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Fig. 1766. The Elberta Peach.

# THE CANADIAN HORTICULTURIST

VOL 23 — 1900 — No 4

* * APRIL * *


## THE ELBERTA PEACH.

ABOUT forty years ago, when our Association was first organized, fruit growing could scarcely be called a distinct vocation; and the small crops harvested in the garden or orchard were taken to the nearest market along with the butter and cheese. In the oldest Report of our Association, published in 1863, reports were collected from the various counties, showing what fruits could be grown; and, in those from the County of Wentworth, we read, "The peach crop is uncertain. Severe cold destroys the fruit buds, and it is sometimes snfficient to destroy the trees. It is recommended to train them on walls, or trellises, and protect them;" and even under Lincoln County we read "the peach crop is uncertain."

A great change has come over this whole district, and peach orchards of large acreage have been planted, until the crop now moves in car loads, all our large markets are glutted with this delicious fruit, and prices have dropped from $3.00 to 50c. a bushel. Naturally this condition of things led us to try exporting the peach, and the magnificent Crawford was first packed for export. It was a magnificent failure, for it was too soft for carriage to a distant market. Just at this time the Elberta was introduced from Georgia, a cross between the Chinese Cling and Crawford's Early. It was planted with caution, because originating so far south, but it surprised everybody with the hardiness of the tree and the good shipping quality of the fruit. Then we proposed that it be tried for export, and a few boxes were timidly forwarded in cold storage. The result was surprising; it carried in perfect condition, and now it is looked upon by the shippers as the peach for export. The fact is that for this purpose the many-variety system, which is well enough for home markets, is all wrong; and instead we want just about one first-class, high grade variety of peach, pear, apple and grape, and ship that variety in such quantity as to make an impression on the English market, and make it known as the characteristic sample of that fruit from Canada. It may interest some readers to have a brief technical description of this comparatively new and valuable variety.

ELBERTA.—The best peach of its season for all markets, and the only variety especially suited for export by reason of its shipping qualities.

ORIGIN.—Georgia; a cross between Chinese Cling and Crawford's Early.

TREE.—Vigorous, hardy, and moderately productive, carrying as many samples as a tree should, and if a heavier cropper, would need careful thinning. The leaves are quite subject to curl leaf; but this may be controlled by spraying.

FRUIT.—Medium large, round oval, one side somewhat larger than the other, suture distinct; skin, lemon yellow, with fine red cheek; stone free, deeply corrugated, pointed. FLESH.—Yellow, tender, juicy, melting; flavor rich, agreeable and very good.

SEASON.—September 20th to 25th, about a week later than Crawford's Early.

QUALITY.—Dessert very good; cooking best.

VALUE.—Home market very good; foreign market, best.

## PROGRESS, THE MOTTO IN FRUIT GROWING.

WE have often advocated improved methods in fruit growing, and no doubt many of our readers have themselves felt the importance of waking up to the new conditions of this era. New markets require new packages, special varieties, and special storage. Twenty-five years ago, when we planted our orchards, it was with the view of pleasing our near markets, and we filled our order with all the varieties in the nurseryman's catalogue; but now, for distant market, we want just one or two special varieties—the best of their kind, so that we may gain an honorable name, and consequently high prices. To do this we shall be compelled to top graft our apple and pear orchards, and replant our peach orchards, with a view to the special demands now claiming our attention. Perhaps no one man at the present day has done more to give us high grade varieties of fruits than Mr. Luther Burbank, of California, and we quote what he says in the American Agriculturist on the subject before us. He says:

The fruit grower of to-day must have the ability to adapt himself to the new methods, new fruits and new markets. By use of cold storage and rapid transit the finest fruit from every land can be found in any large market, both in and out of season, for while the fruits of one hemisphere are first waking from their winter's sleep, on the other the summer sun has done its work and the ripened fruits are on their way to distant markets. With the world as a market, competition is keen, and only the best fruits in the best condition will pay. Furthermore, it generally costs much less per ton to produce large, first-class fruit than the poorest, meanest specimens that are ever offered. Small fruit exhausts the tree more rapidly than large fruit. It will thus readily be seen that improved varieties which produce uniformly large, fine fruit are the more economical manufacturers of fruit, and also that the product is more salable.

The tree which needs a good deal of pruning to keep it in proper form and vigorous health should be replaced by one that has a better habit of growth, for every ton of wood taken unnecessarily from an orchard represents at least as much weight of fruit. Many varieties have two or three superior qualities, but woefully lack in many others. The fruit grower of to-day is simply the manufacturer, and should have the latest and best improvements. Of course there never can be one variety which will be best for all purposes, but it is perfectly possible to produce varieties which for their own special use can be relied upon to produce full crops of the best fruit without fail. All this can be done by careful selection and breeding.

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BETTER PRICES.—Fruit growers have had their seasons of discouragement, too many of them, but now the indications are brighter. Canners are already making contracts for fruit at higher prices, showing that their goods are on the advance.

# THE CARE OF SHADE TREES—III.

## Fungous Diseases.

IT is a matter of common observation that fungi play a very important part in the life of many trees, and frequently the most serious disturbances of their vital processes are brought about by the action of these lowly organized plants. It must not be suppose, however, that all the fungi, living in vital connection with trees, are harmful, for recent studies show that many of our common

Fig. 1770. Agaricus melleus (Tree Root-Rot). A group of plants clustered at the base of a tree, and showing the cap, stalk and gills. The spores are set free from the edges of the gills. (After Massee).

trees, such as pine, spruce, tamarack, beech, oak, hazel, hornbeam and birch, have their fine rootlets covered with a sheath of fungous threads by means of which the feeding processes are accomplished. These fungous threads, or mycelium, take the place of the root-hairs of ordinary plants, and absorb the food materials from the soil. There are other examples of the fungi and roots living in intimate vital connection, and for their mutual welfare. Most of the members of the heath family, most of the perennial plants living in meadows on peaty and humous soils, and the members of the legume family, have fungi living symbiotically with the roots.

Inasmuch as fungi are incapable of manufacturing plant-food out of inorganic food-materials, and must feed upon the already prepared food in the decaying vegetable matter of the soil, it becomes highly necessary that the supply of humus be maintained in the form of litter and forest mould in our parks and woods.

The fungi affecting shade trees may, very conveniently, be divided into three classes, according to the parts of the trees they affect: 1. Fungi affecting the roots and base of trunk; 2. Fungi affecting the stems; and 3. Fungi affecting the leaves.

1. *Fungi affecting the Roots and Base of Trunk.* The entrance of fungi into the roots of trees is determined to a large extent by the conditions of situation and climate. Where the tree has been weakened by any of the physiological causes discussed in the February number of this magazine, the roots are unable to prevent the development of those fungi which find an entrance into the tissues.

(a) *Tree Root-Rot.* (*Agaricus melleus*). This destructive toad-stool is a very common fungus, not only on all kinds of fruit trees, but also on the forest trees, shade trees and conifers. The cap of the toad-stool, when full grown, is two inches across, and has a honey color. The stalk is often four inches high, and the gills and spores are white. (Fig. 1770.)

The spores are distributed by the wind chiefly. On germination delicate, cob-web-like threads are produced, which soon form a blackish covering on the roots. The roots


FIG. 1771. Trametes radiciperda, (Root-Rot of Conifers), *a*, part of a fungus showing the crust following the irregularities of the bark, and the two projecting shelves *d*, both composed of several overlapping shelves; *b*, a section of the crust showing the three layers or thickness of tubes 1, 2, 3; *c*, a portion of the spore-tube layer showing the tubes and their openings or pores slightly magnified. (After Massee).

are penetrated by the threads, which make their way between the bark and the woody part. Gradually the whole mass of tissue of the cortex of the root, as high as the crown, is literally choked with the fine threads, and the vital activities of the plant are seriously interfered with. During late stages of the disease I have frequently seen the surface of the almost dead roots covered with a matted, white felt of threads.

The fungus is not content to remain on a single tree, but will send out dark, radiating threads through the soil to the roots of other trees, which are attacked in a manner similar to the first.

*Remedies.*—From what has been already said it is evident that there are two sources of infection of trees: (a) by spores, and (b) by the fine black radiating strands underground. These two sources suggest two methods of treatment: (a) by preventing the formation of the spores on the gills of the cap, and (b) by isolating infested trees, for it is impossible to kill the fungus after it has once made an entrance into the roots. All the fruiting forms, or caps, should be destroyed by burning. Infested trees, which are considered too valuable and healthy to destroy, should be isolated by a ditch about ten inches deep, dug around the tree. This will prevent the underground strands from reaching other trees.

The disturbances produced by the presence of fungal threads are far-reaching. The transpiration of water, when the leaves are affected, is seriously interfered with; the cells of the parts affected are gradually destroyed through the consumption of the cell-contents; and chemical changes are initiated which results frequently in the malformation, hypertrophy of tissues; and finally death ensues.

(b) *Root-Rot of Conifers. Trametes radiciperda.*) (Fig. 1771.) This is a very common fungus on roots of conifers. The mycelium may pass from a diseased root to another close by which is not diseased, and in this way a single tree may infect a large number. On infection, the cells of the wood become brown, and white patches make their ap-

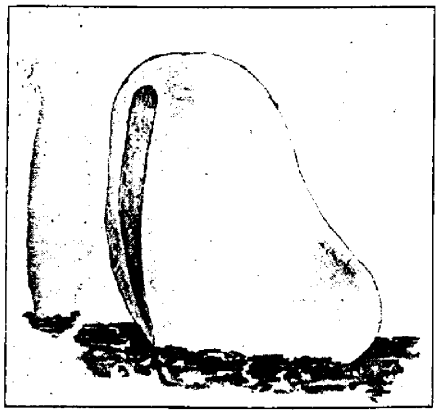


Fig. 1772. Polyporus betulinus (Birch shelf fungus), showing the horse-shoe shaped shelf. (After Massee.)

pearance. Flattish, fruiting structures form on the surface of the roots, while the shelf which appears on the roots and stumps resembles a white crust or cake, nearly an inch across. The upper surface of the little shelf is brown, and the lower surface is white. In all cases, save the Scotch pine, the disease soon ascends into the stem. Moreover, it is thought that mice and other burrowing animals assist in the dissemination of the spores.

*Remedy.*—As with *Agaricus melleus*, the shelves should be removed to prevent the spread of spores, and a ditch dug about the diseased tree to prevent the infection of the roots of neighboring trees.

*2. Fungi affecting the Stems of Trees.*

(a) *Heart-wood Rots.* (*Polyporus sp.*) One of the most common objects seen in parks and woods is the large shelf-like fungus projecting from the trunks of both living and dead trees. The various species have quite characteristic shelves e. g., the shelf on the birch is shaped like horse's hoof, that on the oak and willow is crispy and wavy margined, while other forms may be hemispherical. (Figs. 1772 and 1773.)

The heartwood is usually the first region injured, afterwards the sapwood. Whenever a crack or wound permits the thread of the internal mycelium to get to the surface, one or more of the shelves will be found. It is by means of wounds that the mycelium, produced by germinating spores, finds an entrance into the inside of the tree. In a few years the heart of a tree may become entirely rotten, but it is "usually several years from the time a tree is first attacked until its death." The majority of these shelf-fungi spread by means of spores liberated from minute pores on the under side of the shelf; while a few, like the root-rot fungus, spread chiefly by underground mycelia, "from tree to tree along decaying roots."

*Remedies.* In the case of trunk-infesting forms, the fungous shelf ought to be destroyed whenever it is seen, thereby preventing the liberation of the minute spores. All broken branches, moreover, should be carefully trimmed and treated with some protective fungicide, such as tar. With root-infesting forms, where the mycelium crawls from tree to tree by means underground, decaying roots, it becomes necessary to remove the cause of the spread. The earth at the base of the tree may be freed from all decaying roots, and all injuries carefully treated with tar.

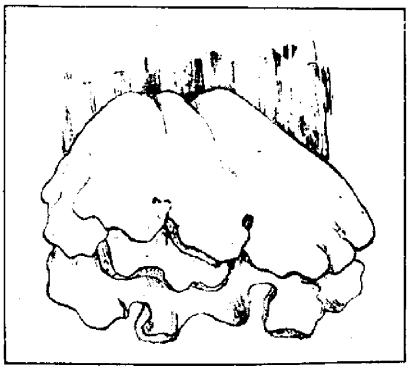


Fig. 1773. Polyporus sulphureus (Heart-wood Rot), showing the irregular and wavy margin. (After Massee.)

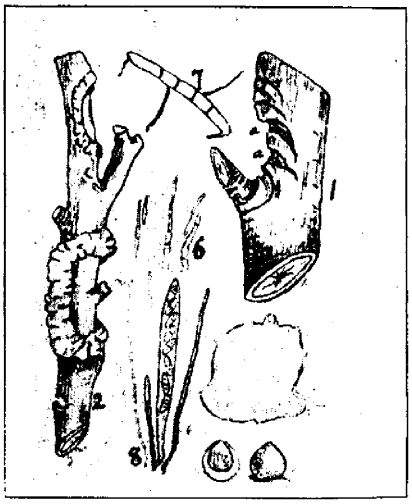


Fig. 1774. Nectria ditissima (Apple-tree Canker): (1) a branch recently attacked, the disease entered at the axil of the small branch, a perithecia; (2) a branch diseased for some time, showing the rugged, raised margin about the wound; (6) conidia spores; (7) germinating conidium-spore; (8) asceus containing spores—the asci are contained in the perithecia. (After Massee.)

(b) *Cankers* (*Nectria and others*).—The cankers are not nearly such conspicuous objects as the shelf-fungi. Some of the cankers have dark colored fruiting forms, while others have bright red forms. Nearly every kind of forest and shade tree is liable to infestation by these fungi, and the infested trees are sources of rapid spread of the disease to the other trees of the park.

The most common cankers are the *Apple Tree Canker*, *Spruce Canker*, *Larch Canker* and the *Coral Spot Canker*. (1) *The Apple Tree Canker* (*Nectria ditissima*) is very frequently found on the common forest an the common forest and shade trees. Gaining an entrance through a wound, the mycelium attacks the bark, which it destroys in a characteristic manner. As the bark cracks concentrically, the area of diseased portion gradually enlarges, so that sometimes the trunk is completely girdled. Usually the diseased area is surrounded by a thick, irregular margin, which is also quite characteristic. In late fall whitish cushions of mycelium come to the surface, and produce minute spores, while in spring bright red cavities appear, containing the asci and spores. Fig. 1774).

(2.) *The Spruce Canker*, (*Nectria cucurbitula*), is chiefly found on the spruce. The fungus gains an entrance through a wound, and attacks the tissues of the cortex and to some extent the wood. When the bark becomes moist the mycelium may come to the surface and produce minute spores, and later in the season red perithecia are formed, and spores are liberated from asci.

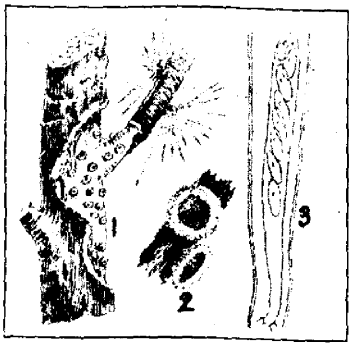
(3.) *The Coral Spot Canker*, (*Nectria Cinnabarina*), is often seen on maples, horse-chestnuts, and red currants. This fungus is most commonly found on dead twigs and branches, where the bright coral-like warts are frequently very conspicuous. Like the spruce-canker the spores germinate on being brought to a wound, and the mycelium makes its way into the tissues beneath. The coral warts are not observed until the death of the twig.

(4.) *The Larch Canker*, (*Peziza willkommii*). (Fig. 1775). In low-lying regions the larch is frequently attacked by this fungus, which has found an entrance through some wound. The presence of resin on the diseased twigs, oozing from cracks in the bark, and yellow, wilted leaves reveal the progress of the disease. The spores are formed in asci sunken in the infested spots. Year after year the canker spot enlarges, and soon girdles the tree. The fungus may be readily recognized by the saucer-shaped fruiting area; the internal part of the saucer being orange-red, and the outside white and downy.

*Remedies.*—Since all these cankers are wound parasites, it is necessary to keep a strict watch on all our shade trees for wounds. Whenever they are found they should be dressed with a solution of green

vitriol, and afterwards with a coating of tar. It is also very essential that diseased twigs be removed as soon as seen, and that the fungus be not allowed to produce spores.

(c) *The Pine Fungus, (Trametes pini.)* (Fig. 1776).—When fully developed this fungus is readily recognized as one of the shelf-fungi (Polyporids).—The shelf is irregularly triangular in form, two or more inches across, of a reddish brown color, and with the cap concentrically grooved. As ordinarily observed the fungus is characterized by white blotches or expansions on the bark, and by the reddish-brown color of the diseased wood.



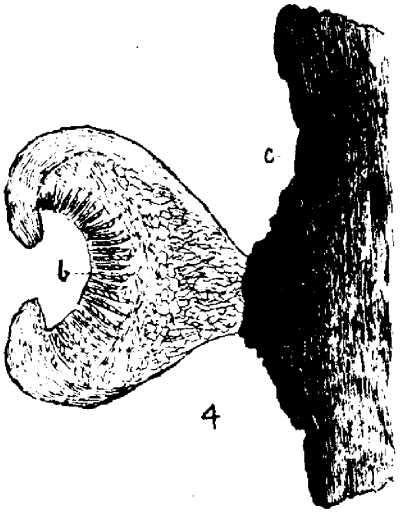




Fig. 1775. Perziza willkommii (Larch Canker). (1) showing a portion of a branch diseased, (2) two apothecia slightly magnified, (3) an ascus containing eight spores, (4) a section of an apothecium greatly magnified, showing the asci and spores in them (b). (1, 2, 3 after Massee, 4 original.)

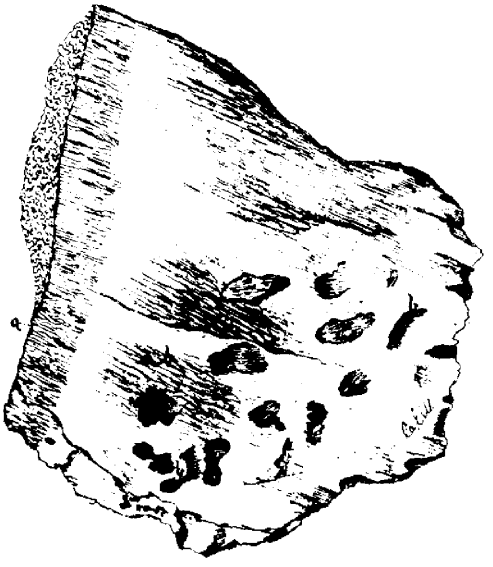


Fig. 1776. Trametes pini (Pine Fungus). A section of diseased wood, (a) the pores in which the spores are produced, (b) the affected tissue which is saturated with resin and partially decomposed. (Original).

Inasmuch as the mycelium gains access to the tree through wounds, and the external portion does not make its appearance until the mycelial threads are very numerous within the tissues of the tree, it is the duty of the owner to treat all wounds immediately on discovery, and to remove all trees which show any outward signs of the disease.

(d) *Pine Cone Fungus (Peridermium pini)* (Fig. 1777). This fungus is quite a common form on pines in Ontario. A characteristic feature of the diseased condition of the tree affected is the "resin top," caused by the death of the upper branches through the stoppage of the upward current of sap in the wood. The mycelium is perennial, i. e., growing on from year to year. Cells which are attacked lose their normal content, and secrete turpentine to such an extent that resin frequently overflows from cracks in the bark. Much irregularity in the growth of the trunk of the tree results from the destruction of the cambium. The stage of the fungus which is found on pines is the "aecidial" or cluster-cup stage, appearing in early summer

as sausage-shaped swellings filled with spores. (Fig. 1777).

*Remedy.*— The only available remedy is the destruction of the tree, so that the disease may not spread to other trees.

(e) *Cedar Apple and Apple Rust* (*Gymnosporangium and Roestelia*). (Fig. 1778). It is well known that certain stages in the life of the rust of wheat (Puccinea graminis) are passed on the wheat and the other stage on the barberry. The parasite which causes "apple rust" passes part of its life on apple leaves as *Roestelia*, and the other stage on the cedar or juniper as *Gymnosporangium*. Nine species are known in this genus: two on white cedar only, three on red cedar only, two on both white and red cedars, one on the common juniper, and one on the western juniper (*J. occidentalis*). The mycelium is perennial in most species, and the abnormal growths depend to a certain extent on the part affected and the rate of growth of the fungal threads. Growths on the affected leaves are called "cedar apples." (Fig. 1778). Distorted branches are very common forms of the disease, and are known as "witches" broom." The resting spores produced on the cedars and junipers, under favorable conditions, germinate and soon liberate spores of a slightly different nature. These, falling on the leaves of the apple, produce the "apple rust."

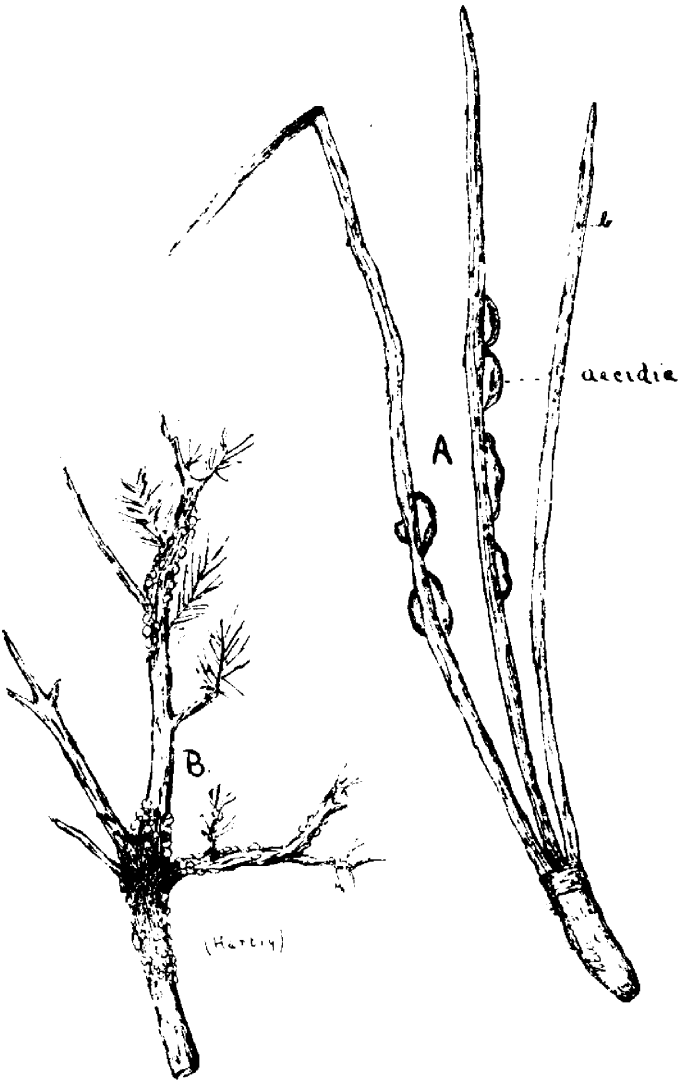



Fig. 1777. Peridermium pini (Pine Cone Fungus), (a) leaves of pine affected with this disease. The cluster cups occur as orange yellow blisters and contain the spores. Spermogonia (b) appear as black spots. (B) shows a branch which has been killed and which bears cluster cups. (After Massee).

(f) *Lichens.*—Lichens are extremely common on all kinds of trees. They form incrustations on the bark, and may be either leathery or semi-gelatinous in texture. It is conceded by most authorities that the lichens do not get their nourishment from the trees they incrust, but use their position on the bark as a means of getting a better livelihood from the air. The surface of the lichen is specially adapted for absorbing dew, rain or

mists very quickly, and their food materials are obtained from the air and the moisture which reaches the plant. Mineral salts are brought to the lichen by the dust in the air, and probably also by the dead bark or the decaying leaves on the bark. Lichens are really dual plants, composed of fungi and algae -the fungi holding the algae as slaves in the mesh-work of the hyphae. The algae, containing chlorophyll, can make organic food out of the inorganic materials at their command, while the fungus can feed upon the organic food thus prepared. (Fig. 1779). It is very evident that the lichens which incrust the bark of a tree do much harm in that the breathing pores of bark are closed and oxygen is unable to get access to the interior cells. This loss of oxygen is of vital importance to the healthy working of the tree, and all shade and fruit trees should be kept well cleaned. Careful scraping will do much good, but perhaps the best remedy is the application of some strong caustic, such as whale oil soap (2 lbs. to a gallon of water in winter) or fungicide, as Bordeaux mixture.

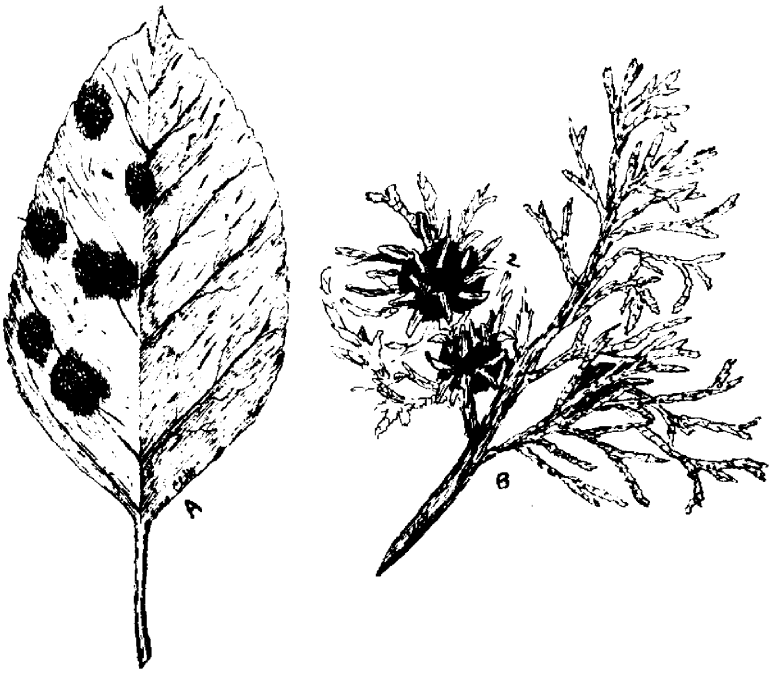



Fig. 1778. A, Roestelia pirata on apple leaf; (1) aecidia or cluster cups containing aecidiospores. B, Gymnosporangium macropus, (1) the cedar apple showing the yellow horns containing the teleutospores or winter spores.

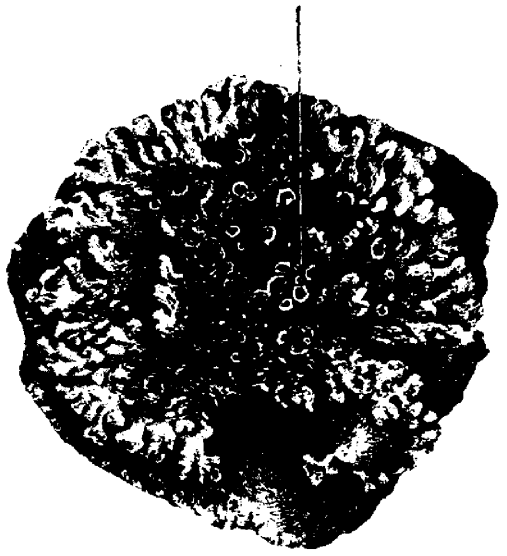


Fig. 1779. Lichens.

3. *Fungi affecting the Leaves.*

(a) *Maple Leaf Blotch* (*Rhytisma acerinum*). (Fig. 1780.) Frequently the upper surfaces of the leaves of maples contain large black patches of a fungous nature. These patches make their appearance in June, and are then yellowish in color, but a little later they turn black and thick, forming a sort of scab, due to the fact that the mycelium becomes hard and dense. During

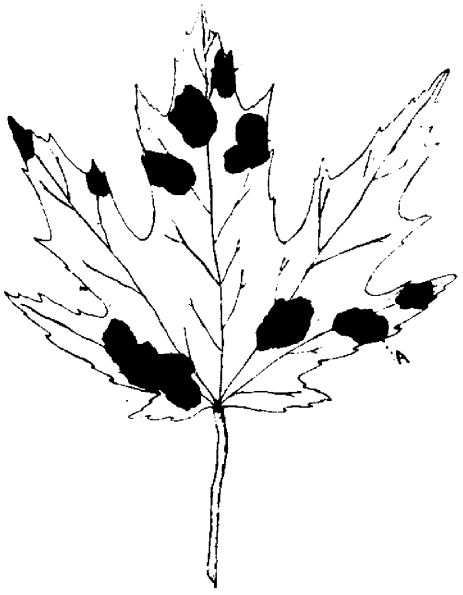


Fig. 1780. Rhytisma acerinum (Maple Leaf Blotch) showing the sclerotium spots. (a) on a maple leaf. These sclerotia become wrinkled and contain the apothecia with the asci and spores. (Original).

the winter, spores are produced in cavities called *asci*, and in the spring they become mature and are liberated. In this way the infection is carried to trees in the neighborhood.

The only practicable method of preventing the spread of this fungus is to gather up and burn the leaves before the spores are set free in the spring.

(b) *Pine Leaf-Cast* (*Lophodermium pinastri*). (Fig. 1781.) Sometimes the leaves of young, seedling pines fall prematurely, and, if the leaves are examined, small, oval, black spots may be seen. These are the masses of asci, each containing eight spores, which rupture only after long-continued wet weather. In some of the islands of the islands of the Muskoka lakes large areas of young pine trees were completely defoliated during the summer of 1899 by this fungus.

No remedial treatment can be suggested for this disease, especially after the mycelium has gained an entrance to the inner tissues.

*Summary.* Shade-trees are liable to attacks from many quarters. Not only are insect enemies plentiful, but fungous enemies are even more abundant, and await the first favorable opportunity to make the attack. These opportunities come quite frequently during the life of an ordinary shade-tree. They come when outside conditions are unfavorable to the healthy working of the organs of the tree, when, for example, the food supply is inadequate, the drainage poor, or the water supply extreme. The tree becomes weakened, and in its weakened state cannot ward off the host of invaders. Wounds, brought on by storms of wind or hail, when portions of the bark are bruised, or branches torn off, form very suitable places for the entrance of both fungi and insects. In every case ths old adage, "a stitch in time saves nine," holds true, and frequently a little labor at the outbreak will not only save a great amount of labor later on, but also, perhaps, the life of the tree.

The chief insect and fungous enemies of shade trees have been discussed as fully as

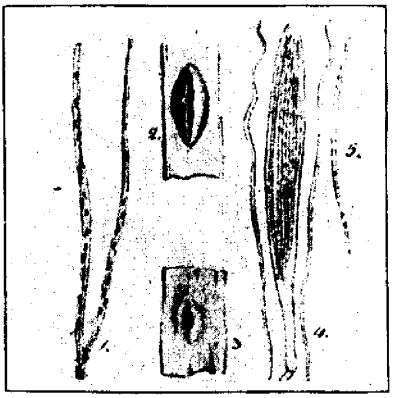


Fig. 1781. Lophodermium pinastri (Pine Leaf Cast, (1) leaves with the fungus. Within the apothecia are the club-shaped asci which contain the spores. (After Massee).

space would permit, and it must be inferred that the enemies are numerous. The owner who takes great care of his trees—along the lines laid down in these articles—will be abundantly rewarded in seeing his trees "things of beauty and joys forever," while his careless neighbor will probably be lamenting his "hard luck." Shade trees must be treated as living, organic beings -fed with abundant nutritious food, and cared for by attending to their wounds—if they are to furnish that refreshing shade in summer, that peculiar beauty all their own, and that protection from the blasts of winter, which are so much to be desired.

WM. LOCHHEAD.
M. W. DOHERTY.
Ontario Agricultural College, Guelph.

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## CAPE COLONY A FRUIT COUNTRY.

IT WOULD appear that this land of favored climatic conditions has solved the question of shipping tender fruits to Great Britain, and bids fair to have the most excellent success. The Gardeners' Chronicle gives the following note, viz. :

"During last month there were several arrivals from the Cape, per the Union line, the first, per the Dunvegan Castle, a small consignment of peaches, which sold well. The second, per the Guelph, was twelve cases of peaches, in fine order, which sold well. The third ship was the Norman, with 704 cases of fine plums, and 33 of peaches. There was a splendid bloom on the plums, all of which were quickly taken off, at good prices, as also were the peaches. Tantallon Castle arrived on the 3rd inst., brought 392 cases of plums, 141 cases of grapes, and 138 cases of peaches. Plums, some were Simoni, large red, in good condition, boxes of 24 running up to 12s. per box. Others were Golden Drop, fair sized yellow, also in good condition, going as high as 12s. per box of 24. Grapes were small, and slightly hard. They were the first consignment of the season, and must have been picked too early. They were practically given away at Covent Garden, 2d. per pound being the highest price. This shows that care must be taken to send home only fruit in good condition and thoroughly ripe. This lot of grapes were brought home by a passenger who must have little knowledge of the trade. Peaches : Some were in capital condition, running up to 12s. per box of 24. N. B.—All the above fruit was sold privately at Covent Garden, not by public auction. Some peaches were sold at public auction, and, although first-class fruit, realized very low prices. The result does not seem to recommend the public auction sales. The last arrival to note here is that of the ss. Mexican, which arrived on Sunday, 11th inst, bringing 196 cases of peaches, 290 boxes of plums, 102 boxes of nectarines and 60 boxes of grapes."

Of course these fruits from South Africa will not compete with ours, because their summer is our winter ; but if they can succeed, and cross the tropics, why can we not succeed with less distance and cooler air ?

There is no doubt a great deal of truth in the point made about the private sale of the goods. Ours are always sold by public auction, and this may count against our best success, especially while our goods are looked upon as novelties.

FIG. 1782. LODGE AND ELM AVENUE, CENTRAL EXPERIMENTAL FARM, OTTAWA.

## CENTRAL EXPERIMENTAL FARM NOTES—No. 6.

THE weather has been very changeable this winter, so changeable in fact that there have been few instances where two days of the same kind of weather followed one another. At no time was there much over a foot of snow on the ground until quite recently. About the third week of January there was a thaw with heavy rains, at which time nearly all the snow disappeared, just enough remaining to make bad sleighing. The lowest temperature of the winter occurred on the 2nd February, when the thermometer registered 21.5° below zero. There was very heavy rain during the second week of February, followed by frost, and from the 16th to the 22nd February there was ice everywhere. Snow on February 22nd and 24th, was followed on the 25th, 26th and 27th, by very cold weather with high winds, the temperature on the 26th being 19° below zero, and on the 27th 18° below. Up to the 1st March there had been comparatively little snow at one time during the winter, but on that day and the next there was a downfall of 18 inches, followed on the 6th by six inches more.

### NUT GROWING FOR PROFIT.

As a correspondent desires to get some information regarding nuts which were hardy in the colder parts of the province, the experience gained in growing nut trees at the Experimental Farm is given this month. It is not likely that nut culture will ever prove a profitable industry in Ontario, unless some of our native nuts are improved by cross-breeding or selection, so that they will com-

pare favorably in thinness of shell and large proportion of kernel with foreign kinds. Few nuts have a finer flavor than our shell-bark hickory and butternut, but in their present condition they are not easily cracked, the kernels are rather difficult to remove, and the proportion of shell is too great. There are already, however, in the United States some improved hickories, which have much thinner shells than the ordinary form. The wood of both hickory and butternut is very valuable, and if these two trees could be planted for their nuts, as well as for timber, they would prove even more valuable than they are now. Both of these trees are quite hardy at Ottawa, and although the shell-bark hickory does not grow naturally here it succeeds well when planted. It is a slow grower, being different in this respect from the butternut, which makes a rapid growth.

It is not likely that the black walnut will ever be improved enough to make it valuable for its nuts. It is quite possible, however, that hybrids between this tree and the Persian or English walnut (*Juglans regia*) would produce fruit of good quality and prove hardy in the northern parts of the province. One hybrid between these species, *Juglans Vilmoriniana*, planted in 1897, is quite hardy so far. The English walnut is not hardy at Ottawa, killing back nearly to the ground every year, but the black walnut is perfectly hardy, producing nuts when from nine to ten years of age. Two years ago, however, nuts of the Persian or English walnut were procured from the mountainous districts of Turkestan, where this nut is grown on a commercial scale, and where the winters are very severe. Yearling trees came through last winter without killing back, but they were well protected with snow. It will be interesting noting how this winter affects them. A Japanese walnut (*Juglans sieboldiana*) is perfectly hardy at Ottawa, and bears nuts when from eight to ten years of age. They are of good flavor, very much resembling in this respect our native butternut, but the proportion of kernel is so small that they are of no commercial value here.

The European filbert or hazel nut (*Corylus avellana*) does not succeed in the colder parts of Ontario, nor will it set fruit in the more favored parts of the province. At Ottawa the wood, in many cases, kills back, but there are specimens growing here which are almost hardy. The reason why the nuts do not set is that the pollen from the male flowers is shed before the female flowers are in a condition to receive it, the result being that the latter are not fertilized and no fruit forms. We have, however, two good hardy native hazels in Canada, *Corylus rostrata* and *C. americana*, which produce nuts of good quality, and which possibly may be improved.

The American sweet chestnut (*Castanea dentata*) is not perfectly hardy at Ottawa. A few trees, however, out of many tested are quite hardy and have flowered and produced nuts, but no kernels were developed.

It would be an interesting work for someone to try and improve our hardy nuts by selection and hybridization.

W. T. MACOUN, Horticulturist.
Central Experimental Farm, Ottawa.

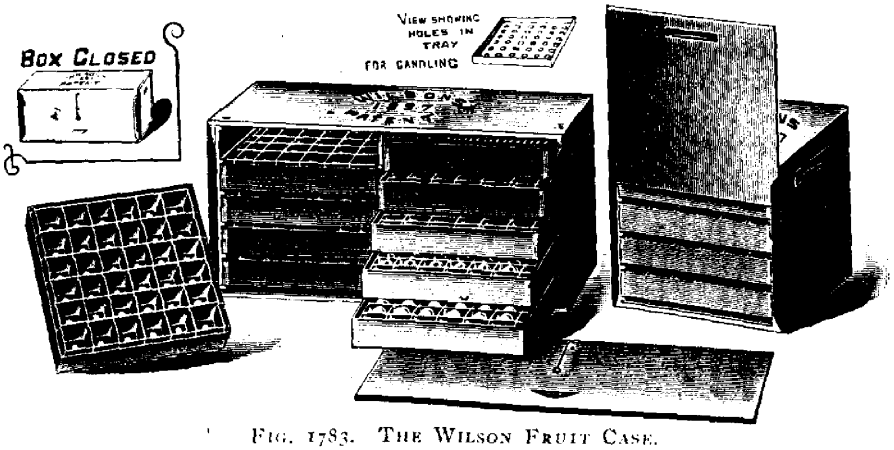


FIG. 1783. THE WILSON FRUIT CASE.

## INGENIOUS PACKAGES.

THE agitation over inspection of fruit packages has given rise to several new inventions of packages adapted for the purpose. The barrel is notorious for being packed fraudulently, and cannot be inspected without emptying out the whole contents, and for these two reasons a different package for high grade stock is being proposed. In our regular shipments we have been using a bushel case 24 x 12 x 12 scant, which when filled weighs about 55 lbs., and holds about four layers of 2¾ inch apples, of four apples wide and eight long, or in all 128 apples.

FIG. 1784. THE WARTMAN FRUIT CASE.

During the winter just passed two new fruit cases have been patented, one by Mr. E. H. Wartman, of Kingston, the inventor of the fruit grader and which is shown in Fig. 1784, which affords an easy method of removing each layer on its tray and replacing the whole without disturbing them. Mr. Wart- writes, "I forward you a photo of my new patent fruit box, known as Wartman's Safe Shipping Fruit Box. It has two points worthy of notice, (1) every apple or pear can be inspected in five seconds without disturbing one apple or pear. (2) The reversible padded trays keep the fruit from bruising, as each apple is slightly imbedded in a pad, which also acts as an absorbent of moisture."

The other fruit case has been invented by Wm. Wilson, of London, Ont., the inventor of the well known egg case, and the differ-

ent forms and trays with fillers are well shown in the accompanying engraving.

The special features claimed for this tray are the convenience of inspection, and perfect carriage of fruit. Mr. Wilson, the inventor, writes of it, "Cases will be made of various sizes to suit the apple trade. It will be observed that fillers are used to keep each apple intact in its own compartment. The size of the filler determines the size of the case, it is intended to make the fillers 2½ inch cube, 2¾ inch cube and 3 inch cube, putting eight fillers and trays in each case, and as each tray and filler holds 25 apples there will be 200 apples in each case, and it is estimated that this case complete can be sold to shippers in quantities at 50 cents each. I think the various advantages of my case will speak for themselves, especially the convenience for instant inspection of all contents: and as the Dominion Government are now contemplating official inspection of all export apples, I trust the merits of my case will be somewhat more appreciated than in the past, for both egg and fruit shippers have been against me because my case showed up everything. The trays and fillers have been hitherto made of ordinary stiff strawboard and cardboard, but we will now try and supply some of the best moist-proof, odorless spruce-fiber."

These cases seem to evidence a move in the right direction, and when we have tried them we shall be able to give some definite opinion as to their suitability to the purpose. We must however object to any apple or pear package holding over a bushel. For a larger package than a bushel the barrel cannot be supplanted, but for the retailer of choice samples an attractive box holding from 20 to 50 pounds of fruit, easily lifted and carried about, is the thing wanted.

Whether these packages are too high priced is an important question. Packages already eat up a large portion of the fruit grower's income, and we must decidedly object to any increase in this direction. The ordinary bushel box without partitions costs only 11 cents, and the wrapping paper only three cents, so that is only about 14 or 15 cents a bushel, or little more than the barrel. Possibly for some extra fancy Wealthy or Snow apples a higher priced package might be indulged in if it met a proportional high class trade, as indeed the Cochrane fruit case seems to have done, a case that is more expensive than the Wilson case.

## THE CODLING MOTH.

Brothers, in Green's Fruit Grower, gives the following as his experience in combatting this enemy, and it will be interesting to us in view of our own efforts to stop its ravages:

Having stored large quantities of apples in his cellar he has attempted to destroy the codling moth that may have remained in the barrels, or that have escaped in the cellar, by burning sulphur, but concludes that this sulphur burning did no good. He thinks boxes and barrels in which apples have been wintered should be scalded before using again.

He has sprayed his orchards with one pound of Paris green to 200 gallons of water. The first time, May 31st to June 3rd, beginning just as soon as the blossoms have fallen. The second time he sprayed June 13th to 16th, and the third time June 24th to 27th. He also puts bags and sacks on the trees the first week in June and took them off for the first time July 4th, and caught 200 worms from 750 trees. The second time he took off the bags July 15th and caught 997 worms. He took the bags off again August 2nd and August 12th, also August 22nd and September 6th, catching the most worms the last time the sacks and bags were removed, but caught a large number at each removal. The last time he took the bags off, which was the last week in September, he found 2,315 worms. He has so far relieved his apples of the codling moth, whereas formerly, without treatment, about 90 per cent. of his apples were wormy; now 90 per cent. of his apples are free from worms.

# THE QUEBEC FRUIT GROWERS.

SIR,—Permit me, as the delegate from the Ontario Fruit Growers' Association to the Pomological and Fruit Growing Society of the Province of Quebec, to give your readers a brief report of my visit.

The meeting was held this year in the beautiful and prosperous town of Granby. The attendance from a distance was very good, but for some reason there was not much interest shown by the townspeople. I have learned that in former meetings the attendance has been large.

The Society, unlike our own, holds a summer meeting, which allows the members to become acquainted with the fruit growing and fruit growers of various parts of the Province. The number of members is small compared with ours—about 100. They have no periodical such as the Horticulturist, owing to the fact that such a work would need to be printed in two languages, which would make it too expensive. Thus they have no common medium of exchange of ideas except their two annual meetings. They have not yet our splendid local horticultural societies to increase their membership.

Though thus handicapped, still the Society is doing a splendid work, and is full of enthusiasm. The papers read, and the discussions carried on showed that they were not a whit behind the Ontario Society.

Your representative was most cordially received, and your fraternal greeting warmly reciprocated.

They appointed a committee to consider the resolutions passed at our Whitby meeting re the packing, grading of fruit, and the marking of packages.

They reported favorably, but suggested some variations in the marking of packages.

The sessions were made interesting and profitable by the presence of Prof. Waugh, of the Vermont Agricultural College, Prof. Macoun and Prof. Fletcher of Ottawa, and Prof. Penhallow of McGill.

Some of the good points made by the speakers are following: 2% of Bordeaux mixture will destroy mustard without injuring the grain. J. C. Chapais has the most northerly orchard in Canada, at St. Denis. He can grow Fameuse, St. Lawrence, and many others; also better cherries than Montreal. The Trabische is his hardiest plum. The white Alpine strawberry bears fruit from June 15th to October 15th. His Alexander apples were the largest sent from Canada to the Paris Exposition. W. Craig, jun., spoke on roadside trees. He would plant our own native trees, and not closely together. He would advise trial planting of walnut trees. Roadside trees raise the price of the land, and provide shelter from winds.

Prof. Penhallow gave a valuable paper on the History of Horticultural Societies in the Province. 1854 saw the formation of the first society at Montreal, and 1875 its revival. Chas. Gibb was the first promoter of fruit culture in the Province.

Mr. Thomas Slack, in his paper on "Intensive Cultivation," advised good seed, good soil and good cultivation. Weeds are the lazy man's friend, because they compel him to cultivate his crop. He finds it profitable to raise lettuce in winter under glass for the Montreal market.

Mr. Brodie, in his paper on "The Culture of Celery," said that he raises the White Plume, and does not plant in trenches. He does not cover the crowns. The pink and red varieties are best in quality. For wintering the dwarf is the best.

Mr. Grindley and Mr. Shepherd, who have had extensive experience in shipping fruit to the British market, gave some valuable in-

formation on best kinds to ship, and how to pack. Barrels with straight staves, or boxes should be used, whereby slackness and bruising would be avoided. The engineers, who control the temperature on shipboard, do not honestly keep their log books of the temperature. Butter is often put in same hold as fruit. Butter requires 26 of cold and apples 34 . The fruit becomes chilled, and even frozen, and when landed looks well, but soon rots. Hay also is put in same hold as apples, causing mould. An inspector should be sent with each fruit vessel. Ship but few kinds and in large lots, as California and Nova Scotia do.

Prof. Waugh spoke on "Horticulture in Literature." He gave an exhaustive account of the subject, embracing all the classical writers, such as Hesiod, Virgil, Pliny, etc., and the best modern writers, such as Fessenden, Cobbett, Henderson, Bailey, etc. He spoke very highly of our "Horticulturist."

Prof. Macoun said that spraying should be specially done in years when the crop is small, or when insects are few, for then the rings and eggs of tent caterpillars are smaller and fewer from want of food.

Extreme cold does not affect insects.

The plum curculio affects apples in Quebec.

The remedy for the borer is soap wash in June.

For the apple maggot, pick up and destroy fallen apples.

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## SUMMARY OF FRUIT GROWING AT ABBOTSFORD, P. Q.

ABBOTSFORD is situated at the base of the Yamaska Mountain in the County of Rouville, P. Q., about forty miles east of Montreal, and for many years has been noted for its fruits both at home and abroad, which thrive in a porous, gravelly soil naturally adapted to the apple, on the slopes of the second trap mountain east of St. Hilaire.

No doubt the early settlers brought with them cuttings of their choicest plants and vines, and seeds of their favorite fruits as a nucleus of the family garden and orchard, which are numerous ; numbering many commercial orchards containing most of the hardy varieties of the apple, pear, plum, cherry, grape and other small fruits which it is possible to grow in a climate where vegetation is liable to be injured by frost during nine months of the year.

The first seedling orchard at Abbotsford was planted by one Joel Frizzle, of about one arpant in extent, and it came into bearing in 1812, or earlier.

The first grafted trees were brought here in 1810, by the late Col. O'Dwyer, and consisted of three varieties ; the Blue Pearmain, Late Strawberry or Foundling, and a Flat Graft, an apple of good quality whose name was lost. These trees were procured from the Spalding nursery at Shefford Mountain, the scions of which came formerly from the New England States.

The Fameuse, Pomme Grise, and Bourassa, were brought from Montreal in 1826 by the late Rev. Joseph Abbott. Grafting was introduced in 1823 by the late Samuel Jackman, and the art of budding in 1846 by the late Rev. Thomas Johnson.

The first regular commercial nursery was established in 1857 by N. Cotton Fisk, and some others followed on the same lines, when the Abbotsford grown trees were much sought after by planters, and now at the close of the 19th century forms the foundation of many a valuable orchard through the Province of Quebec.

The Fruit Growers' Association of Abbotsford was organized in December, 1874, and may be styled the pioneer society, as it was

the first county, or local organization of the kind in the Province. In 1875 it published after much correspondence and discussion with over a hundred persons, exclusive of Abbotsford, the first fruit list of the Province of Quebec, containing much valuable information as to the best and hardiest varieties of the apple, pear, plum, cherry, grape and other small fruits adapted to our climate. It held its first exhibition on September 20th, 1876, and after holding three exhibitions, and publishing a fruit list at considerable expense, it received its first Government grant of fifty dollars in 1879.

In 1884 importations were made by the Society of Russian apple trees, from the North Western States, and also Russian and North German pear, plum and cherry, from the Academy at Petrowskoe Rosumowskoe, near Moscow; from this last importation all available scions were cut and set upon root grafts, and during the period between the years of 1884 and 1890, no less than 1285 trees were distributed to the members, and as these were necessarily planted on a variety of soils, entailing different exposures, each member practically became an assistant in testing these new fruits, which in most cases have proved more hardy and productive than many of the old varieties, though often lacking in quality and keeping propensities.

In 1893, application was made by several of the leading fruit growers of the Province of Quebec to the Provincial Legislature to incorporate a Provincial society under the name of "The Pomological and Fruit Growing Society of the Province of Quebec," which was granted by the Government in January, 1894, when a meeting was convened and held at Abbotsford on the 8th and 9th of February, attended by delegates from different parts of the Province, as well as from the Experimental Farm, Ottawa. Mr. J. M. Fisk was moved to the chair, and after some discussion it was deemed but just to Abbotsford that the first president should be an Abbotsford man, consequently the mantle fell upon the chairman. A committee was named to divide the Province into nine electoral districts, after which a Director was elected to represent each district, a constitution adopted, and many interesting papers read, which brought out animated discussions. The Society is still carrying on the good work, holding a summer and winter meeting in different parts of the Province; and as the transactions of these meetings are reported, and published by the Government in both the English and French languages, they form a source of great value from an educational point of view, and should be in the hands of every fruit grower and farmer of the Province.

Cider making has been in vogue here for upwards of seventy-five years, bringing into use almost every known device for crushing and pressing the apple, from the old sweep cog-roller and lever cheese press to the most modern horse-power fluted roller and screw press; and for family use, the improved Buckeye hand press mills.

In 1897, Mr. Robert Gillespie erected a cider and vinegar plant, introducing the "Gould Generator," quick process system for making vinegar, and with "The 20th Century Multiple Filter" a superior quality of vinegar is manufactured and placed upon the market.

In 1898, petition by the Society was made to the Government for a special grant, and the privilege of using its funds for that year, (instead of holding an exhibition) to co-operate towards the erection of a Parish hall in which the Society could hold its meetings and exhibitions, which was granted, placing the Society in a position heretofore not enjoyed.

Spraying was introduced in 1888, and is still followed by most of our growers with beneficial results in combating both the fungous and insect pests; and by this means,

with good cultivation and pruning, our fruits are classed among the best, and find a ready sale both for the export trade and home consumption. And it also places them in the first ranks upon the Exhibition tables of the world, having appeared from time to time on most of the Exhibition tables of the Province, as well as upon those of the Centennial at Philadelphia in 1876, the Intercolonial and Indian at London, England, in 1886, the World's Fair in Chicago in 1893, and now, at the close of the 19th century, we hope to be creditably represented at the Paris International Exhibition of 1900.

It would be unseemly to close this summary of the fruit interest of Abbotsford without referring to the late Chas. Gibb, who for seventeen years was the leading spirit and promoter of the fruit interest of the Province.

Mr. Gibb first visited Abbotsford in 1872, and so pleased was he with the impetus already given to fruit growing, that he decided to throw in his lot with us, and purchased a farm of 120 acres favorably situated for orcharding, upon which he settled in March, 1873, and at once entered upon his new field of labor with the zeal of an enthusiast.

Being possessed of considerable means he was enabled to carry out many a well formed plan of travel, through which he introduced many varieties of new fruits, as well as species of ornamental and forest trees, having at one time on trial no less than 145 varieties which were not natives of this Province; the survivals of some of the hardiest of these adorn our roadsides as shade trees at the present day.

His grounds were also turned into an experimental testing station for almost every conceivable variety of fruit which could possibly be grown in northern climates; and his many writings on fruit and arborculture are accepted as authority from one who knew whereof he wrote. Besides visiting most parts of Canada and the U. S. A., always with the fruit interest in view, he twice visited Russia and Northern Europe. First in 1882, in company with Prof. J. L. Budd, of Ames, Iowa, and again in 1886 alone. In June, 1889, he left on a tour of research around the world via Vancouver, Japan, Hong Kong, Ceylon, Calcutta and Bombay; and while at Cairo, Egypt, was seized with a fatal illness and died on the 8th March, 1890, thus ending a life patriotically spent in the interest of his country.

Abbotsford, Que. J. M. Fisk.

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## DISTANCE BETWEEN TREES OR PLANTS IN PLANTATIONS.

Standard Apples, 30 to 40 feet apart each way. In poor soil, 25 feet may be enough.

Standard Pears and Cherries, 20 feet apart each way. Cherries will do at 18 feet, and the dwarf growing sorts, Dukes and Morellos, even at 16 feet.

Standard Plums, Peaches, Apricots, and Nectarines, 16 to 18 feet apart each way.

Quinces, 10 to 12 feet apart each way.

Dwarf or Pyramidal Pears, Cherries and Plums, 10 to 12 feet apart each way. The greater distance is better where land is not scarce.

Dwarf Apples, on Paradise stock (bushes) 6 feet apart.

Currants, Gooseberries and Raspberries, 3 to 4 feet apart.

Blackberries, 6 to 7 feet apart.

Grapes, 8 to 10 feet apart.

# LANDSCAPE GARDENING—IV.

IN the making of fine gardens and the arrangement of decorative plants, more particularly those which are used for a summer decoration, there is room for a new profession, which even now is practiced, but is not distinguished from the practice of the landscape architect. It requires a thorough knowledge of this very large class of decorative plants, with the skill and taste necessary to make brilliant, yet refined and artistic, combinations, not only harmonious in themselves but harmonizing with their surroundings. Such a profession has already been called ornamental gardening. It is not gardening in the sense of growing of plants. To have the knowledge and skill to grow the many plants and their varieties now cultivated, and at the same time to keep up with the new introductions, will tax the resources of a very active brain; there are few that can do it. Many gardeners are skilful in arranging combinations of garden plants; perhaps some of them would be more successful at ornamental gardening or designing than at gardening. It is certain that there are landscape gardeners, and probably already ornamental gardeners, who cannot successfully grow all, and perhaps can grow only a very few, of the plants they use.

There are fashions in gardens and fashions in plants, and too often a plant is considered essential because it happens to be popular. The ornamental gardener who is working for an artistic result will not hesitate to use the commonest weed, if it furnishes just the shade, texture, or form that he requires—the common burdock perhaps, or silver weed.

The beautiful landscape of a park will never go out of fashion, and the landscape architect in producing such, uses plants as a painter uses his pigments in painting a picture. He paints in a broad way; the minutiæ of detail of the garden and the lawn would not only be lost to the eye but would very likely defeat the very object he is working for. With him the garden standard of value counts for little. Very common plants like the willows, cat-tails, and sedges, or even the common rhubarb, may make the foundation of a picture that will challenge the admiration of the critic and even of the multitude.

There is more or less fashion displayed in the planting of a lawn; it would be better if the vagaries of fashion were confined to the garden, and that the lawn should partake more of the character of a bit of landscape, or a grassy glade, or opening in the midst of shrubbery or wood, for it is not always that the breadth of view, which makes up a landscape, can be secured in or across a lawn. It should have a beautiful fringing of green, varying in texture, color, and outline, with a frequent glow and constant sparkle of flowers, with groups and fine individuals breaking out from the bordering masses, but not interrupting the open centre of the lawn, excepting to increase the appearance of distance. You would expect to use a larger assortment in the lawn than in a distant border plantation,—more exotics and more of the garden varieties having variations in flower,—but certain reliable varieties should predominate and establish a character for the planting which will be in keeping with the character of the place. The position of groups on the lawn will be governed by the views and by the topography of the ground. In general, elevations will be planted high and depressions low, or not at all, to increase their apparent height or depth. The planting would be arranged so that a slope would be away from it rather than toward it. A border plantation having an irregular edge with points and depressions, gives more opportunity for variety and more effects of light and shade than a straight edge. Groups and individuals would in general be used to

increase the prominence of the points—not to fill up the bays. In selecting plants, the greatest care must be taken not to select too large growing kinds for the places they are to occupy. A border plantation should be an irregular mass of foliage rather than a series of distinct individuals. To produce such an effect, thick planting is usually best, for a quicker result is secured; also a more natural and graceful outline, and less care and cultivation are required. The plants will thin themselves naturally, but it is, of course, better to do a little thinning and training every year to encourage the development of interesting details, but it should be done with a definite object in view. Unless this can be done in an intelligent manner under the close direction of some one who comprehends and is in sympathy with the design, it would be safer not to have it done at all. There is no good reason for trimming shrubs, as it is ordinarily done. Surely nothing could be more ugly than the broom-headed shrubbery which is seen on many lawns, both public and private. A decoration of fagot street brooms would be about as handsome as much of it. It is neither natural nor formal. If a place is adapted to a formal treatment, and is so treated, the selection of plants to be trimmed formally would not include an indiscriminate assortment of garden shrubs, but would be made up only of those that were adapted to this treatment. Too often men who call themselves gardeners are responsible for the almost universal mutilation and misplacing of shrubs, and I believe I am safe in saying that many who are gardeners are often guilty. It would seem that the gardener's training is directed toward making successful growers of greenhouse and garden flowers and vegetables, and that there is seldom acquired anything more than a very superficial knowledge of the commonest hardy woody plants and their treatment.

If the ground has been thoroughly prepared in the beginning and a good top-dressing is given every winter, but little further cultivation will be required after the plants have become established and have grown sufficiently to cover the ground. There is no more occasion to tear up the surface, and with it the surface roots every spring with spade or fork, than there would be to tear up the surface of a beautiful roadside thicket to keep it in good condition.

Shrubs and small trees should predominate in a small place. That very large trees cannot be used to advantage should be evident to any one giving thought to the subject, yet you will see in the majority of places large growing deciduous and evergreen trees placed so near the walks or buildings that they will in a very few years become obstructions. Broad-leafed evergreens, while more expensive, are as a rule better and more permanent for a winter effect on a small place than coniferous trees. The best plants are those which are nursery grown. Wild plants of certain varieties, if properly handled, will transplant well, and produce a good effect, but without experience in handling such plants the result is likely to be unsatisfactory. It is very difficult to get native plants of many kinds in large quantities from the nurseries, and it is in this that the landscape architect can often help to good advantage, as it is usually part of his practice to keep informed as to where such plants can be obtained.

The employment of a trained gardener on a small or medium sized place is not practicable. Men offering themselves as gardeners at day laborers' wages are more likely to bring discredit than credit to a profession that requires for success, intelligence, enthusiasm, and a true love of the work. A good gardener loves his flowers and plants next to his family, and is as impatient of neglect and bad treatment of the one as of the other. Such a man soon finds and stays in a good position with fair pay,—not as much as his skill and intelligence deserve perhaps, but in many ways preferable to

other work where more dollars per day are earned. I believe it is safe to say that the majority of those who call themselves gardeners, who are drifting about and ready to accept a position at any price, are not safe men to have on a place. Their assurance is in proportion to their ignorance, and by taking advantage of the ignorance of their employers they can do more damage to a place than the proprietor himself could, however ignorant of gardening. For this reason I believe it is safer for him to employ a willing and industrious man who lays no claim to a knowledge of gardening, but who will do as he is told, and give him directions how to do the work on the place. If errors are then made, they will only serve to increase the knowledge and interest of the proprietor.

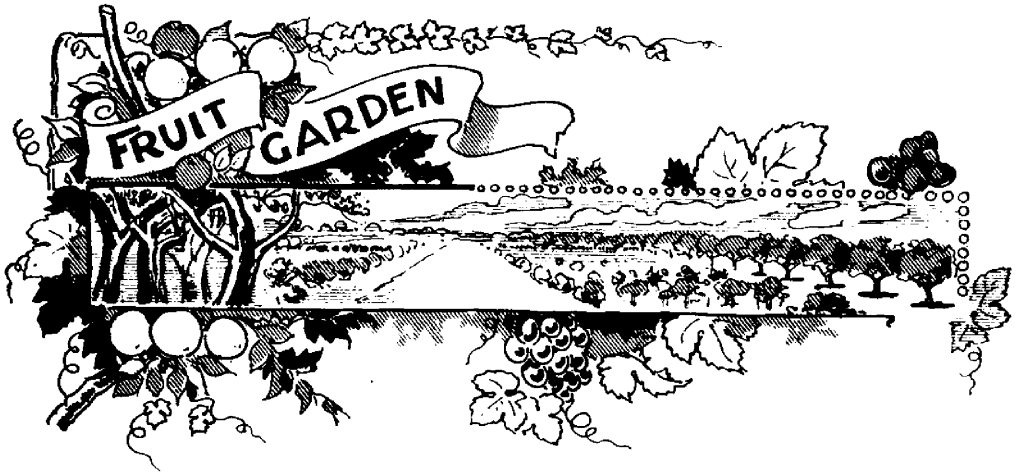
In this writing I have had in view small or medium sized home places especially. I have hardly touched on the service the landscape architect may be to the real estate owner in planning his property to avoid steep grades and heavy cuts and fills, in preserving and developing the natural features of the place, in so arranging the lots that each may be accessible and have as nearly equal advantages as possible, and in planting to utilize the material on the grounds; to the village, town, or city in designing public recreation grounds and the surroundings of public buildings, advising with regard to street tree planting or roadside improvement; to cemeteries in designing the grounds and their decorations; to public amusement resorts in providing a convenient and pleasing arrangement of buildings and grounds, laid out in a manner to educate rather than to degrade public taste.

Some information as to the methods employed by the landscape architect, or landscape gardener, in carrying on his profession may be of service to those who contemplate employing such assistance. Some make a charge for their plan, a profit on the men employed in superintendence, and also a profit on the plants used, which they supply partly from nurseries of their own and partly by purchasing from other nurseries. There are others whose practice is the same, except that they have no nursery of their own or no personal interest in one. Others prepare plans and superintend the construction for a percentage of the cost, and still others contract for a specified sum to design, furnish all material, and construct a place. Where it is taken up as a profession purely, the practice is to make a charge for general design and report also for working drawings, estimates of cost and superintendence. Such charges are usually based on the difficulty of the undertaking rather than on the cost. On any purchases of materials that are made it is the practice to give the client the benefit of the lowest rates which frequent and often large purchases enable the landscape architect to procure.

Where a trained landscape architect is not available and the proprietor or any of his family has not the time or disposition to study into and direct the work, then the safest course would be to trust to your local florist, nurseryman, or contractor, securing from him an estimate of the cost in advance. You can hardly expect to get very artistic or original results, for the greater part of their time and thought must be given to the successful conduct of their business, of which this forms only a small department. It is very often to the local florist, nurseryman, or contractor that the landscape architect looks for his skilled assistance in carrying out the details on a place, under the direction of his trained assistants who are familiar with the plans and the results desired.

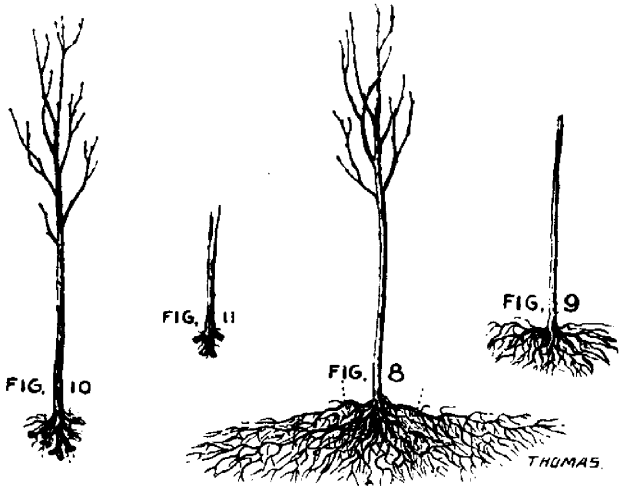
I believe the time is not far distant when the man who is to build a new place, or remodel an old one, and who wishes to secure the best and most economical result, will call in the landscape architect to help him plan the ground, as he now calls in the building architect to help him plan the building.

Boston, Mass. W. H. MANNING.




# FRUIT CULTURE —III.

SELECTION OF TREES AND PLANTING. With all trees a medium-sized healthy tree with good fibrous roots is to be preferred to larger and older stock. If possible it is better to buy the trees from some reliable nurseryman in your own locality. Trees will then not run so many dangers in transplanting, and the purchaser may often see them dug himself. It makes a considerable difference as to how trees are dug from the nursery row, and there is always gross carelessness in this respect. Fig. 8 represents the tree as it stands in the nursery row. In Fig. 9 is seen a tree dug as it should be, with a fair proportion of the fibrous roots. Fig. 10 is an example of too many of the trees sent out, and Fig. 11 represents the worst form.




In Ontario generally, and with nearly all fruits, spring planting is preferable to planting in the fall. Most nurserymen, however, dig the trees in the fall, and the purchaser is often in a better position to buy them then, and they can be 'heeled in' for the winter with little trouble or risk. A place where the ground is mellow and well drained should be selected, the bunches of trees should be opened up and the earth well packed in among the roots. If mice are likely to bother, heel in the trees in an erect position in a sheltered place. Otherwise a sloping position as in Fig. 12 is better, with earth covering a good part of the stem.

When trees are received from the nursery in the spring they should also be heeled in carefully till wanted. Too many trees are lost from a neglect of this practice. Any

trees received with very dry roots should be placed in water for a time, or better, in mud. In planting, and this applies to all trees and bushes alike, the holes should be dug large enough to take in the roots without cramping, a few shovelfuls of moist and mellow top soil packed firmly round the roots, the hole filled in and firmed thoroughly to within a couple of inches from the top, where the dirt should form a loose mulch. Manure or fertilizers should not be put in direct contact with the young roots. The firm packing of the earth is very important. The trimming of the tops of the newly-set trees will be spoken of later, as different methods apply to the various trees, vines and bushes; but in all cases the bruised and torn roots should be trimmed off before planting, and exceptionally long roots may be cut back to correspond with the rest of the system.

FIG. 12

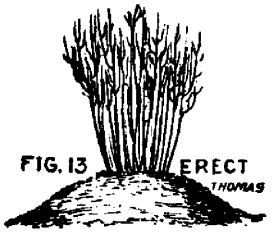


FIG. 13

THE VARIETY QUESTION.—This important phase of fruit culture is one upon which endless questions are asked, and upon which advice is often a difficult and dangerous matter. The man who plants for his own use requires, in addition to hardiness and a fairly productive habit, high quality in the fruit. He who is planting for commercial purposes will rate productiveness and a showy appearance far higher than quality. The question is more complicated from the fact that local conditions have a strong effect on the behavior of varieties. To such an extent is this true that a variety successfully grown in one district may be almost worthless on different soil and with a slightly different climate. Any varieties named in the following chapters will be such as have been tested under a good many conditions and over a large extent of territory. A few suggestions may be offered to intending planters. Do not buy largely of any variety simply on the recommendation of the nursery agent. Nurserymen, it is true, try to grow chiefly the varieties that are most called for, but they naturally propagate new varieties to a considerable extent, and also have a natural preference for varieties that grow easily and thriftily. The nurseryman is only human and he very reasonably, therefore, pushes the sale of his surplus stock. If that surplus consists of undesirable varieties somebody will eventually be hurt. Lots of our nurserymen are honorable men, well posted in their business. The purchaser is safe in such hands. But to buy from an irresponsible agent, varieties of which the purchaser knows nothing, simply from the glowing description given by the seller, is courting disaster, indeed. Eschew new varieties except to a small extent for testing purposes. Ninety-five per cent. of the new varieties come on the market with a flourish of trumpets and descend to an inglorious grave within a few years. Let the intending purchaser make up his mind what kind of tree he wants—hardy, productive, early, late or what not—and then if the requisite qualities are claimed for any particular kind, find if such variety has been tested in his district. If it has not it would be wise on his part to enquire about it from the Horticultural Department at the Central Farm, Ottawa, or the Ontario Agricultural College, or write to the nearest fruit experiment station.

INSECTS AND FUNGI.—Nobody who takes up fruit culture, even in a small way, can expect to achieve success without some knowledge of insects and fungous diseases. In the Farmers' Institute Report for 1896-7

will be found a capital outline of entomology, written by the late Prof. Panton. Anyone who carefully refers to that article will be able to get a good grasp of the subject. The bulletins issued by the Department of Agriculture entitled "Instructions in Spraying" touch on insects also, as well as the various fungi, such as apple scab and grape mildew. Spraying, though not always a sure cure, will generally successfully control our insect and fungous pests. Success, however, will not be achieved unless there is a right understanding of the nature of the enemy, and prompt and thorough measures taken on the grower's part. Neither the amateur nor the professional can afford to produce fruit of an inferior kind, and it will be a red-letter day for Ontario when her fruit-growing population realizes the fact.

### The Apple.

After all that may be said in favor of pears, plums and peaches, the apple, as far as Ontario generally is concerned, must remain the king of fruits. The keeping qualities of this fruit, the durability of the tree and its adaptability to so wide a range of climate and soil will always make it the staple amongst fruits. It has been demonstrated over and over again that the apple orchard, thoroughly cared for, will be one of the most profitable parts of the farm. Apple growers, generally, are becoming alive to the fact that, with proper methods of grading and packing, the market is practically limitless, and no intelligent man need feel uncertain as to whether or not the planting of an apple orchard will be a profitable investment.

The Soil.—The apple will thrive on a greater variety of soils than, perhaps, any of our fruits. Hard, shallow and wet lands must, however, be avoided. As long as the soil is porous and friable, and the subsoil not too compact, success can be achieved on all soils from sand to clay. Thorough preparation of the soil before planting must be insisted on. It is better to plant on land previously occupied by hoe crops, such land being usually both clearer and in a better mechanical condition. A clover sod plowed the previous fall and thoroughly worked in the spring will also be satisfactory. The site should have a northwesterly or northerly exposure. These matters have been referred to at greater length in the opening chapters on "General Principles."

Buying the Trees.—It is usually best to purchase the trees in the early fall, but with the stipulation that they shall not be removed from the nursery row till the leaves have

*Root-galls upon apple trees from a nursery.* BAILEY

fallen and the wood ripened thoroughly. The subject of fall or spring planting is a much discussed one, each plan having its advantages. There is often more time in the fall to do the necessary work, and if the fall planted trees gets thoroughly established it will no doubt stand a dry summer better than the tree planted in the spring. But the question of the tree ripening its wood before being dug is important. Young trees planted in the fall with wood not matured, when subjected to the severe cold and dry-

ing winds of winter, will be hardly likely to survive. In the colder districts the fall planted tree will in any case have a trying time the first winter and on the whole the consensus of opinion is decidedly in favor of spring planting. Select nothing but well-grown, clean-barked, healthy trees. If any dark discolorations show, where limbs were pruned off the previous year, it indicates poor constitution and the tree should be rejected. Such trees may have what is called "black heart," and will rarely develop into good specimens of the vigorous thrifty kinds. A tree two years old from the bud or graft is to be preferred to older stock. In any case do not plant a tree more than three years old. The younger tree will usually have a more fibrous root, and in nine cases out of ten will outgrow the older stock. Reject also any trees having root-galls, such as are illustrated in Fig. 14. Though little is known of these gall growth, there are grounds for suspecting their contagious character, and it is safer not to plant affected trees.

M. BURRELL.

St. Catharines, Ont.

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## SPRING CULTIVATION OF VINEYARDS AND ORCHARDS.

AS spring approaches, it is the one thought, what will be the best way to work up our vineyards, or orchards, so as to have the ground mellow all summer, and in what way it is best to leave it in the fall to resist the frost and at the same time drain off the surface water? Many growers advocate ploughing up to the vines in the fall, and ploughing away again in the spring; others plough two or three furrows up to the vines in the fall, and complete the ploughing up to the vines when spring comes, after rolling down, and working the same with the disc harrow. And again another method is used:—In the early fall sow rye or crimson clover, which certainly holds the snow and serves as a covering, at the same time furnishing a valuable manure in the spring when ploughed under. But does not that plan of turning over all the soil in the fall (whilst draining the soil well) give the winter frost too good a chance to penetrate the soil and kill the roots, as was the case in that severe winter of 1898 when it was plainly shown that where orchards and vineyards had not been fall ploughed there was hardly any loss from frost killed vines and trees, whilst where the soil had all been ploughed in the fall the frost had got down very deeply and killed many hundreds of vines and trees, and this could clearly be seen in orchards and vineyards, side by side, and so the question presents itself which is the best way for spring and fall cultivation. Here is one which the writer has practiced for many seasons, and has proved the usefulness of it, especially in that severe winter of 1898:

Early in the spring the grape hoe is put in the vineyard or orchard and three furrows are drawn away. A man following with a shovel cleans out any dirt remaining around the tree or vine. This throws all soil and weed seeds right out. This done, the gang plough throws up to the vine or trees all the soil, after which it is well rolled whilst moist, rolling down at noon and at night what was ploughed in morning and afternoon; it can then be left for a while, and is in good condition for the disc harrow which is run through about once a week in the growing season. As the fall draws near reverse the disc so as to throw up the soil to the vines or trees for the last three or four times the disc is run through. This

leaves the soil high and at the same time in good shape for drainage; in this way the soil has time to settle and pack before the winter's severity, and frost at the root.

Vineyards and orchards worked in this way very successfully resisted that disastrous frost of the winter of 1898, which caused such loss of plant life in many orchards and vineyards.

JUNIOR.

Winona.

## THE BEN DAVIS IN NOVA SCOTIA.

SIR,—Perhaps the discussion as to the thrift and hardiness of the Ben Davis has already been sufficiently extended, but, since the quotation from the Nova Scotia Fruit Growers' Association's report, given on page 63 of the February Horticulturist, has implicated me somewhat, may I give my own opinion of the matter. In the first place I do not see how any one could draw the conclusion from what was given in the report above cited that the Ben Davis was either "delicate" or "of short duration." It *is* stated that it is slow growing, but Mr. Donaldson's objection was that the Gravenstein would "outgrow the Ben Davis," not so much because it was a more rapid grower but because of its well known habit of making a comparatively few large branches instead of dividing up into a number of smaller branches as is the habit of the Ben Davis. But this is a question entirely aside from the one of hardiness and thrift. As to these latter points my own opinion, formed from observing this variety both here and in the west, is that there is no other sort which is more thrifty growing or more free from disease. And the only objection which can be urged against planting it here is the one given by Mr. Parker, that we can grow better varieties. Yet, so far, the Ben Davis has given good profits to those who have grown it, and since it is such a healthy tree, it will make capital stocks on which to top-graft other sorts when the Ben Davis has been superseded by some other variety with more juice and less wood in its fruit.

F. C. SEARS.

Wolfville, Nova Scotia.

SIR,—When I saw Rev. Father Burke's article in the December number of the Horticulturist I intended writing a correction of the views he attributed to me regarding the Ben Davis apple in Nova Scotia and P. E. I., but on second thought decided to put myself right at the forthcoming meeting of the P. E. I. Fruit Growers' Association. This I did so far as stating my opinions regarding the Ben Davis for propagation in Prince Edward Island. The publication of Mr. Parker's letter in your February number seems to show that a misapprehension will not down until it is plainly corrected. My remark to Father Burke had regard *only* to the character of the variety in question as a *fast grower* which was based, as far as Nova Scotia opinion was concerned, on the discussion on page 97 of the Nova Scotia Fruit Growers' report for 1898. I certainly did not say that the Ben Davis was regarded as delicate either in Nova Scotia or Prince Edward Island.

The durability of the tree as the producer of marketable apples in the Lower Provinces is a point which was raised by Prof. Craig in his address at the Nova Scotia Exhibition of 1899, and calls for careful consideration. Partizanship for any variety based on insufficient experience should be avoided.

D. FERGUSON.

Tulloch Ave., Charlottetown, P. E. I.

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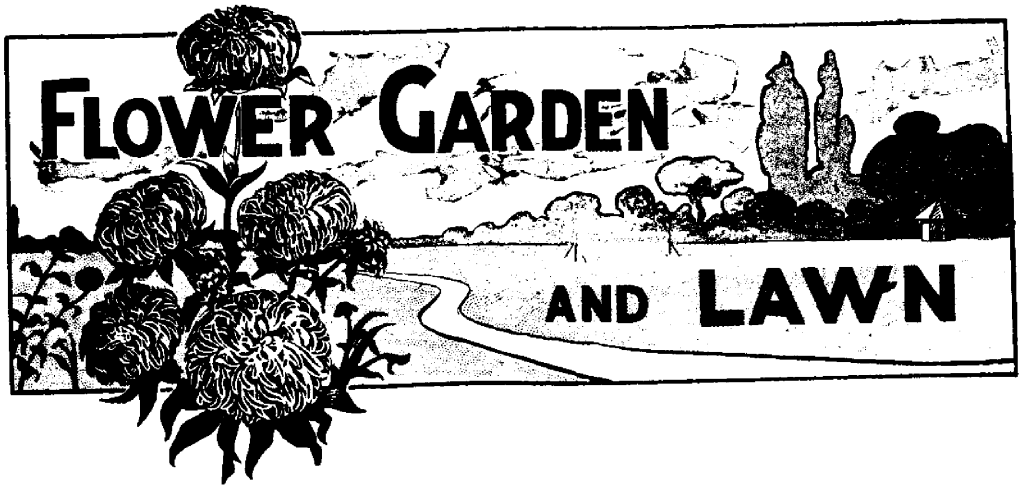
A cheap whitewash paint for outdoors is made by using just enough water to moisten the slaked lime, and then adding kerosene oil to thin it to a consistency for easy application.




## TIMELY TOPICS FOR THE AMATEUR—II.

APRIL! The very word April suggests life and activity to horticulturists generally. It is probably the busiest month of the year in the garden, especially in sowing and planting; and those who apply the most energy intelligently in their gardens during April will have the best chance of securing early and bountiful crops. On earnest and thorough work during this month, mainly depend the crop results of the season.

"April push, tends to Autumn plenty."

THE GREENHOUSE.—The cutting bed should have close attention, potting the cuttings into small pots as soon as sufficiently rooted. Replenish the bed with more cuttings of coleuses, alternantheras, achyranthes, etc., if more plants are required. Alternantheras root better now as a rule than if the cuttings are taken earlier.

Poinsettias should be cut back to the old wood, and when the plants are showing buds, shake out the plants and re-pot them in rather sandy soil. A size smaller pot will probably suit them for a short time, when they must be potted in richer soil, in well drained pots in which they are to flower. If young plants of these are required, after cutting the plants back as just mentioned, instead of re-potting, allow the young shoots to grow until they are three or four inches long, cut them off close to the old wood, with a small piece of the old wood attached, put them in the cutting bed, and when rooted pot into small pots, re-pot into larger pots as required, these will make nice dwarf specimens of these showy decorative plants. poinsettias like plenty of heat and moisture when in a growing state.

Freesias may be dried off gradually, and treated as recommended in the March number of the Journal.

Dutch and Roman bulbs will be about over flowering now. Tulips, and the hardy varieties of narcissus, such as Von Sion, Trumpet Major, etc., that have been forced, may be planted out in the borders outside as soon as frost is out of the ground; these, if left undisturbed for a year or two, will furnish, for successive seasons, large quantities of bloom, and this is the best way to dispose of them, as they are of no use for forcing again the following season.

Roman hyacinths, and the more tender varieties of narcissus, such as Paper White, Grand Monarque, etc., may as well be

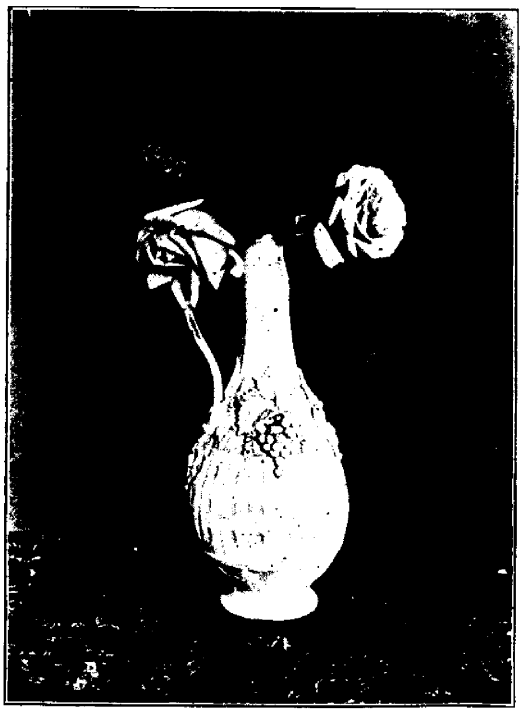


FIG. 1785. TEA ROSES. J. Gadby, Photo
Souvenir d'Wooton. Perle des Jardins. Bridesmaid.

thrown out altogether, as they give poor results under the best of treatment after having been forced. Tuberous begonias should be kept growing in a cool temperature.

Old plants of double flowering primulas (especially Sinensis alba plena) may be divided, and if young roots can be obtained on the divisions, as is often the case, they can be potted at once into 2½ or 3 inch pots in light soil. Water thoroughly and shade the plants well until established; a temperature of 60° to 75° will suit them very well. Cuttings of these plants can be rooted readily in sand, if kept in a temperature as before stated, and kept well shaded and watered.

Rex begonias may be propagated very easily now from old leaves of these plants. There is still time for cuttings of winter flowering Begonias if started at once.

Re-pot young chrysanthemums, never allowing the pots at this stage to be overcrowded with roots.

Balsam, aster, zinnia and similar seeds may be sown.

Transplant early sown annuals, etc., as required, and gradually introduce them to a lower temperature, but not until they have become established after transplanting; this rule applies generally to almost all plants after transplanting.

Sow nasturtiums, ricinus (castor oil bean) as required, one seed of the latter in a 3 inch pot, and two or three seeds of nasturtium in the same sized pot; they will grow on in these until wanted for vases and beds, and can be easily hardened off before planting outside, sown in this way.

Cinerarias and herbaceous calceolarias should be pitched on the rubbish heap as soon as they are out of flower, as they are of no further use, only as a nursery and parade ground for green fly, of which, as a rule, there are plenty at this season of the year without providing nurseries for more.

Azaleas should be re-potted when out of bloom if they require it; use plenty of drainage, light soil packed firm, keep in a temperature of 60° to 75° for a few weeks, water at the roots liberally when required, and syringe daily.

Fancy and zonale pelargoniums should be well in flower by this time. The fancy varieties are very subject to attacks of green fly, and should have been well fumigated whilst growing, and as fumigation when in flower injures the bloom, fumigate lightly, if at all. Syringing these plants when in bloom is not desirable for the same reason.

The young fronds of ferns, especially the Maiden Hair varieties, also spireas, heliotrope, mignonette and coleus, amongst others, are very easily injured by heavy fumigations; lift the plants on to the floor, or cover with newspapers before fumigating.

Damp the floors frequently, syringe fuchsias, lantanas, etc., every day if the weather is suitable, this will help to keep down the red spider.

Shading the glass must be attended to; light shading and renewed as required is better than heavy shading at this season. A good shading for a small greenhouse can be made by mixing whiting and skimmed milk together, sufficient of each to secure the proper consistency; apply on a dry day with a whitewash brush; this makes an effective shading, and does not injure the paint or putty as lime would do.

POINTED POINTS FOR APRIL.—Water growing plants thoroughly, and early in the day. Syringe on bright days early in the afternoon. Pay close attention to shading and ventilation. Close ventilators, and dampen floors early in the afternoon. Fumigate after sundown.

WINDOW PLANTS.—This is a good time to re-pot window plants that require it. Cactus should be potted, after flowering, into sandy soil; use plenty of drainage, but don't over-pot. Many varieties of cactus require re-potting but seldom, especially if the drainage is perfect. Sow seeds of annuals and perennials required for borders. Watch closely for insect pests. Water thoroughly, and syringe two or three times a week on warm days. Dutch and other bulbs that are out of flower can be treated as recommended for greenhouse treatment. If you want three or four plants for the window that will permantly repay you, purchase Sanseveria Zealandica, Ficus elastica, Aspidistra lurida, Echeveria metallica, and Farfugium grande; one of each will always make the window attractive placed amongst geraniums, fuchsias, etc. The Sanseveria requires plenty of drainage, and to be watered thoroughly, but very seldom, and only when dry—once a week, as a rule, is ample. The Farfugium likes plenty of water. The Echeveria requires very little water.

FLOWER GARDEN.—This is a busy time in this department, making the lawns, borders and surroundings spick and span.

All hardy roses should be pruned by this time, winter covering removed and the beds forked over, and any fertilizer applied that is intended to be used. Plant roses and shrubs at once when received. Borders of herbaceous plants should be forked over after removing all winter covering.

Divide and transplant perennials, such as phlox, campanula persicifolia alba, coreopsis, gaillardias, dianthus, etc., all of these and similar varieties give better results if divided and transplanted every two or three years.

German iris and pæonies are better transplanted in the fall. Dutch bulbs will be making a show in the borders now, some of the heavier blooms will require small sticks to support them.

Dahlias, cannas, etc., may be started in pots in a frame or in the window, early bloom is secured in this way; harden them off gradually before planting outside.

All plants, such as oleanders, hydrangeas,

FIG. 1786. CALLA LILIES.

J. Gadby, Photo

FIG. 1787. DUTCH HYACINTH, "NORMA."
J. Gadby, Photo.

etc., should be out of their winter quarters by now; plants of these that have not been re-potted recently, will give better results if treated to a few doses of liquid cow manure once or twice a week after growth has commenced; this is a safe and effective fertilizer for all such plants.

Sow and transplant annuals and biennials as required. Edge walks and roll lawns after rain.

Mignonette that has been grown in pots during the winter may be planted out in the border early in May; you will secure some spikes of bloom early by this method if you don't disturb the roots when transplanting.

Don't forget to shade hot bed sashes, and open and close them morning and afternoon on sunny days; one or two hours' neglect now may mean a season's failure.

FRUIT GARDEN.—Planting and transplanting are the main features just now in the fruit garden.

Plant trees and bushes as soon as possible after receiving them; don't throw the bundle of trees down anywhere and leave the roots exposed to sun and air, and then blame the nurseryman for failures.

In planting give the roots plenty of room in all directions, pack the soil firmly, and don't plant too deep.

If you cannot plant the trees at once, heel them in deep, do not lay them down and throw a little loose soil over them, but dig a good deep hole and place the roots in and tramp the soil firmly around them.

A light mulch of long manure helps newly planted trees, but don't smother the stem of the tree; keep the mulch just clear of the stem. Remove mulch from strawberries, and cultivate until the flowering period, then replace the mulch, you will have cleaner and better fruit by this method. Treat the gooseberry patch in the same way. I find that a light mulch in summer helps the fruit, and keeps down mildew to a great extent.

Rhubarb beds like a heavy mulching of manure in the fall; remove a portion of the mulch now if too heavy.

Spraying apple, pear, and plum trees with the blue stone mixture before the buds swell, keeps down black spots or fungi. For making mixture see published formulas in the "Horticulturist."

VEGETABLE GARDEN. — Plant peas and beans as required for successive crops. A few rows of spinach may be sown for late use. I find the Victoria spinach stands the hot sun best, but the Viroflay is the best for general use. Transplant early celery into frames, or plant in the open ground. Sow main crop of celery seed for late planting. Sow cabbage and cauliflower outside for late crops.

Early cabbage and cauliflower raised in frames may be planted out.

The early express cabbage is a good first early, and comes in quickly, about the time asparagus is getting over.

Sow main crop of carrots, beets, salsify, lettuce and radishes, etc. There is still time for a few leeks, if sown at once and transplanted later. Plant Dutch sets, shalots, and garlic. Sow mustard and cress outside. Sow herbs. Parsley should be sown as early in spring as possible, it takes several weeks for the seed to germinate.

Sprinkle seed onions when about three inches high with dry soot, do this early in the morning when there is a dew, or after a rain; repeat the application twice a week for three or four weeks; if the plants are thoroughly dusted you will not be troubled with onion maggots, as the fly that deposits its eggs in the young onions to produce the maggot will not go near the onion bed if treated in this way.

HORTUS.

Hamilton.

## THE TUBEROSE—ITS CULTURE.

WHITE flowers are, have been, and always will be in demand. They may be used with propriety upon any occasion, being alike suitable for the marriage feast and the funeral ceremony; the hall of amusement and the sick chamber. No lover of beautiful flowers is ever in higher spirits than when he or she is successful in bringing to perfect maturity some beautiful plant and is able to view with admiration the spikes or trusses of perfect, snow-white, sweetly-scented bloom. One of the finest white flowers is the tuberose.

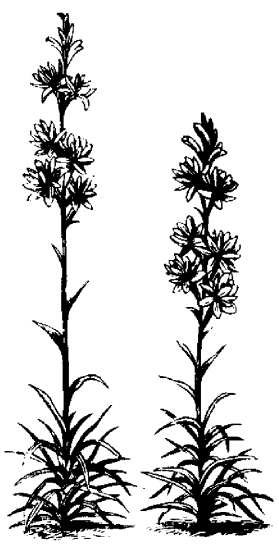


FIG. 1788. THE TUBEROSE.

The tuberose is one of the most beautiful of our summer-flowering bulbs, and yet it is very seldom seen, even in the collections of our most ardent floriculturists. Such a state of affairs should not exist, for its tall spikes of flowers of purest whiteness and waxy texture, emitting, as they do, their unrivalled fragrance, makes it a universal favorite. This beautiful flower was brought from Mexico a good many years ago. It was then introduced in a single form, and from that has sprung our beautiful double and other varieties in cultivation.

It is a belief among very many lovers of floriculture, that to bring this flower to perfection is a difficult task for the amateur, and no doubt this is the reason of its scarcity. Many think that it must have a place in a greenhouse and that the professional florist *only* can hope for success with it. This is not a fact, however, and tuberoses are more easily grown than is generally supposed.

If grown out of doors in beds the bulb should be planted in a deep, *very rich*, sandy soil, and in a warm location. The bulbs should be planted four inches deep and a foot apart, and have thorough cultivation and an abundance of water. In this way they will do well. The *best* way, however, to grow tuberoses out of doors is to grow them in boxes. The grower then has them more under control, can water them more thoroughly, and in many ways the better see after their requirements.

In the first place it is important that fine, large bulbs be procured if the greatest success is expected. In many instances small bulbs do not bloom at all and one's labor is

entirely lost. From these large bulbs take off all the small bulblets, as they will not increase the beauty of the plant in the least, for they will not produce spikes, and will only be taking strength from the soil that should be going to the large one. Now take neat boxes, paint them if you so desire, and have them about 12 x 20 inches, and about twelve inches deep. Such a box will hold six largest-sized bulbs. After boring several holes in the bottom, to allow perfect drainage, for the soil must not be allowed to become sour, fill it two-thirds full of a compost made up of two parts of well-rotted cow manure, one part of rich, sandy loam, and one part leaf mould, if procurable, all well incorporated. Set in the bulbs and then fill to top of box with same compost, packing firmly. Then give the contents of the box a thorough soaking.

This work should be done during the last week in May or the first week in June. There is no use of doing it earlier as the tuberose loves heat and will make no material advancement until the weather becomes very warm and settled. It is a custom with many to start this bulb in pots in the house. Such a course is not worthy of commendation, for, if anything, the growth will be checked instead of hastened.

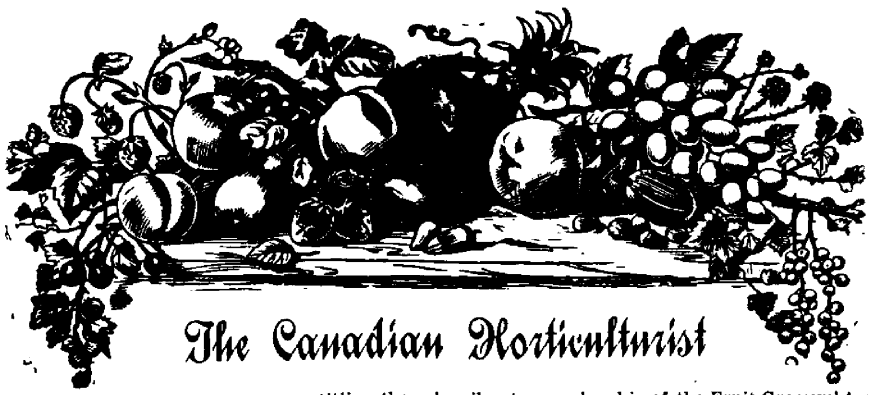
After getting the bulbs boxed, select a warm situation, on the south side of a building, in which to place the boxes, where they may get all the sun and escape cold, north winds. Throughout the season give them an abundance of water every night, and your efforts will be rewarded with success. When once started they will grow rapidly. When blooming time comes, the boxes may be set in any place for exhibition. In the past I have been extremely successful in growing tuberoses in this manner.

The Excelsior Pearl is the best variety to use. This is a dwarf double variety, and one single flower from a spike will scent a large room. The single variegated-leaved variety is quite popular also. Tuberose bulbs after blooming are useless, as most varieties bloom but once. The small bulbs that grow on the large one may be preserved and grown to blooming size. When in bloom do not allow the spikes to be rubbed together by the winds blowing, as they would soon be ruined.

There is no reason why every lover of flowers should not succeed with the tuberose.

"There is to me
A daintiness about these lovely flowers
That touches me like poetry."

Fruitland, Ont. JOHN B. PETTIT.



# The Canadian Horticulturist

SUBSCRIPTION PRICE, $1.00 per year, entitling the subscriber to membership of the Fruit Growers' Association of Ontario and all its privileges, including a copy of its valuable Annual Report, and a share in its annual distribution of plants and trees.

REMITTANCES by Registered Letter or Post-Office Order are at our risk. Receipts will be acknowledged upon the Address Label.

ADVERTISING RATES quoted on application. Circulation, 5,000 copies per month.

LOCAL NEWS.—Correspondents will greatly oblige by sending to the Editor early intelligence of local events or doings of Horticultural Societies likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of Horticulturists.

ILLUSTRATIONS.—The Editor will thankfully receive and select photographs or drawings, suitable for reproduction in these pages, of gardens, or of remarkable plants, flowers, trees, etc.; but he cannot be responsible for loss or injury.

NEWSPAPERS.—Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

DISCONTINUANCES.—Remember that the publisher must be notified by letter or post-card when a subscriber wishes his paper stopped. All arrearages must be paid. Returning your paper will not enable us to discontinue it, as we cannot find your name on our books unless your Post-Office address is given. Societies should send in their revised lists in January, if possible, otherwise we take it for granted that all will continue members.

## NOTES AND COMMENTS.

A School of Horticulture is being opened at the Rhode Island College, Kingston, R. I., with a course which is calculated for professional florists, gardeners, and fruit growers. F. W. Card, horticulturist, will conduct this department.

SAN JOSE SCALE.—Bulletin, December, 1897, of Tennessee, says this insect was introduced to California in 1876, and in 1887 into New Jersey. This is only about twelve years ago and now it has spread throughout almost the entire eastern part of North America. Strange that anyoue can say that it was not worth worrying about. When fruit growers have to spray every inch of wood in their orchards in winter with crude petroleum or with whale oil soap, they will be sorry that more vigorous measures had not been kept in force.

TRANSPORTATION.—Our Committee on Transportation consisting of Messrs. W. H. Bunting, E. D. Smith, and T. H. P. Carpenter, have been making every possible effort to secure better rates for fruit shippers from the Railway Companies. Last year certain important concessions were secured, and for the present season the following proposals have been presented to the Canadian Joint Traffic Association, which have been laid over for consideration at the Montreal meeting.

1. Restore last season's special rates, making them apply to mixed fruits in car lots to all destinations.
2. Make mixed fruits in five ton lots to one consignee, 3rd class.
3. Make mixed fruits in ton lots, to one consignee, 2nd class.
4. Place apples in barrels for shipment in Canada, in car lots, 8th class.
5. Grapes in barrels or large baskets, for wine purposes only, 5th class.
6. Encourage export of fruit to the British market
7. Devise means whereby a better distribution of fruits by freight in Canada may be accomplished.
8. When refrigerator cars are iced on route, actual cost only to be charged.
9. Permit barrel apples in mixed cars, to carry the carload apple rate.

# THE PASSING OF A LIFE MEMBER.

MR. CHARLES E. BROWN, President of the Bank of Yarmouth, dropped dead at his home on the afternoon of Feb. 17th. In him, a true friend of horticulture, a director of the Nova Scotia Fruit Growers' Association, and for years a life member of the Ontario Fruit Growers' Association, has passed away. When in Yarmouth last

FIG. 1789. THE LATE CHAS. BROWN.

October, the writer visited Mr. Brown at his home several times and was received with a royal welcome. He took great pleasure in showing us his very interesting garden, full of various fruits under test, most of which had been grafted or planted by his own hand, and formed his personal care in time of leisure from busier hours. He was a graduate of Harvard University, and well posted in all lines of literature, but seemed to have a special love for horticulture and pomology. We shall miss very much his valuable communications from the pages of our journal. The *Yarmouth Herald* says :

The community was startled, for the second time within a few weeks, on Saturday afternoon with the announcement that another of our prominent citizens, Chas. E. Brown, Esq., had dropped dead at his home at Milton.

Mr. Brown had been about town, as usual, during the forenoon, and returned home and took dinner at noon. He then went to his store, near his residence, where he conversed for some time with Byron P. Ladd, Esq., and about 2.30 o'clock returned home to tell his daughter to go to Mrs. VonMetzke's funeral.

His daughter had gone, however, before he reached home. He went to the kitchen, and after presenting the servant girl with a birthday gift, turned the water tap to get a drink, when, without an instant's warning, he fell prostrate at the side of the servant, who thought he had tripped. As he made no movement nor reply to her call, she ran into the street and called Mr. Chipman Doty, who was passing by, to her assistance, and Mr. Brown was removed to a sofa. Dr. Williamson was at once summoned, who said Mr. Brown's death was instantaneous, and was caused from heart failure.

Mr. Brown was a son of the late Hon. Stayley Brown, M. L. C., and for some years Receiver General for Nova Scotia, and was one of our most prominent and highly esteemed citizens. He began his business career with his father, and shortly after his farther's retirement from commercial life, built and opened a store on Vancouver street, which he carried on for a number of years. He retired, however, several years ago, and devoted his time to the study of agriculture, horticulture and improvement of stock. He was an extensive reader of the best authorities on these subjects, and was an authority on all matters connected with them wherever he was known. Throughout Nova Scotia his death will be long regretted by all who took an interest in such matters, and the Yarmouth County Agricultural Society, with which he has been prominently identified since its inception, has lost the most enthusiastic and devoted member. He also took a deep interest in the Milton Public Library, succeeding his honored father as one of its managers and active supporters.

Mr. Brown was the last of the original Board of Directors of the Bank of Yarmouth, which was established in 1865, and upon the death of its late president, Hon. L. E. Baker, succeeded that genman as its president.

Mr. Brown took a deep interest in the Mountain Cemetery, in school matters, and many other of our local private and public institutions, and his loss will be greatly felt for some time.

Mr. Brown received his early education at Yarmouth Academy, and subsequently went to Cambridge, Mass., where he graduated at Harvard University with honors. Last year Mr. Brown received and accepted an invitation to attend a reunion of all the members of the class who graduated with him. These were few in number, but the meeting was one of great interest to all present.

Mr. Brown was of a most unaffected and retiring disposition, of noble impulses and generous motives. He will be long missed from a large circle of sympathizing friends and neighbors.

# QUESTION DRAWER.

### Green Corn for Export.

**1140.** SIR,—Do you know whether any attempt has ever been made to export to England either in cold storage or otherwise, green sweet corn in the ear? I am prompted to this enquiry by seeing the remarks of a writer in a recent number of the Illustrated London News, who wonders why it cannot be found for sale in Covent Garden and other markets. Now that a determined effort is being made to send our perishable products to England, it might be well to try whether corn would not be as acceptable as tomatoes have proved. E. D. ARNAUD.

Annapolis, N.S.

No attempt to export green corn has ever been made, or even thought of before, so far as we know. Green corn heats and spoils so quickly under certain conditions that it would be a doubtful experiment for any individual to undertake.

We hope the Government will not discontinue its efforts in this direction until something more decided has been accomplished.

### Budding and Grafting.

**1141.** SIR,—We have a lot of seedling stock, apples, plums, pears and cherries, which we budded last summer. In the event of the bud failing to catch, what is the best course to pursue?

1. Will such stock do to remain and be rebudded next summer If so, is it best to cut back the top any in the spring?

2. Can such stock be grafted successfully?

3. What is the best time to cut scions for grafting in spring, also for grafting seedling stock before spring. R. DICKENSON.

Strathroy.

In case of buds of last summer failing to catch, the stock may be rebudded next summer, providing it is not too large, nor too old so that the bark is tough. If a younger shoot is desirable for budding on near the ground, the tree may be cut off at the surface in early spring, and a young bud will push out and form a new and tender barked stock for budding. Budding is also sometimes performed high up on trees in nursery rows just where the top is wanted.

Budding is done in August when the bark lifts easily. Grafting may be done in April, and if the young trees are large enough in diameter at the collar this method would be advisable for such stock of apple, pear or plum trees; with the cherry it is much more difficult to succeed by grafting. The method of grafting is well given in the following from The Advocate:

It does not matter much whether the scions are cut in the fall, in the winter, or just before they are wanted in the spring. In very cold latitudes it might possibly be better to cut in the fall or early winter and place in a dry, cool cellar under a light covering of sand. If cut in the spring they must be cut before the buds have begun to swell, as it is better if the stock is a little further advanced than the scion. Let the scions be cut to about four buds each, and always take them from good, healthy, vigorous shoots of last years growth. We take it that top grafting is intended, as root grafting is chiefly done in the nursery. The work of top grafting may commence in spring as soon as the sap is in motion, which is indicated by the buds on the tree beginning to swell, and it may continue till the leaves are half out. A fine, sharp saw, a chisel or strong knife and small mallet are all the necessary tools. The branch should be carefully sawn off and a clean, smooth surface left. If the stub is small, it may be split with a heavy-bladed knife; for bigger branches a chisel answers the purpose. The chisel itself or a small wedge can be used to hold the cleft open till the scions are inserted. Two scions, one on either side, are usually inserted where the stub is larger than an inch through. The lower ends of the scions are cut wedged shape, the wedge being about an inch and a half long, and the outer edge of the wedge a little thicker than the inner. Fit the inner or growing bark of the scion carefully to the inner bark of the stock, withdraw the chisel and carefully cover all the exposed surface with grafting wax. The two especially important points are: first, to see that the scion fits tightly down its whole length; and second, to be sure that every cut or exposed surface is completely covered with the wax. A good wax is prepared from resin, 6 pounds; beeswax, 1 pound; linseed oil, 1 pint. Apply hot with a brush, about a quarter of an inch thick, or a little less, over all the joints.

As a scion ould fit the stock

FIG. 1790.

Sometimes Nursery trees of 4 or 5 feet in height are whip or splice grafted three or four feet from the ground. This is especially desirable in case the scion is of a slender or drooping character.

### Tar Paper Bandages.

**1142.** SIR,—Would common tar paper, such as is used for building purposes, wrapped around the trunks of fruit trees as a protection from sun scald, be injurious to the trees?

CHAS. YOUNG, Richard's Landing, Algoma.

No.

### Vladimir Cherry.

**1143.** SIR,—Is it the habit of the Vladimir cherry to ripen its fruit unevenly, that is for ripe and green fruit to be on the tree at the same time?

C. Y., Richard's Landing.

We have not noticed this to any great extent in the Vladimir or Russian Morello cherries. This uneven ripening, however, is quite characteristic of the May Duke, a cherry of totally different type and habit.

### A Ten Acre Fruit Farm.

**1144.** SIR,—I have a ten acre fruit garden, and I am at a loss to know how to care for it in the best possible manner. I shall be greatly obliged to you for some information regarding spraying and other matters.

M. A. HAMILTON, Toronto.

Our correspondent has not given us enough information regarding the varieties planted to enable us to reply very definitely. A ten acre fruit garden, properly planted and cared for, might easily yield as good an income as a hundred acre farm managed in the ordinary slip-shod manner; but to get the best results the best methods must be followed. Spraying is done for three objects: (1) to kill injurious insects; (2) to destroy fungous growth, such as apple scab or grape mildew; (3) indirectly to improve the vigor of the tree. For the insects Paris green is the specific for the leaf eaters, and whale oil soap, potash or crude petroleum for sucking insects. For fungi, Bordeaux mixture is the specific. The times of application are not so important as the method and thoroughness. The idea is to keep the whole tree or plant completely covered with the mixture during the whole season, so that no fungus or mildew germs falling upon the surface can possibly germinate. To accomplish this it is usual to give the first application before the blossoms open, and to give fresh applications at intervals of two or three weeks during the season.

We shall be pleased to answer any specific inquiries make by our correspondents.

### To Kill Dandelions on Lawn.

Cut off top and put on one drop of sulphuric acid on root; coal oil is said to do, but enough must be put on to sink down around root.

R. T. FRAZER, Vernon, B.C.

### Hardiness of Apples.

**1145.** Are Sutton Beauty, York Imperial, Grime's Golden and Jonathan apples as hardy as Northern Spy?

So far as we know these varieties are all about equal in hardiness. None of them have been very widely grown in Ontario, except Grime's Golden, which was once distributed by our association.

### Grafting the Grape Vine.

SIR,—In the question drawer of January number of the Canadian Horticulturist is an answer to Geo. Thomson, Wolfville, N.S., about how best to graft a grape vine. I would like to give my experience in doing the work of grafting the grape vine. The better way to graft the vine would be, as soon as the weather would permit in the spring or the frost is partly out of the ground, dig the ground away from the vine down to the root and cut the vine two inches above the root square off; then take a mitre saw and cut a slot two inches deep instead of splitting the same with knife or chisel; open the slot with a wedge and set the scion in place and withdraw the wedge; remem-

ber to leave two buds on the scion. When the grafting is complete draw the earth nicely around the vine, leaving one bud uncovered, which will help to keep the scion moist till it will start to grow.

J. W. W., Jordan Station.

### Yucca.

**1146.** SIR,—Is the Yucca (filamentosa) suitable for this climate? Is it planted in tubs or in the ground? Will it live in the ground all winter? Give what instructions you can for planting and culture of this plant of which I read in a former number of Horticulturist.

SUBSCRIBER, Orangeville.

Yucca filamentosa is considered to be quite hardy in almost any locality in Southern Ontario, and is suitable for planting outside under conditions that are favorable to plant culture generally. I have known fine specimens of these plants to have been killed out in very unfavorable winters, when there has been no snow to protect them; but this has occurred on badly drained clay soils, a condition that suits but very few plants, however hardy they may be.

A well drained, light loamy soil, is most suitable for these plants, although they oftentimes grow and flourish for years under less favorable conditions. A light covering of dry leaves and straw, or long manure, is advisable, but not absolutely necessary in favorable seasons for winter protection; care must be taken not to cover the plants too heavily.

In spring, say early in April, uncover the plants gradually, removing all the wet heavy covering first, and replace the dry part of the covering again, so as not to fully expose the plant at once to the hot sun in day time, or frost at night; the balance of the covering can be removed as the weather permits.

The Yucca filamentosa can also be grown in large pots or tubs, and stood outside in the summer, removing them before severe frosts to the house or a dry cool cellar, that has a temperature just above freezing point. These plants require very little water during winter, only sufficient to keep the soil barely moist.

The Yucca filamentosa is a native of the southern part of N. America, and is a very desirable decorative plant at all seasons; but when in bloom, its showy flower spikes often three or four feet in height, makes it a conspicuous and pleasing object on the lawn or in the garden. It requires no special culture, other than those mentioned, except perhaps a few applications of liquid manure in the summer if grown in a pot or tub.

Hamilton. WM. HUNT.

## Open Letters.

### The Care and Planting of Spruces.

SIR,—Why is it that we see so many lawns and gardens with such a number of dead spruce trees? Is it the cold winter? Surely not. Does it not seem to suggest bad planting, or the roots too long exposed to wind and sun before planting? The writer has planted many hundred spruces, and in all cases has had the greatest success. Several things seem essential, but first and foremost, after selecting the place for planting, either a hedge or single spruce, if heavy soil, prepare some well pulverized earth and dig a large hole, not necessarily deep, but broad; place the tree in it, having removed all mangled and bruised roots with a sharp knife, and sift among the roots the prepared soil, giving the tree a gentle shake to settle the earth. If the soil is apt to bake it is advisable not to tread the earth too firmly round the roots, as it sometimes hardens and recedes from the sides of the hole as the hot weather advances. Fill up the hole level with the surrounding ground and mulch with a thick layer of straw, hay, or better still, when procurable, with lawn clippings; this prevents evaporation of the moisture in the summer months.

The fall seems the most favorable season for setting evergreens, as they have the advantage of being thoroughly established before the summer. It is much better, where the soil is sandy loam, to obtain trees from a nursery of similar soil. If one is going to plant a considerable number of spruce, I would advise the planter to drive to the nursery with a wagon, having filled the box with wet straw, and take the trees dug straight up from the nursery, placing them in the wagon and packing the damp straw round each. Then the roots do not suffer from being both wind and sun dried. Each root is covered with a resinous substance which, if once dried, prevents it from taking up both moisture and nourishment for the growth

and life of the tree. To those living far from a nursery, it would be the better plan to buy young seedlings from any nurseryman and plant them out in nursery rows, when having been hoed and cultivated for two or three years, they would be ready to be planted more carefully, being handier when wanted, always bearing in mind that two things are most important to success: (1) Never expose for a moment the roots to either the wind or sun; (2) Have as much earth adhere to the roots as possible when digging them up, not shaking it all off, as is too often done. If these remarks are carefully carried out there is no reason why spruces should not live and grow when transplanted as easily as any other tree.

Winona. JUNIOR.

### Fraudulent Packing.

SIR,—I have seen several articles in various newspapers, as well as in our magazine, on "Fraudulent Packing." In watching the packers in times past I have thought and said if the fruit buyers would give us a better price and take the best fruit at that price, also pay us more for good varieties than common ones, they might take the second quality at a less price, and it would be better for all concerned. And then our fruit would have a good name in the foreign markets, and there would be no difficulty in getting sales at a good figure.

But, no; they not only pack fraudulently, but give them other names frequently. Some two years ago our Huron "Apple King," so called, got our apples. We had a few barrels of Hubbardson Nonsuch: they were rather small, but sound; the packer marked them XX. When we took them to the station D * * C * * asked why those barrels were marked XX, and said "I will see them." He opened a barrel, "Oh," he said "they are all right." He then told the man that was stencilling them, "*Mark those barrels Ontario.*" I thought at once it was a dishonest trick; by so doing deceiving the buyer. The same party, by his packer, acted dishonestly by us; promised to pay us two cents each for fetching out the barrels, and asked us to pack about a dozen barrels and would pay us for it, but we got nothing for either.

I am afraid some of our buyers will get nipped this year, and really I can't pity some of them.

Goderich. WALTER HICK.

### San Jose Scale.

SIR,—I read with a great deal of interest the letter of A. W. Graham, nurseryman, of St. Thomas, on this subject. I am one of those who suffer the most inconvenience from the existing laws, being a small local nurseryman, my customers coming direct to the nursery more or less every day during the planting season. But, while I can sympathise with friend Graham in the inconveniences he mentions, I have come to a very different conclusion from what he has. Instead of trying to induce the Government to relax their efforts, I think that all nurserymen, as well as fruit growers, should back up the Government in their laudable efforts to exterminate the dreaded pest, and cheerfully make the best of the inconvenience attending it. It is an old and true motto, "Of two evils choose the least." In principle, I am an out and out free trader, but, in this case, I think it was a commendable thing to prohibit the importation of nursery stock from the States. If one importation of infested nursery stock, through the carelessness or connivance of the officials, were permitted to come into Canada and be spread broadcast over the country, it would soon nullify all the efforts which the Agricultural Department has been making to exterminate the pest.

To the point that there are not fruit trees enough in the country at the present time to supply the demand, that will in time right itself. There is abundance of capital, business enterprise and horticultural skill to produce all the nursery stock which the country requires, if there is a reasonable prospect of disposing of the same at sufficiently remunerative prices.

Wellburn, Ont. JOHN M. MCAINSH.

### Our Journal.

SIR,—I take pleasure in letting you know that I have received the first number of the Canadian Horticulturist for 1900. This being my twenty-third anniversary as a member of the Canadian Horticulturist Society and recipient of its valuable journal, I must tell you I have been pleased on many of these anniversary occasions with agreeable and pleasant improvements, especially of late years. I thought last year's dress, style and contents could not be improved on much more; but I have been agreeably corrected in my opinion, for on seeing and looking over the Horticulturist for January it gave me that animated pleasure that decided beauty, improvement and perfection can only give, for it has taken on several degrees of marked improvements, and I feel that its readers have something to be proud of in knowing that we have such a splendid paper to help to build up horticultural taste in our beautiful land. I must tell you we have a good strong Horticultural Society in Goderich, as there is quite a number of enthusiastic fruit and vegetable growers here, and our horticultural display at the fall show is in many exhibits superior to any thing seen in other parts of the country. It has been your wish that all members should state their opinion on the benefit of distributing plants and trees. I must tell you I have several standing monuments of lasting pleasure from the past distribution of trees and plants, viz.: the Ontario apple tree I received over tweny years ago could not be taken from the present owner for less than thirty dollars; my Miles Grape I could not part with for any reasonable price as it is one of the best of my forty-four varieties that I have fruiting; then my Idaho Pear, Dempsey Pear and Wickson Plum, all beautiful promising trees that would not have come into my possession if I had not got them in this way. It is well known that people getting trees this way are sure to take better care of them, so I like the system. Our Horticultural Society will have a series of discussions this winter and I shall send you some of the papers read before the Society. I will close by wishing you and all the readers of the Horticulturist a happy and prosperous year.

Goderich. W. WARNOCK.

# OUR AFFILIATED SOCIETIES.

LINDSAY.—At the monthly meeting of this Society on the 13th of February a very interesting paper was read by Mr. W. M. Robson on the work of Horticultural Societies and especially that at Lindsay. He showed the double advantages of affiliation with the Ontario Society and figured out that in return for each member's subscription of $1.00 he received in return at least $3.00 in the value of (1) The Monthly Journal, (2) The Report, (3) The Plants (4) The privileges of the meetings.

The Evening Post gives two columns to the report of the lecturer sent by the Ontario Society. Mr. Martin Burrell, of St. Catharines, in the Council Chamber, Lindsay, March 8th. The hall was crowded with ladies and gentlemen to hear his address on Birds and Horticulture. The evening was opened by some gramaphone selections, after which Mr. Robson introduced the lecturer, who united the instructor and the entertainer in a most remarkable manner.

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HAMILTON.—The schedule of premiums (not money) offered and list of exhibits asked for the flower show, is out for the month of June. There are three classes of exhibits: I.—Amateur class. II.—Amateurs with Greenhouses. III.—Commercial Gardeners and Florists. At the bottom the following note is added: "The plants in the Amateur classes will be sent for and returned at the close of the exhibition." The following is the sub-division Class I:

I. Amateur Class—Roses: The best six Roses, distinct. Three Roses, distinct. One vase of twelve blooms, any varieties. One vase of six blooms, any varieties.

Pæonies—Six varieties, distinct. Three varieties, distinct. Largest and best collection.

Herbaceous Plants—Perennials (Cut bloom)—Best collection of Perennials, not less than six varieties, named—two spikes of each. Best three varieties. Best vase of cut bloom—Perennials.

Plants in Pots (Grown in Dwelling House.—1 Palm, 2 Begonias, 3 Geraniums, 1 Amaryllis, 1 Dracena, 2 Fuchsias, 1 Geranium, 2 Coleus, 1 Fern, 1 Fuchsia, 1 Cactus. The best House-plant of any variety.

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TORONTO JUNCTION—On the evening of Jan. 23 the members of the Toronto Junction Horticultural Society met and listened to a very interesting address upon the "Care of House Plants," by Mr. A. Gilchrist. The very difficult problem of watering was fully gone into. The effect of atmosphere in the house and outside was dealt with in a masterly manner, and indicated that with an east wind, when the atmosphere was damp, water should be used sparingly while with a west wind and dry atmosphere more water might be used. All, however, requires judgment. In summer plants dry from the top. In the house they are likely to dry from the bottom. By empty flower pots soaked and dry, Mr. Gilchrist illustrated, ringing a sound from each, the condition of the roots within. Re-potting plants, potting palms, the soils to be used, feeding plants and dealing with insect pests, were matters Mr. Gilchrist dealt with, and his exposure of large growth by means of nitrate of soda solution was a deterrent to nurserymen to produce immense plants with small flowers. To produce flowers, the bone dust had been found to be very beneficial, and summer heat, to purify soils, he thought even better than the winter frost.

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LONDON.—The first public meeting of the London Horticultural Society was held in the Auditorium last night. About one hundred and fifty horticultural enthusiasts were present. The platform was artistically decorated, being hung with flags and bunting, and set with graceful palms and other plants. The chair was taken at 8:30 by Mr. John Balkwill, the president, and with him on the platform were Rev. Dr. Bethune, Very Rev. Dean Innes, and Mr. T. H. Race, of the Mitchell Recorder. The proceedings opened with the singing of "Soldiers of the Queen," by Miss Winnie Hooper and Mr. A. G Stevens, with accompaniment by Miss Smallman.

In his opening remarks, President Balkwill referred to the recent organization of the society and the encouraging outlook for its future success, and enumerated the advantages which membership in the society gives. He regretted that there were not more ladies on the membership roll.

On rising to deliver his address on "The Moral Influence of Floriculture in the Home," Mr. Race humorously impressed upon the audience the fact that his own somewhat attenuated build was not to be attributed to the fact that he was a horticultural enthusiast, but rather to the fact that he was an editor of a country weekly, a position which entalled considerable worry. He referred to London as being a favored city in its own natural advantages, and the fact that its surrounding agricultural district was one unsurpassed on the continent, and perhaps in the world. The horticultural exhibit at the Western Fair is one unequaled by any other exhibition. Mr. Race's address was received with close attention, and tended to inspire the Society with a high conception of the possibilities which were within the reach of the members.

Miss Hooper sang "A May Morning," followed by Mr. A. G. Stevens in a stirring patriotic ballad. Mrs. A. A. Campbell gave three enjoyable recitations.

Rev. Dr. Bethune's address concluded the evening's interesting programme. He spoke instructively on the many insects which are such a source of annoyance and loss to the horticulturists, and showed how horticultural societies had done good work in providing remedies for their extermination, either by the use of chemicals or by the propagation and introduction of other insects, which were not injurious to plant life, but preyed upon the insects which were.

The meeting closed with the "National Anthem."—The Advertiser.