) developed, late in the season, on pumpkins in the Okanagan Valley, B.C. (G.E.w.).

SCLEROTINIA ROT (S. sclerotiorum). Some fruits in a field at Summerland, B.C. were affected at harvest in late Oct. (G.E.W.).

MOSAIC (virus). A yellow type mosaic was sev. in a planting at Ste. Foy, Que. (D.L.).

RADISH

DOWNY MILDEW (Peronospora parasitica). Several. rows of radishes grown to seed at Ste. Clotilde, Que. showed mod.-sev. infections (R.C.).

RHUBARB

LEAF SPOT (Ascochyta rhei) was sl. on 5-10% of the plants in a planting at Woodbridge and mod. on 25% of the plants in trial plots at Vineland, Ont. (J.F.B.). Slight infections were seen at Kentville, N.S. (C.O.G.).

GRAY MOLD (Botrytis cinerea). Specimens with large, angular leaf spots on which the fungus was fruiting on the lower side were received from Levis, Que. The infection seemed to have induced leaf reddining (D.L.).

SPINACH

WHITE RUST (Albugo occidentalis G.W. Wils.) was found in the canned product of the 1963 crop in B.C. (J.A.M.). This is the first report, to the Survey, of this disease in Canada although Toms (C.P.D.S. 44: 181. 1964) lists it in Plant Diseases of Southern British Columbia (D.W.Creelman).

SUGAR BEET NEMATODE (Heterodera schachtii) affected 10% of the plants in a 4-acre field at Woodbridge, Ont. (J.L.T.).

SQUASH

LEAF BLIGHT (Alternaria cucumerina) was very slight in a planting at Kentville, N.S. (C.O.G.).

POWDERY MILDEW (Erysiphe cichoracearum) was seen on squash, late in the season, in the Okanagan Valley, B.C. (G.E.W.) and was sev. and prevalent on older leaves in Sept. at St. Catharines, Ont. (J.F.B.).

SWEDE TURNIP

LEAF AND POD SPOT (Alternaria brassicae). Infection was rated at 10% on the variety 'Chignecto' at Nappan, N.S. (C.O.G.).

DOWNY MILDEW (Peronospora parasitica) was recorded in Nfld. only as a slight infection at Cupid's in the Conception Bay area (O.A.O.).

BLACK LEG (Phoma lingam). Specimens were received from St. Laurent, Ile Orleans, Que. on 1963 roots in storage (D.L.).

CLUB ROOT (Plasmodiophora brassicae). Six fields in the Sherbrooke, Que. region were generally and severely affected.- The soil had apparently been contaminated through the use of manure from animals fed on diseased roots. Similar cases were observed in the Montreal region (E.L.). Slight infections were seen on secondary roots of swedes collected in L'Islet Co., Que. (H.G.). Two/5 fields visited in the Fredericton, N.B. area were affected. One 3-acre field was a complete loss (S.R.C.). Moderate infections were seen on early plantings of 'Laurentian' at Riverdale, P.E.I. but later plantings were unaffected (G.W.A.). Reports from Bonavista to Ferryland in e. Nfld. indicate that club root caused considerable

losses to a number of growers (O.A.O.).

SKIN SPOT (Rhizoctonia solani) was observed at Edmonton, Alta. It was present in most swede turnip fields in P.E.I. It appears to be aggravated by certain insecticides used to control the root maggot (J.E.C.).

SCLEROTINIA ROT (S. sclerotiorum) occurred at Fort Saskatchewan, Alta. (A.W.H., D.S.). A specimen, presumably from storage, was received from Matheson, Ont. in Jan. (W.L.S.).

CHEMICAL INJURY. A root received from East Haldimand, Gaspe Co., Que. had roughened bands on the surface suggesting contact with unmixed lime or fertilizer in the soil (D.W.C.). Drift from an aerial application of 2,4-5-T caused a sev. cracking of roots in 2 fields at Burton, N.B. (s.R.c.).

HOLLOW HEART (physiological) was mod. in July at St. Anselme, Dorchester Co. and sev. in Oct. at Ste. Foy, Que. At St. Anselme the condition was followed by soft rot (Erwinia carotovora) and at Ste. Foy by Rhizoctonia solani (D.L.).

OEDEMA (excess water) was mod. in 1 field at St. Anselme, Que. (D.L.).

PHOSPHORUS DEFICIENCY caused a sev. purpling of foliage in a field at Ste. Foy, Que. (D.L.).

SCORCH (virus complex). This disease, first reported in 1963, again appeared throughout the swede-producing areas of s. and s.w. Ont. but distribution was not uniform within the area. Infection ranged from tr.-100% with losses of marketable roots frequently in excess of 50%. An investigation into the source of the virus, its vectors and its physical and chemical properties is being carried out at the University of Guelph (B.H.MacN.).

SWEET CORN

ROOT ROT AND WILT (Fusarium spp.) caused mod. Damage in a planting at Ste. Foy, Que. (D.L.).

SMUT (Ustilago maydis). Specimens were received from Weekes and Shellbrook, Sask. (B.J.S., R.J.L.). It was tr. in 2 plantings at Sussex, N.B. (S.R.C.).

MAGNESIUM DEFICIENCY. Several fields at Waterville and Greenwich, Kings Co., N.S. showed mod.-sev. symptoms early in July (K.A.H.).

PHOSPHORUS DEFICIENCY affected a half-acre planting at Morristown, N.S. Growth was poor and leaves showed the typical purplish coloration (K.A.H.).

SWISS CHARD

LEAF SPOT (Alternaria tenuis) was tr. on the variety 'Wisconsin Bloomsdale' at the Research Station, Kentville, N.S. (C.O.G.).

TOMATO

EARLY BLIGHT (Alternaria solani) was very prevalent in the north portion of the Okanagan Valley and in the Thompson Valley, B.C. A high proportion of the leaves became affected (G.E.W.). It was widespread and sev. in improperly-sprayed fields in the Niagara Peninsula, Ont. Severe defoliation was observed in fields nr. Dunnville and nr. Milton despite a reported full spray schedule (J.F.B.). Early blight presented the most serious disease problem for tomato growers in N.B. In the Oromocto-Gagetown area 26/27 fields were affected and as much as 100% defoliation and 20% fruit infection was seen. Fertility problems on soils with low pH values seemed to aggravate the disease (S.R.C.). Fruit rot caused a 2% loss in Kings Co., N.S. (C.O.G.).

FRUIT ROT (Alternaria tenuis) was quite general in the Okanagan and Thompson Valleys, B.C., especially in unsprayed fields. It was more prevalent on fruit that matured in Sept. than on earlier-maturing crops (G.E.W.).

GRAY MOLD (Botrytis cinerea) caused an average loss of 12% of the fruit in 16/27 fields surveyed at Oromocto, N.B. (S.R.C.). Losses from fruit rot in Kings Co., N.S. were from 6-10%. In fungicide trials at Kentville, two of the newer materials under trial allowed 44% infected fruit. It also caused stem cankers in all greenhouses visited in Kings and Hants Counties but was most troublesome at Falmouth where 10% of the plants were infected. Treatment of cankers with ferbam or Thylate checked the disease (K.A.H.).

LEAF MOLD (Cladosporium fulvum). Moderate infections occurred in greenhouses in Essex Co., Ont. in the fall on "WR-7" and other susceptible varieties (J.R.R.). It was generally not a problem in N.S. greenhouses though a very sev. infection was seen in an improperly-ventilated greenhouse at Truro and a light general infection in one at Grand Pre (K.A.H.).

ANTHRACNOSE (Colletotrichum phomoides) became prevalent late in the season, and caused losses, especially on unsprayed fruit, in the Okanagan and Thompson Valleys, B.C. (G.E.W.). Moderate infections caused a 10% loss of fruit, including harvested fruit, at Ste. Foy, Que. (D.L.).

STEM CANKER (Corynebacterium michiganense). Moderate infections caused sl. losses in 1 field of canning tomatoes and in a number of greenhouse crops in Essex Co., Ont. It was more prevalent where the hot-water treatment was not used (J.R.R.).

ROOT KNOT NEMATODE (Meloidogyne javanica) was found on roots of tomato plants from the Windsor, Ont. area. (M.O.T.).

DAMPING-OFF (Pellicularia filamentosa) was sev. at Drumheller, Alta. (A.W.H., D.S.). It occurred in mod.-sev. amounts on light, sandy soils in Essex Co., Ont. Damage was greater than in other years (J.R.R.). Damage averaged 7% in 2/7 fields at Lakeville Corner, N.B. (S.R.C.).

LATE BLIGHT (Phytophthora infestans). About 25% of the fruits were badly infected in the fall at La Pocatikre, Que. (H.G.). It was tr. in 1/27 fields at Oromocto, N.B. (S.R.C.). Fruit losses of up to 100% occurred on unsprayed plots at Kentville, N.S. Maneb and Thylate each gave excellent control both in plots and in commercial fields in Kings Co. (K.A.R.). Late blight did not become serious until late in the season in P.E.I. Losses were generally light (G.w.A., J.E.C.).

BACTERIAL SPECK (Pseudomonas tomato) was found at 3 locations in commercial fields in the Vernon, B.C. area (G.E.W.). Light infections occurred on all fruits of 200 plants at Athol, N.S. (C.O.G.)

STEM ROT (Sclerotinia sclerotiorum) was seen on several plants in a commercial field at Vernon, B.C. (G.E.W.). It was tr. in 2 fields examined at Waterboro, N.B. (S.R.C.) and tr. on 'Stokesdale' in Oct. at Kentville, N.S. (K.A.H.).

WILT (Verticillium dahliae) was seen in the Okanagan Valley, B.C. only in fields planted to susceptible varieties and strains (G.E.W.). Infection was mod.-sev. in most tomato fields in s. Essex Co., Ont. It was also seen in some greenhouses where sterilization had been inadequate (J.R.R.). Twenty-one/29 fields were found infected in 9 Ont. counties. Estimates of infection ranged from 5% in Essex Co. to 22% in Carleton Co. (A.T.B.).

MOSAIC (virus) occurred in field crops in all sections of the Okanagan Valley, B.C. and in some greenhouses. Infection varied from sl. to sev. The variety 'Summerdawn' has proven to be quite susceptible (G.E.W.). This and other viruses were seen occasionally in greenhouse and field crops in Essex Co., Ont. (J.R.R.). All plants in 2 large fields nr. Dunnville and in a 20-acre planting nr. Milton, Ont. were infected. Losses were heavy in both locations due to lateness, stunting and low yield (J.F.B.). Severe foliar symptoms were prevalent in Kings and Hants Counties, N.S. Plants were dwarfed but set seemed unaffected (K.A.H.).

SHOESTRING (virus) occurred in occasional fields and greenhouses in Essex Co., Ont. (J.R.R.).

SPOTTED WILT (virus). Foliage symptoms appeared early and were quite sev. on a large number of plants at Kentville, N.S. Fruit symptoms did not appear until late in Sept. (K.A.H.).

STREAK (virus) was more sev. in Essex Co., Ont. in fall greenhouse crops than in the spring or field crops (J.R.R.). Some streak, probably double virus streak, was seen in 2 large fields nr. Dunnville, Ont. (J.E.B.).

BLOSSOM-END ROT (physiological) was sev. at Drumheller, Vermilion and Red Deer and was also observed at Edmonton and Thorhild, Alta. (A.W.H., D.S.). It occurred on the first and second trusses during very hot, dry weather in late July and early Aug. in Essex Co., Ont. Moderate losses were sustained (J.R.R.). About 5% damage occurred in all 27 fields surveyed in the Oromocto-Gagetown area of N.B. (S.R.C.). Traces were seen in greenhouses in Kings, Hants and Cape Breton Counties, N.S. (K.A.H.).

CAT FACE (physiological) was seen in tr. amts. in all fields at Oromocto and Gagetown, N.B. (S.R.C.).

CHEMICAL INJURY (herbicides). Severe damage from 2,4-D was seen at Leader, Sask. (B.J.S.) and sl. injury was seen in several home gardens at Ottawa, Ont. (D.W.C.). Drift from an aerial application of 2,4-5-T caused about 20% damage in all fields at Oromocto, N.B. The first set of fruit was largely unaffected. Later sets were stunted, malformed and delayed (S.R.C.).

CHEMICAL INJURY (captan). Some damage to tips of leaves of seedlings was seen at Oromocto, N.B. The plants later recovered (S.R.C.).

CHEMICAL INJURY (Vorlex). A number of cases of Vorlex injury were observed in greenhouses in Essex Co., Ont. Plants were initially stunted but recovered and produced near-normal crops (J.R.R.). One greenhouse crop of about one-fifth of an acre was severely injured through planting before the Vorlex fumes had escaped from the soil. The extensive injury was expressed by hormone imbalance in the plants. The first 2 to 4 trusses per plant set twice to 4 times the number of fruits which failed to size normally (C.D. McK.).

CHEMICAL INJURY (toxic fumes). Moderate damage, involving blossom drop, occurred in

Essex Co., Ont. where CO_2 generators using natural or propane gases apparently released toxic fumes (J.R.R.).

CHEMICAL INJURY (soil toxins). Sudden and sev. wilting resulted in a greenhouse in Essex Co., Ont. where corn cobs were worked into soil low in organic matter. The plants recovered after about 3 weeks but yields were reduced by about 25% (J.R.R.).

GROWTH CRACKS. Hot, dry weather followed by cool, wet weather resulted in sev. cracking of fruits of processing tomatoes in Essex Co., Ont. Even varieties normally resistant to cracking were affected. It resulted in poor keeping quality and high mold counts (J.R.R.). Growth cracks were observed in all fields surveyed at Oromocto and Hampstead, N.B. (S.R.C.).

MAGNESIUM DEFICIENCY was mod.-sev. in a field at Waterboro, N.B. (S.R.C.).

MANGANESE TOXICITY caused a sev. necrosis in new growth in some greenhouses in Essex Co., Ont. Tissue analyses showed manganese levels as high as 2000 ppm as compared to the normal level of 50 ppm. Sodium chelate sprays at 1.5 lb./acre seemed to correct the disorder. The high levels of manganese may have resulted from soil steaming (J.R.R.).

NECROSIS (cause undetermined). Necrosis of new growth was sev. and caused substantial losses in some fields of the variety '1350' in Essex Co., Ont. after an extended period of hot, dry weather. The injury may have been caused by the application of maneb or solely by the extreme weather conditions (J.R.R.).

DISEASES OF FRUIT CROPS

A. Pome Fruits

APPLE

CROWN GALL (Agrobacterium tumefaciens). The incidence of crown gall on apple nursery stock was the lowest in years in the Okanagan Valley, B.C. (L.E.L.).

CANKER (Botryosphaeria obtusa (Schw.) Shoem.) was sev. on a single tree at Winnipeg, Man. (J.A.H.).

FIRE BLIGHT (Erwinia amylovora) was less serious in the s. Okanagan Valley than in 1963 but was more serious in the n. Okanagan (M.F.W.). Specimens were received from Edmonton, Millet, Wetaskiwin, Camrose, Calgary and Leduc, Alta. (A.W.H., D.S.). It was virtually absent in s. Alta. with only one specimen being received for diagnosis (P.E.B.). Fire blight spread rapidly in June and caused sev. injury in some orchards in Essex Co., Ont. (J.R.C.). A slight infection continues to persist in a nursery at Strathroy, Ont. (A.E.S.). Specimens were received from Berthier, Megantic and Charlesbourg, Que. (D.L., J.R.).

SOOTY BLOTCH (Gloeodes pomigena). Infection was heavy on 'McIntosh' at Windsor, N.S., seriously affecting the appearance of the fruit. It was also reported on the same variety at Blomidon (R.G.R.).

STORAGE ROT (Gloeosporium album). 'Golden Russett' apples packed in polyethylene sleeves at several points in the Annapolis Valley, N.S. in Dec. 1963 developed gloeosporium rot late in Jan. and had to be diverted to processing plants. Losses in 4 cold storage plants were: Middleton, 11.1%; Coldbrook, 4.2%; Wolfville, 3.3%; Canning, 1.1%. The rot was most serious from areas most affected by early fall frosts (C.L.L.).

BULL'S-EYE ROT (Gloeosporium perennans) was generally light on 'Newtown' in the Okanagan Valley, B.C. Some rot developed on 'McIntosh' from CA storage at Kelowna. Most of the rot was centered around the stem and in most cases was difficult to detect. Bull's-eye rot in 'McIntosh' held in common storage is rare and presents no problem (L.E.L.).

RUST (Gymnosporangium clavipes). Aecia were observed in the La Pocatière, Que. area on up to 10% of the fruits of 'Fameuse', 'Cortland', 'Delicious', 'Lobo', and crabapple. Infection was also noted on 'Lawfam', 'McIntosh', 'Sandow', 'O-294', 'O-297', 'Hume', 'Rouge Hâtive', 'Linton', 'Shiawassee', 'Milton', 'Secor' and 'Fireside' (J.B.J.).

BROWN ROT (Monilinia fructicola). A specimen was received from Charlesbourg, Que. (D.L.).

CORAL CANKER (Nectria cinnabarina) was seen in 11/33 orchards visited in the Gagetown, N.B. area. Average damage to trees was 5%. The affected trees had suffered previous winter injury (S.R.C.).