nombre d'arbres atteints de la maladie qu'en 1949 et une extension de l'aire de distribution vers le sud. Quelques arbres malades ont été observés ici et là dans l'est de l'Ontario de même qu'une épidémie bien établie près de Windsor.

Chez les plantes ornementales, les observations suivantes paraissent dignes de mention. La moisissure grise (Botrytis cinerea) fut grave sur Antirrhinum et Chrysanthemum et fut rapportée sur d'autres hôtes en divers endroits dans l'est du Canada; sa présence généralisée est due partiellement au climat humide. Le "bunch top" (virus Solanum 17) fut observé dans les jardins au Nouveau-Brunswick sur l'Antirrhinum et le Petunia. La mosaïque (virus Cucumis 1) fut grave sur Antirrhinum majus dans une serre en Ontario sur des plants qui avaient été partis à l'extérieur près de melons atteints de ce virus. La jaunisse (virus Callistephus 1) continue d'être importante, particulièrement dans les provinces maritimes, sur Callistephus et plusieurs autres genres.

La fasciation (Corynebacterium fascians) fut observée sur les glaïeuls en Saskatchewan. C'est la première observation certaine de ce parasite au Canada. La pourriture molle (Erwinia carotovora) fut rapportée sur le glaïeul en Ontario en 1949. La jaunisse (Fusarium orthoceras var. gladioli) fut grave ce même hôte dans l'Ile du Prince-Edouard, tandis que la pourriture des bulbes (Sclerotinia draytoni) fut observée en Ontario, en Nouvelle-Ecosse et dans l'Ile du Prince-Edouard. On a suggéré que plusieurs virus peuvent concourrir au complexe de la mosaïque du glaïeul. La tache des feuilles (Didymella macrospora) de l'iris fut grave dans certaines parties de l'Ontario et du Québec. Le déclin (virus) est toujours la plus serieuse des maladies des narcisses en Colombie Britannique.

The Weather and its Influence on Diseases

The main weather features on Vancouver Island during 1950 were the coldest January on record; wet weather in late winter and early spring; a dry May, June, and September, and a wet July, August, and October.

Owing to the cold winter, young conifers in a few nurseries were severely damaged, with injury occurring during the alternate thawing and freezing of the heavy snow cover. Well established hedges of Monterey cypress in the Victoria district are also showing the effects of severe winter injury. In many cases no recovery can be expected and it is doubtful whether this species will be in further demand for planting.

Fungus wilts of potatoes were unusually prevalent in some areas owing to dry soil in early summer, which augmented the drying of the fibrous roots, thus facilitating the entry of soil fungi, such as Fusarium and Verticillium spp. Early maturity of the plants followed and the tubers from such plants often showed stem-end discoloration and occasionally internal necrosis. In some districts heavy rainfall during a few days in July and August retarded this condition.

On the whole the season was unfavourable for the initiation and development of foliage diseases and economic losses due to them were negligible. For example, late blight was not observed on potato plants and tomatoes until after the October rains, which was too late to do any material damage (W. Jones).

Despite the most severe winter ever encountered in the lower mainland of B.C., crop losses from winter damage were surprisingly low. Record low temperatures of 0.0° F. and 3.4° F. were recorded at the Sea Island airport for January and February respectively, but the snow fall was heavy, a record 37 in. in January, and provided good cover for most small fruit plantations. Loganberries were an exception as there was considerable damage to these near the crown where the bend in the canes, as they lay on the ground, protruded above the snow.

The spring was late and wet. There was a record 6.79 in. of rain in March. However, when the weather finally broke it remained fine and spring planting, although delayed, went forward under good conditions. There was little loss from potato seed-piece decay and there were no serious outbreaks of early season diseases.

The fine weather continued and the summer was exceptionally dry. There was some loss to the berry crops on light soils due to drought at harvest time. Potato late blight did not make its appearance until late in the season and was at no time serious.

Harvest conditions were exceptionally good until October. October had the highest rainfall recorded in 13 years for that month (R.E. Fitzpatrick).

Surveys carried out by the British Columbia Department of Horticulture placed at 336,610 the number of fruit trees killed by the low temperatures of the 1949-1950 winter. This figure is not expected to be final because damage continued to appear throughout the growing season and further damage is expected to appear next winter. The record low at the Summerland Experimental Station was -22°F. on 25 January 1950.

Temperatures in January and February, 1950, were abnormally low throughout the Kootenays. However, only Grand Forks, the Arrow Lakes and Slocan Valley suffered serious tree damage. In the Arrow Lake and Slocan Valley districts, stone fruits were severely hit. Plantings of mature cherry trees, which constitute an important part of the fruit-growing economy of these districts, were killed or very seriously damaged. In the remaining districts of the West Kootenay there was little or no tree killing. Bud damage to peach and apricot reduced the crops in most districts. In Creston Valley, cherry and peach trees were damaged in a few orchards, and in most orchards the crop of apricots and peaches was reduced.

The Spring was late. Summer was hot and very dry, with no protracted rainy period during the usual seasons for apple scab and fire blight, and incidence of these diseases was low.

Moist weather during harvest in Oct. resulted in the appearance of gray mould in stored Delicious apples. Appearance of bull's eye rot and storage scab during the storage period is to be expected.

Mean temperatures during April and May were lower than normal in the Okanagan Valley, Thompson Valley and Grand Forks and plant growth was checked, which probably accounts for the presence of neck rot (Botrytis allii) of onion during May and early June on both spring and fall planted onions in the Vernon district. This is the first record of this kind of infection in the Okanagan Valley. About one-third of the plants were affected in some fields. After the weather warmed up during June, the plants outgrew the infection, although the bulbs of most affected plants were misshapen at maturity. The weather during June

to September, inclusive, was warm and unusually dry, and there was a scarcity of foliage diseases on all types of crop plants and native trees. Some of the more important diseases that were practically non-existent were apple and pear scab; downy mildews of onion, beet, and pea; and anthracnose on aspen, etc. Powdery mildews of various kinds, including those of apple, pear, peach, apricot, pea, cucumber, rose, and willow, etc., were largely absent. Data secured with respect to the occurrence of apple powdery mildew suggests that the incidence of this disease is correlated with winter temperatures, and the absence of this disease in the 1950 season was a direct result of exceptionally low subzero temperatures in January. It seems probable that the same factor may be responsible for the general absence of powdery mildew on other kinds of plants as well (H.R. McLarty).

The 1950 spring season in Alta. was much later than normal and, except in the extreme south of the province, was very dry. Winter injury to winter wheat in the Peace River district was so severe that most fields were ploughed down. The drought in the early part of the season, together with winter injury, damaged or destroyed many fields of alsike and red clover maintained for seed production. Beginning in early June, southern Alta. received ample rain for crop needs. After the middle of the month, good rains came to the eastern half of the province. The remainder received little rainfall until mid-July, resulting in spotty crop conditions and considerable second growth. Although weather conditions, particularly in the south, were favourable for stem rust it was almost impossible to find rust on spring wheat this year. Only traces of stem rust were reported on winter wheat. Common root rot of cereals was light, as in 1949. Leaf diseases of barley, especially net blotch, were much more prevalent than last year. In the period 14-19 Aug., and again a week later, slight to killing frosts occurred in all regions of the province. Damage was heaviest in the Peace River, Vermilion and Coronation districts (T.R. Davidson).

In Sask. the winter was very severe, with much damage to alfalfa, clovers and fall rye. The spring was cool and dry, and growth started slowly. At Saskatoon temperatures were normal in June, but low in July, Aug. and Sept. Sunshine was generally high and evaporation low during summer. Rain fell on 17 days from 20 June to 15 July. The principal hot spells were 10-14 June and 24-29 July; the former caused some heat-banding of cereals and the latter probably contributed to prematurity blight and melanism. The late spring and cool summer caused the killing frosts of 17, 19 and 23 Aug. to be disastrous. The frost-free period at Saskatoon was 70 days. Cool, moist weather through the usual harvest period delayed maturity, and seed is of poor quality. The season favoured loose smut of wheat and barley, common root rot, basal glume rot, black chaff, melanism and net blotch (T.C. Vanterpool, R.C. Russell).

In the Niagara Peninsula, Ont., conditions very favourable for the rapid and widespread development of brown rot blossom blight were provided by heavy fogs on the nights of 23 and 24 May during the latter part of the bloom period. These fogs remained for 10-12 hours and kept the trees dripping wet.

Infection periods for apple scab in the early season were few and not long enough to permit more than light, scattered infections. Primary lesions were evident on 28 May and resulted from the intermittent rains of 18-19 May. Light showers in June were not favourable for secondary infections and the terminal leaves and small

fruit remained very free from scab. A week of continuous wet weather, 26 Aug.-1 Sept. provided good conditions for infection and there was an outbreak of pin-point scab on the fruit at harvest. The rain at the end of Aug. favoured brown rot development in mid-season peach varieties, which were then maturing. Some growers reported the outbreak the worst ever experienced and were confronted with heavy losses and in grading. In addition the keeping quality of the fruit was poor and dealers and shippers experienced considerable loss due to rot.

The precipitation in the late season contributed to the development of bitter pit of apples and favoured an unusual development of powdery mildew on grapes. Hail on 17 June caused some damage to grapes in localized areas along the shore of L. Ontario (G.C. Chamberlain).

At Ottawa, Ont., sunshine was about 200 hours below average for the year, being slightly above average only in March and exceptionally low in Jan., July, Aug., Oct. and Nov. Jan. was extremely mild, the mean of 20.8°F. being 9° above average and 1.7° above that for March, which was 6° below normal. Snowfall was below normal in Jan. and rainfall very high. The ground was bare or nearly so much of the time and damage from ice and water was considerable. Feb. was 1° F. below average with heavy snow in the last 2 weeks. Further heavy snow in March maintained snow cover well into April, open fields not being bare until the middle of the month. April and early May were cold, and on 14 May a low of 23° F. was recorded. There were no more frosts and late May was warm. June temperatures were close to average, and rainfall about 2/3 average. July was slightly cool and rain totalled 5.74 in., over 2 in. above average, largely from a downpour of 2.68 in. on 17 July. Aug. was moderately wet and quite cool. Sept. was dry and very cool. Except for 19-26 May inclusive, there were no dry spells of over 6 days until Sept., then the period 25 Sept. to 8 Oct. was almost rainless, facilitating late harvesting. The highest temperature of the summer was 88° F., in sharp contrast with 1949 when maxima of 90-97° F. were recorded on 13 days. The season in general favoured apple scab and other foliage diseases. Oct. was moderately warm and dry, and Nov. mild and decidedly wet. A trace of snow lay at the end of Nov. Precipitation was average and temperature 2° above average in Dec.; snow cover was continuous from 8 Dec. and was 10 in. at the end of the year (D.B.O. Savile).

In Eastern Que., May was dry, cool at first, but hot during the latter part.

Winter killing of alfalfa, clover, orchard grass, strawberries, poplars, birches, etc. was particularly bad, because of insufficient snow covering and the prolonged thawing in Dec. and Jan. followed by severe cold.

The first ascospore discharge of Venturia inaequalis was noted on 10 May. The only fungous diseases that could be found during May in the Ste. Anne de la Pocatiere region were the rusts Cumminsiella sanguinea on Mahonia aquifolium, Cronartium ribicola on white pine, and species of Gymnosporangium on Juniperus.

In June, temperature was relatively low and precipitation higher than average. Aecial stages of cereal rusts were slow to form and were not as abundant as usual, except Puccinia coronata on Rhamnus alnifolia in a peat bog.

July was cool, except during the second week, which was very warm. Apple scab caused some concern in unsprayed orchards. Apple rust (Gymnosporangium clavipes) reappeared after having been apparently absent for eight years, apparently because of repeatedly dry Julys. Among bacterial diseases, crown gall was epidemic on raspberries and Rosa rugosa, and a few outbreaks of tomato bacterial canker were observed.

Aug. was cool and dry except for abundant rain at the end of the month. Cereal stem rusts were negligible and Helminthosporium diseases practically absent in the experimental plots. Powdery mildew and bacterial blight were relatively abundant on barley.

The rain that occurred at the end of the month permitted outbreaks of late blight of potatoes, but the drought that followed during Sept. prevented the development of the disease in the Lower St. Lawrence Valley. Moreover, killing frosts by mid Sept. marked the end of the growing season. Oct. and Nov. were characterized by cold rains and snow.

To summarize, conditions were favourable for vegetation but not for plant diseases (Albert Payette).

Average weather conditions prevailed in N.B. during the winter of 1950. Frequent snowfalls, usually followed by light rains, deposited 24 in. of snow in month of Jan., but only 6 in. of snow covered the ground by the end of the month. During Feb., 41 inches of snow fell and at the end of the month snow cover was 30 in. This was the greatest depth of snow during the winter. A fall of 0.76 in. of rain on 9 March cut the snow cover to 10 in. and by the end of the month open, level fields were bare. During April, 5.81 in. of rain fell and by 20 April the most shaded snow banks had disappeared. The ice ran out of the St. John River on 21 April. A province-wide rainfall of over 2 inches on 21 April caused considerable erosion of cultivated fields and much damage to highways.

The winter conditions were most disasterous to clovers, especially red clover. Even in the most favourably located fields little clover or alfalfa survived, and what did appeared to lack vigour. There was little noticeable killing of timothy and other grasses but the stands were thinner and less vigorous than usual. On the whole, apple orchards wintered well and there was little injury to cane or bush fruits. Due to freezing and thawing of the soil, strawberries suffered considerable injury. Ornamental shrubbery, especially honeysuckles, showed considerable winter injury but herbaceous perennials were unaffected.

Late April and the first three weeks of May were cool. High winds after the first week in May rapidly dried the land and by 15 May seeding became general. Growth was slow in meadows and pastures until the last week in May and trees were two weeks later in leafing out than in 1949.

The first ascospore discharge of the apple scab fungus occurred on 16 May. Rains during the last two weeks in June and the first week in July stimulated the growth of all crops, especially timothy, which had been suffering from the dry weather. Rain fell on 12 days during August and the rainstorms between 17 and 21 Aug., inclusive, caused much lodging in grain fields. Rain fell on only four days in Sept. Grain, although somewhat weathered, was harvested in good condition and the yields were at least 25% above average. The weight per bushel of oats was above average, probably due to slow ripening. Little rust of any kind was present in grain crops.

Late blight of potatoes threatened to become serious in Aug. but dry, cool weather in Sept. checked its spread. The foliage of potatoes and other garden crops was killed on 22 Sept. by frost. The root and vegetable yields were mostly above average.

Temperatures during Nov. were well above average and the rainfall for the month was an all-time record. The first three weeks in December were mild with a record high mean temperature. The St. John River froze on the latest date for 100 years (J.L. Howatt).

The early part of the 1949-50 winter in N.S. was mild with little snow cover. During Feb. a temperature of -15° F. was recorded and caused some bud damage to peach trees. Snow cover was consistant during the latter part of the winter. The weather during May was very favourable for agricultural work as the rainfall totalled 0.94 in. from six brief showery periods. There was no rainfall from 21 May to 3 June inclusive. June weather provided several periods favourable to the spread of apple scab, quince rust, Botrytis, etc. The summer was slightly cooler than average. A severe hail storm caused crop damage in the Kentville area on 13 July, and during 20-21 August the Valley received the tail-end lashings of a hurricane and approximately six inches of rain; some crop damage and soil erosion resulted. A three inch snowfall on 22 Oct. provided additional variety to the season's weather. Frequent showery weather during the late summer and autumn encouraged late blight of potatoes and tomatoes, brown rot of stone fruits, late infections of apple scab, and a variety of mildews (J.F. Hockey).

Low temperature injury to potatoes resulted from sub-zero temperatures in Feb. and March in P.E.I. Otherwise the 1949 crop stored well with no serious losses other than the usual considerable amount of Fusarium storage rot, the penalty for rough handling. The lack of adequate snow cover caused strawberry plantations to suffer severe injury and heavy crop reductions from crown injury, through freezing and thawing in March and early April. Weather was ideal for planting operations, all crops being seeded without serious interruptions. Lack of moisture in early summer delayed germination and prevented or delayed sprouting of potatoes. Thus seed-piece decay caused poor stands, even necessitating replanting of many fields, or their abandonment for potato reduction. Because of unseasonably high temperatures and drought in late May and June, killing of young turnips was extensive. Despite this early season drought, black leg of potatoes was widespread and in some instances severe. Traces of potato late blight were observed in the central and western sections of the Province on 18 July but, although some spread occurred, it did not become serious until after mid Aug. when a period of heavy rains and very high humidity provided ideal conditions for its development. The mean humidity for 19-25 Aug. was 84.0% and, for 26 Aug.-1 Sept., 86.9%. Total precipitation for these periods was 6.07 inches and the soil, which normally acts as a spore filter, was so saturated that conidia reached and infected many tubers. It is estimated that late blight rot caused a loss of 10% of the crop, most of which probably occurred during this extremely wet period. The loss from tuber rot would have been much higher but for the general use of vine killers (R.R. Hurst, L.C. Callbeck).