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FIG. 1744. WHITE FRINGE.

On grounds of Mrs. J. Wilson, Niagara Falls. (See Garden and Lawn.)

# THE CANADIAN HORTICULTURIST

Vol 23 1900 No 3

\*\* MARCH \*\*

## THE CODLING MOTH.

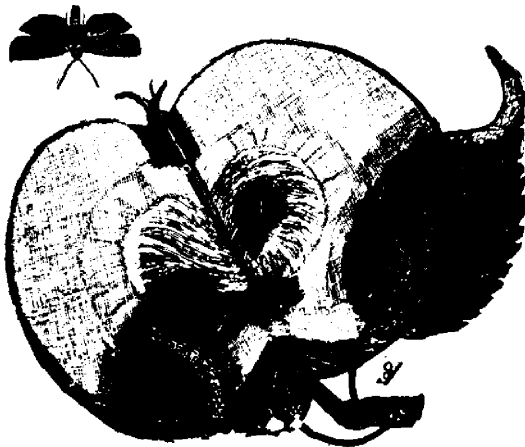


FIG. 1745.

(Picture from Lodenat's 'The Spraying of Plants,'  
by permission of The Macmillan Co.)

**N**OTWITHSTANDING the formidable list of new and dreadful orchard pests, including the much talked of San Jose Scale, it is doubtful if we have any plague at the present time so alarming as the Codling Moth.

In orchards of the southern parts of Ontario, where there are two broods each year, the moth is increasing so rapidly that in un-

sprayed orchards fully one half, and often even two-thirds of the apple crop is rendered unmarketable by its ravages. Twenty years ago a very few apples would be rejected in packing on account of Codling Moth; now it threatens to destroy the whole crop of the careless orchardist.

For some years past, Mr. W. M. Orr, of Fruitland, President of the Ontario Fruit Growers' Association, has been experimenting with bands upon the trunks of the apple tree for the trapping of the Codling Moth, with marked success, and has been exhibiting at our meetings, and at the Industrial Fair, samples of these bands which had been used, and were full of larva. At Whitby a committee on Codling Moth was appointed, which has since drafted and presented before the Provincial Minister of Agriculture the following outline to serve as the basis of an Act of Parliament:

THIS ACT MAY BE CITED AS THE CODLING  
MOTH LOCAL OPTION ACT.\*

### THE OBJECT.

1. It shall be the duty of every occupant, or, if the land be unoccupied, of the owner of such land, to place bands (as hereinafter described) upon all

bearing apple and pear trees and upon all orchard trees of bearing age within forty feet of such bearing trees (here might be embodied the age of tree or bearing age) for the purpose of destroying the larva of the codling moth.

#### THE BANDS.

2. The bands shall be made of "Burlap" or "Sacking," or such other material as may be considered suitable, and shall be not less than four or five inches in width and three thicknesses, and be securely fastened at a convenient point between the crotch and the ground.

#### THE DUTY OF THE OWNER OR OCCUPANT.

3. He shall remove said bands and carefully inspect and destroy all larva found therein and replace the bands, and continue the regular inspection thereof at intervals of twelve to fourteen days during the months of June, July and August, commencing on the 15th of June and ending on or about the 20th of August.

#### ADOPTION OF ACT.

1. The council of any municipality who may adopt the provisions of this act shall enforce the provisions thereof in the manner hereinafter described. They shall cause to be distributed to each owner or occupant of land within the municipality a copy of this act, not less than one month before the provisions of this act shall become operative. They shall also distribute to the same persons a sufficient number of blank forms of declaration to be filled in and signed by the said owner or occupant, setting forth the day upon which he performed the work and certifying that the work had been well and carefully done.

#### APPOINTMENT OF INSPECTORS.

5. The said council adopting the provisions of this act shall appoint an inspector or (in case of the council considering it more expedient for the efficient and economical carrying out of the provisions of this act, a division of the municipality) inspectors.

#### DUTY OF INSPECTOR.

6. The inspector shall at regular intervals, collect the forms of declaration and inspect the work done and, if neglect has been clearly shown, shall cause the work to be well done and the cost thereof to be levied as an extra tax upon the said property.

\*NOTE.—The matter of penalties, appeals and remuneration is left by the committee to the Legislature to define. The committee would suggest that the party performing the work should state approximately on the form of declaration the number of larva destroyed at each operation for the encouragement of other municipalities who may contemplate the adoption of this act.

The Hon. John Dryden is prepared to do anything in his power to assist in the matter, and only needs further consideration of the methods advised before taking action.

Slingerland, of Cornell, in Bull. 142, says:

"We will hazard an estimate at the annual tribute which our New York apple-growers pay for the ravages of this pest. The average annual crop of apples in New York now amounts to about

5,000,000 barrels; as \$1.50 per barrel would seem a fair average valuation, the total valuation of the annual crop may be estimated at \$7,500,000. Although many New York fruit-growers are fighting this insect with modern methods, we think that the wormy apples would constitute at least one-third of the total crop. That is, New York fruit-growers yearly furnish \$2,500,000 worth of apples to feed this insect; and there must be added to this at least \$500,000 worth of pears (certainly a low estimate for New York) which the same insect renders worthless. This makes a tax of \$3,000,000 which a single insect levies and collects each year from the fruit growers of our state."

Now Ontario follows closely upon New York State in the production of apples, consequently the loss with us from codling moth would be somewhere between two and three million dollars.

For a long time it has been supposed that the egg of the codling moth was deposited in the basin of the apple, under shelter of the calyx, but Slingerland says, "During the past two years we have seen hundreds of the eggs on apples in New York orchards and have never yet seen one on or down in between

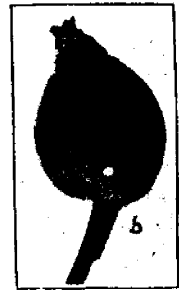


FIG. 1747.  
EGG OF CODLING  
MOTH AT b.

the calyx lobes. Most of the eggs we found were glued to the skin, apparently without much choice as to location, on the smooth surface of the fruit as shown in fig. 1747. The eggs have been aptly characterized as resembling a minute drop of milk adhering to the skin of the fruit. The egg is a thin scale like object, not quite so large as the head of a common pin, and is of a semi-transparent whitish color, often with a yellow tinge, which is sometimes quite pronounced. Unless one has seen the eggs they could not readily be discovered on an apple; the one on the apple in fig. 1747 was unnaturally whitened to bring it out in the reproduction."

From careful observations made by Gillette, of Iowa, and Lord, of Nebraska, it ap-

pears that in the latitude of Ontario the first eggs are not laid until a week or more after the petals have fallen, or ordinarily the last of May and the first half of June, while Goethe, of Germany, has shown that most of the eggs are laid at night.

The newly hatched apple worm is so tiny that it can be observed with difficulty, being only about  $1/16$  of an inch in length and semi-transparent. It seldom enters the apple at the place where it hatched out of the egg, but crawls about till it finds the blossom end or some other partially protected part, and here it takes its first meal, which is a tiny portion of the outer surface of the fruit, and then after a few hours it begins to enter the apple. Card found many eggs upon the leaves, and the natural inference is that in such cases the young moth feeds at first upon leaf tissue. These observations all help to make it clear how it is that spraying the young fruit and the foliage with Paris green is often effective in lessening the ravages of the codling moth.

The worm sometimes leaves the fruit before it falls, and the worm emerges and seeks a suitable place to transform, either under the loose bark of the trunk or crotch of the tree, or on fences, rubbish piles, or stumps, any where, says Mr. Slingerland, except in the ground.

In regard the number of broods, Fletcher, of Ottawa, reported in 1895 "that careful observations made during ten years convince me that in this part of Canada there is only one regular brood of this insect in the year. This is, I believe, the case as far west as Toronto. In the fruit growing districts of (South) West Ontario there are two broods, the second brood being invariably the most destructive."

There are a number of insects which prey upon the codling moth, but the birds are the chief friends of the orchardists in this work, especially the downy woodpecker, blue bird, crow, blackbird, kingbird, swallow, sparrow,

wren, chick-a-dee and jay. Riley and Walsh state that "almost all the cocoons of the moth that have been constructed in the autumn at the trunks and limbs of apple trees, are gutted of their living tenants by hungry birds, long before the spring opens." "And yet," says Slingerland, "enough codling moths succeed in running the gauntlet every year, and allow it to take rank as the most destructive apple pest in nearly all parts of the world."

Trapping the worms by bands on the trunks was first practiced by Dr. Trimble in 1864, when he devised his famous hay rope band which was often renewed, and the old bands full of worms burned up (see Fig. 1745). This was



FIG. 1745. THE HAY-ROPE BAND IN OPERATION.  
Reduced from Dr. Trimble's Picture

book between 1870 and 1880, where it is said a noticeable improvement was the result.

Recently more attention is being given to bands as a means of checking the codling moth, and it has been found more convenient to use bands of sacking, as proposed by Mr. Orr, than the old fashioned hay bandages. These can easily be applied by driving a tack through the lapped ends or by tying with a cord. During July and August the bands must be examined every ten days and the cocoons destroyed, and the whole expense need not exceed four cents per tree. If as is stated, this will capture half the full grown worms each season, the result would surely be evident in a few years, especially if whole townships were to undertake con-

certed action as proposed in the report of our committee.

In addition to the trapping with bands, each grower should faithfully practise spraying with Paris green, for by this means he will destroy a large number of the worms in June before they begin their destructive work.

Slingerland says on this point :

"Facts and observations lead us to believe that in applying a poisonous spray soon after the blossoms fall, we deposit some arsenic in the calyx-cavity where nature kindly takes care of it for us until ten days or two weeks later when the little

tion must be made soon after the blossoms fall, when the calyx is open, as shown in figure 1746. If we wait a few days until the calyx has closed it will be too late. We can conceive of no possible way in which a majority of the 15 or 20 per cent. of the worms which enter the fruit at some other point in the spring, and all of the worms of the subsequent broods, can be effectively reached with the poison spray."

Experiments made by Forbes & Lodeman go to prove that as a rule two sprayings are sufficient, one just after the petals fall and a second a week later.

With pears the spraying appears less



FIG. 1748. *Just right to spray. A pear and two apples from which the petals have recently fallen. Note that the calyx lobes are widely spread. Copied from Cornell Bulletin.*

apple-worm includes in it the menu of his first few meals. Furthermore, this poisoning of these young worms which enter the developing fruit in the spring, seems to be the only way and the only time that the insect is or can be the most successfully reached with the spray; as the worms sometimes eat through into the calyx-cavity from the outside at the base of the lobes, and as some of the poison often lodges here, possibly a few of them get enough poison to kill them at this point. Not enough of the spray can be made to stay on the surface of the fruits then or at any subsequent time to reach one in a hundred of the worms which enter elsewhere than at the blossom-end. Put in another way, the above facts mean that we can hope to reach with a poison spray only those apple worms which enter the blossom ends of the forming fruits in the spring. To do this, the applica-

effective than with apples, perhaps because it is the second brood does them the most injury, and this brood, whether on pears or apples, cannot be reached to any great extent with poison spray. Slingerland thinks that with thorough work we can often save at least 75 per cent. of the apples that would otherwise be ruined by worms, and for those which escape and from the nucleus for the second brood, there is no better plan than to trap as many as possible with the banding system.



FIG. 1749. THE APPROACH.

### LANDSCAPE GARDENING—III.

**R**OADS and walks are not in themselves objects of beauty; they are essential to secure convenient and comfortable access to the buildings and parts of the grounds. To secure the least amount of road that will serve this purpose properly, and to so arrange it that it will not be too obtrusive, or cut up the broader open spaces too much, or destroy important natural features, and at the same time secure easy grades and graceful curves, is one of the most difficult problems the landscape architect has to deal with. It is in most cases decidedly better to have the main entrance to the house on the side away from the lawn. This is contrary to the general practice. The lawn should be the quiet, restful side of the house—the homestead—and should not have an avenue or turn, and the frequent coming and going of carriages and people between it and the house. A main approach direct to the entrance of the house must be provided, and branching off from this at some distance from the house, or often entirely independent of it, there should be a secondary approach to the kitchen yards and stable. The approaches should be as direct as practicable. When it is necessary to cross the lawn, the grad-

ing can often be so managed as to hide the road from the house, and give the lawn the appearance of being unbroken. Steeper grades than a rise of one foot in fifteen should be avoided in roads, and one foot in ten in walks. The curves should be gentle and be made with an evident reason. Unnecessary curves in roads or walks are always very suspicious. For some places a straight entrance and formal treatment is preferable to curved lines and a more natural treatment. Only such walks as are required should be provided. An approach to the house independent of the drive, and walks in the gardens and to the buildings are usually all that is necessary. A walk around the lawn is often unnecessary and unsightly; in wet weather it would not be used, and in dry weather the grass is pleasanter to walk upon. Roads should be wide enough for teams to pass each other, or they should be so narrow that it is evident they cannot pass, say ten feet. Twelve feet is deceptive, fourteen feet will do, but sixteen feet is better. Three teams could not pass in eighteen feet; in twenty-one they could. The width will depend upon the arrangement of roads, the amount of passing, and the character of the passing.



FIG. 1750. LANDSCAPE ART ON BANKS OF THE HUDSON.

A fashionable family with many friends and a visiting day, will need a road wide enough for coaches to pass. If roads and walks are thoroughly constructed in the beginning, on proper grades, and the water is kept off of them, much labor and expense will be saved later in repairs.

Grading, whether the changes in the natural surface are many or few, is an important matter, especially on those parts which are not to be planted. A graceful and natural fitting of the new surfaces to the old requires some skill. A gently undulating surface and long, gentle slopes are more natural, more pleasing, and more easily cared for than short, steep slopes. In nature, abrupt slopes with sharp angles are seldom seen in free soil which is undisturbed by heavy bodies of water. Nature's process is to gradually wear off the sharp, upper edge and fill it in at the abrupt base. The result is a curve gradually running into a reverse curve—an ogee curve as the builder would call it—and it is such a curve that should be imitated in lawn grading. A for-

mal terrace, when used, may be defined by a wall or a terrace bank. Such

a bank should be distinctly formal, with its angles sharply defined and slope flat—not a mongrel with a curved top and an angular base. Very steep and abrupt slopes are sometimes necessary. They can often be filled, and held in place, with heavy, natural boulders, and planted to imitate, so far as possible, a similar slope in nature. It is very desirable to secure a shallow turf gutter at the base of a bank sloping toward the road to prevent the water from flowing on to the gravel surface. The water can be intercepted by occasional catch basins, and carried across the road, if it is on a sidehill, or disposed of by drains.

Where a permanently vigorous and luxuriant growth of plants or a constantly fine turf is required, deep trenching or plowing and liberal fertilizing is essential. It does not follow, however, that poor or barren land cannot be covered with a pleasing growth without this thorough preparation. The luxuriant clothing of barberry, sweet-fern, wild rose, and other plants on the



sandy and gravelly soil of the exposed seashore and also inland is sufficient evidence of this.

Drainage and the disposal of house wastes are important matters that must be considered in the plan of a place and provided for during construction. With a satisfactory fall and outlet (for which you will sometimes have to seek permission to go through your neighbor's land) the drainage of a wet surface is not difficult to secure. A satisfactory disposal of sewage is more difficult. A leaching cesspool is the usual vehicle, a very unsafe and in many soils unsatisfactory method. A tight cesspool periodically emptied is more expensive to maintain, but safer. There are safe but somewhat complicated methods of disposal by sub-surface, or surface irrigation, which can often be used to advantage. Of course, if there is a sewer the disposal is a simple matter.

Planting, which is so often looked upon as the principal work of the landscape architect, is, as I hope I have made evident, only one of the details—a very important one, it is true, but after all only the dress and ornament of the place.

There are many thousands of species and varieties of hardy plants in common cultivation in the north-eastern United States. Of woody plants alone there are between four and five thousand species and varieties that are offered in foreign and American nursery catalogues, three-fourths of which would probably survive ordinary winters at Boston under favorable circumstances. Many of these are interesting only to the botanist, and of no value to the landscape architect, but a knowledge of all that may be of value—a very large number—will enable him to produce results and secure effects that cannot possibly be secured by a man with a more limited knowledge. While the great variety that is available gives an opportunity to produce interesting details and a much longer season of flower and more interest-

ing winter effects, it is also a great source of danger, for it constantly offers the temptation to use too large an assortment, which will result in a mixed planting with no character or individuality, and also in the introduction of many things that are not adapted to the soil or surroundings, the failure or poor success of which will give the whole planting a shabby, patchy look. It is safer to select a few reliable vigorous varieties, having good, healthy foliage through the season they are more apt to be natives than exotics—and let them predominate in the planting; then add to its interest, if it is in a place where it is desirable to have interesting details—that is, where it frequently comes under close observation—by using a greater variety of native, exotic, or garden forms of woody plants, or hardy perennials. A large variety in a border which is to be seen from a distance is entirely lost to the eye, or gives an undesirable, mixed, or patchy look, and adds largely to the expense. If it is made mainly of a few kinds, as we see in nature, the most effective and pleasing results can be secured. A low border plantation made up of the flowering dogwood, with a few of its red flowered variety, the paniced dogwood, clethra, and wild rose,—all natives—would give a better result than the same number of exotic varieties, or if the variety were increased many times. If it were desirable to have more interesting details, large masses of loosestrife, golden rods, asters perennial sunflowers, and the like, would give it without detracting from the effect of the woody plants.

The use of colored foliage in a lawn planted in a natural way seldom produces a pleasant result, though I should not say that it cannot be used. To a person of refined tastes a gaudy, yellow piece of furniture in a finely furnished and decorated room, the prevailing color of which is green, would be offensive. It would mar the enjoyment one

would take in a tasteful and harmonious room, for it would be impossible for him to banish this conspicuous object from his eye or his mind. But a bit of yellow ribbon or bric-a-brac in the same room could be used to draw the eye to some particular nice feature to which this bit of color would give life and vivacity. If the same good taste that is applied to the decoration of a room be applied to the grounds, the brilliantly colored garden forms would be used less than they are now in the lawns, and be confined more to the garden. If one prefers not to have the quiet restfulness of the lawn, and cannot appreciate the refined beauty of natural

shrubs with their ever varying tints of green, their graceful outlines, their wealth of flow-

Boston, Mass.

ers, their luxuriance of foliage, but prefers to make a flower and foliage garden of all his place, very gorgeous and striking combinations of color and outline can be secured with garden forms, — more striking and showy than any we ordinarily see, for there are many interesting varieties which are little known and less used. Do not understand me to disparage a garden. I think every place should have one, and that it should be made as interesting and attractive as possible, but I do not think it a good thing to spread it over the place. A brilliant garden is as attractive as a brilliant bit of autumn landscape, but an autumn tinted landscape throughout the season would soon make one long for something green to look upon.

W. H. MANNING.

(To be Continued.)

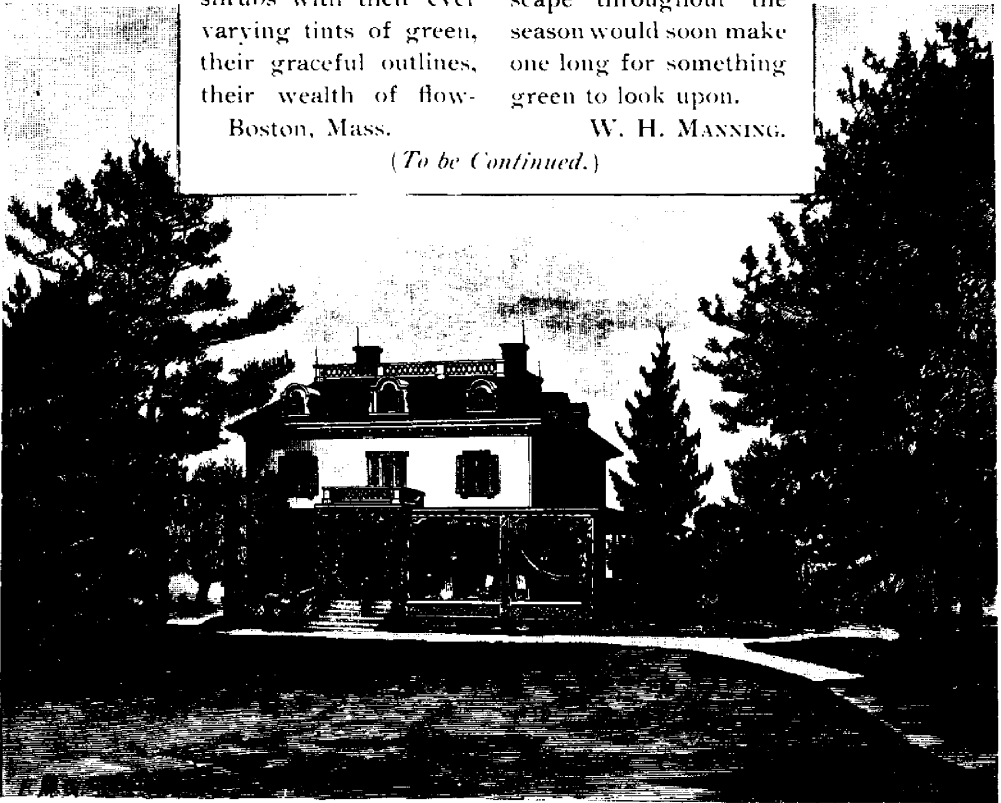


FIG. 1751. A HOME ON THE HUDSON.

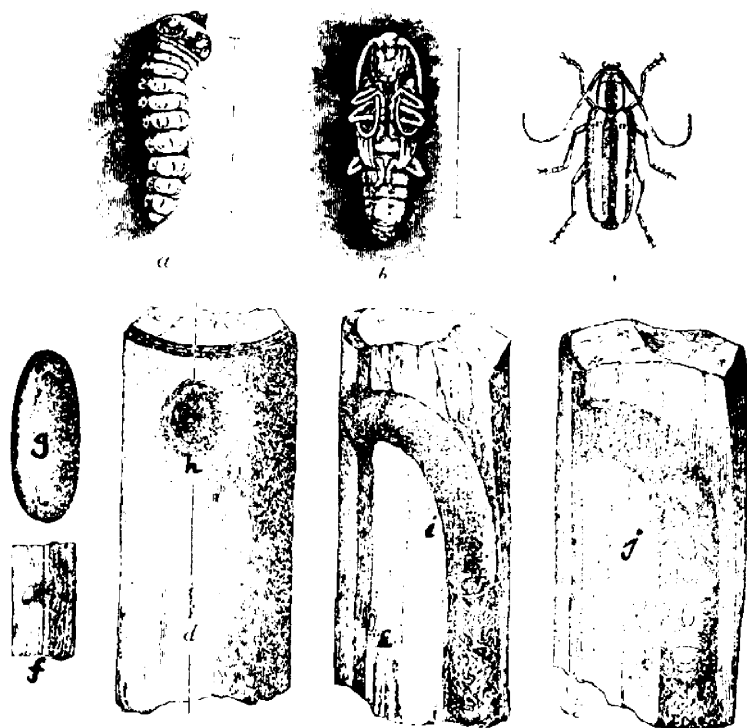


FIG. 1752. ROUND HEADED APPLE TREE BORER--*a*, larva or grub; *b*, pupa; *c*, adult beetle; *d*, puncture in which egg is laid; *e*, same in section; *f* and *g*, eggs; *h*, hole from which beetle has emerged; *i*, tunnel in wood; *j*, pupa in its cell in tunnel prior to emerging.

## THE CARE OF SHADE TREES—II.

**I**N a previous article I dealt briefly with the physiological conditions which affect the healthy, vigorous growth of shade trees. In this present article I shall deal with the insects which work injury to these trees.

The insects which attack trees may be divided into three groups, viz., *Borers*, *Leaf-eaters*, and *Sap-suckers*. The Borers are chiefly the grubs of beetles; the Leaf-eaters are chiefly lamellicorn beetles, and the caterpillars of certain moths, and the Sap-suckers are hemipterous, or half-winged insects. A knowledge of the life-history of these injurious forms is of great service in the fight against them, and can readily be obtained by a reading of the standard works on Insects.

1. The chief Borers are the *Round-Headed* and the *Flat-Headed* Borers. The *Round-Headed Borer* (*Saperda candida*) is perhaps well known to many of the readers of this magazine, but for the benefit of those who are not yet acquainted with the pest, I shall give a few facts about its life-history and general appearance.

The beetle is about an inch in length, and has a broad, white stripe running lengthwise along each wing-cover. The general color of its upper surface is light brown. Its feelers are quite long and jointed. The grub is over an inch in length when full-grown, and has a peculiar shaped head, which is quite characteristic, rounded, and much greater in diameter than the body. The



FIG. 1753. WORK OF BORERS ON MAPLE SHADE TREES.

pupal condition is seldom seen, because it does not remain a pupa for any length of time. (FIG. 1752.)

Near the end of June the beetle lays her eggs close to the ground on the trunk of the tree, under some loose bark. The young grub or larva eats its way through the bark into the sap-wood, where it remains usually a year, then it bores upwards into the hardwood, whence it emerges as a beetle after a sojourn of nearly three years. The last month prior to emergence from the tree is

spent as a pupa at the upper end of its burrow. The tunnel in the sap-wood is flat, and is usually nearly filled with sawdust castings.

The beetle emerges about the middle of June, and proceeds with all dispatch to prepare for the laying of the eggs. Figures 1753 and 1754 show very clearly the characteristic markings these beetles make upon trees. The owner of the trees tried to cut out the grubs, but this method produced the ugly, big scars which made the trees unsightly. The adoption of this method of treatment, supposes that an ugly shade tree is preferable to a dead or dying one. The best remedy is a combination of preventive and destructive measures. In the fall the trees should be carefully examined, and wherever there are indications of sawdust, the tunnels should be probed with a stout wire so as to kill the grub. Again in June the trunks of the trees should be treated with a



FIG. 1754. WORK OF BORERS ON MAPLE SHADE TREE

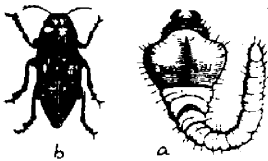


FIG. 1755. FLAT HEADED BORER—*a*, larva or grub; *b*, adult beetle.

mixture which will prevent the deposition of the eggs. A carbolic soap mixture, made by adding a pint of crude carbolic acid to a quart of soft

soap dissolved in two gallons of boiling water, applied with an old scrubbing brush, has been found very effective. A white-wash applied on the trunk and well up into the branches is also to be recommended.

The *Flat-Headed Borer* (*Chrysobothris femorata*) is almost as destructive as the Round-Headed Borer, and has a very similar life-history. In appearance however, it is quite different. The beetle is about half an inch long, flattened, and of a dark green, bronzy color. (Fig. 1755.) The grub or larva is light yellow in color, about an inch in length, and with a very conspicuous head, which is flat, and very broad compared with the body.

Usually it does not take so long for this insect to pass through the various stages of its life-history as is the case with the Round-Headed Borer. The period varies from one to three years, generally one year. As in the case of the Round-Headed, the beetle deposits her eggs about the end of June. The young grubs bore into the sap-wood where they tunnel out flat channels, sometimes girdling the tree. These tunnels are not so regular, and do not penetrate so far into the hardwood as do the tunnels of the Round-Headed Borer.

As a rule the eggs are deposited on the trunk a few feet from the ground.

The same remedies may be used against these pests as have been found effective with the Round-Headed Borer. Prof. Comstock advises the placing of one or two cakes of

soap in the forks of the trees, so that the rains will dissolve the soap and wash it down over the trunks.

It may be said here that these two borers are not only destructive to shade trees, but also to apple, quince, and pear trees.

There are other borers which also do much harm. The *Locust Borer* (*Cyrtene robiniae*) is destructive to locusts in some localities. The beetles of these may be collected quite readily on Golden Rod in the fall. They are black with many yellow bands crossing the

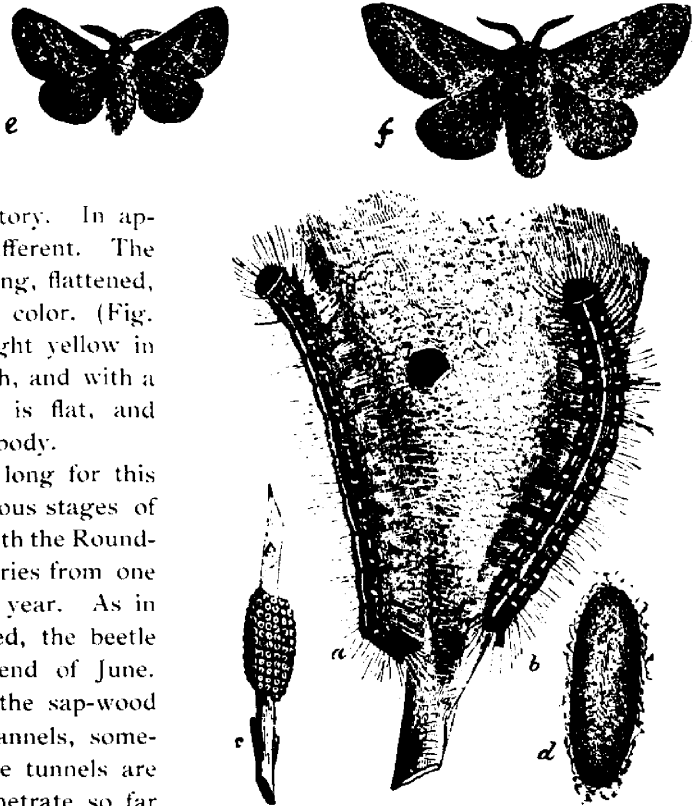


FIG. 1756. AMERICAN TENT CATERPILLAR—*a* and *b*, caterpillars on nest; *c*, egg cluster; *d*, cocoon; *e*, male moth; *f*, female moth.

wing-covers. Many locust trees can be found whose trunks are perforated by holes made by the grubs of these beetles. The holes extend through the bark into the hardwood, injuring the trees so badly that death

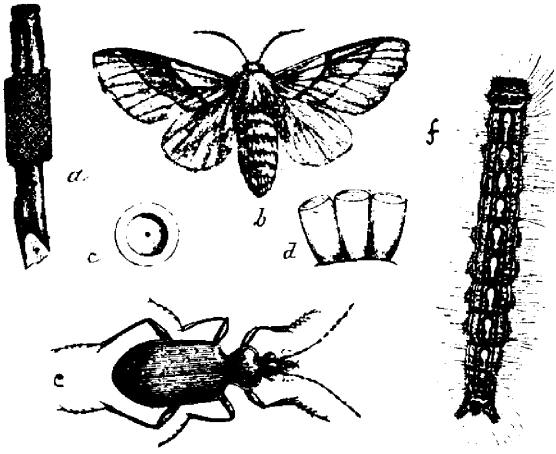


FIG. 1757. FOREST TENTLESS CATERPILLAR—*a*, egg mass; *b*, moth; *c* and *d*, eggs; *e*, fiery hunter beetle, which preys upon the eggs and caterpillars; *f*, caterpillar.

soon follows. The grubs complete their full growth in one year. Much can be done in the winter to rid the trees of these and like borers by cutting off all dead and dying branches, and burning them before the insects have a chance to escape.

Maple trees are often troubled with borers (*Plagionotus speciosus*), which are closely allied to the Locust Borer. This beetle is a very pretty creature, being marked with yellow and black stripes. The eggs are laid in summer, and the grubs bore into the wood, where they may be destroyed by a stout wire in spring.

2. The chief Leaf-Eaters which infest shade trees are the *Tent* and *Tentless caterpillars*, the *Tussock caterpillar*, the *Fall Web-worms*, and the *Bag-worms*, all of which are larvæ of moths.

The American *Tent* and the *Forest Tentless Caterpillars* (*Clisiocampa Americana* and *distriata*), are doubtless familiar to most readers. The accompanying figures (Figs. 1756 and 1757) show the characteristic features of the eggmasses, larvæ, tent, and moths. Much may be done to lessen the ravages of the Tent

caterpillars by the destruction of the egg-masses in the fall, winter, and spring, and by burning the tents as soon as they appear in the spring, but there seems no practicable method of dealing with the Tentless caterpillars, which come from the woods to the orchards and lawns. These make their home primarily in the forests, where it is impossible to clear off the egg-masses.

All shade trees should be sprayed, as soon as leaves are opened, with arsenate of lead solution, made by dissolving in a wooden pail three ounces of acetate of lead in one quart of water, and in another wooden pail dissolve

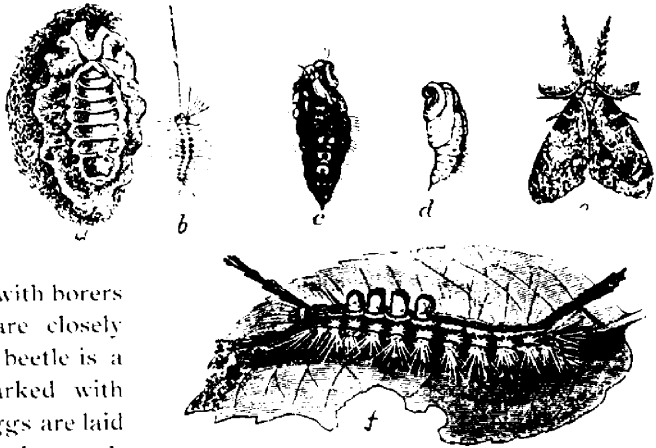


FIG. 1758. TUSSOCK MOTH—*a*, wingless female on mass of eggs; *b*, caterpillar; *c*, female pupa; *d*, male pupa; *e*, male moth; *f*, full grown caterpillar.

one ounce of arsenate of soda in one pint of water; empty the contents of each of the pails into a barrel of water (40 gallons.) Stir well and add one quart of glucose. Tar bands, moreover, should be placed around the trunks, and pyrethrum powder may be used to advantage about the tree.

The *Tussock caterpillar* (*Orgyia leucostigma*) is very destructive some years, but with care the trees may be kept quite free from its ravages. (Fig. 1758.) The white, froth-like

masses of eggs, which remain over winter on the trunks and larger branches, and even on buildings and fences near by, may be scraped off and destroyed during the winter. If a few survive this treatment to show themselves as larvæ, spraying with Paris green will kill most of them. The bands of tar brushed on the trunks three or four feet from the ground will prevent the wingless female from ascending the trees to lay her eggs.

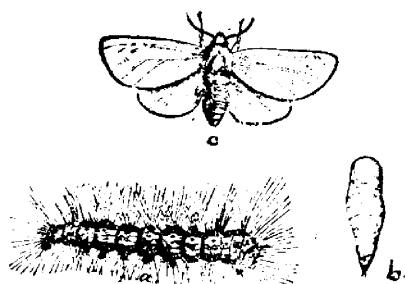


FIG. 1759. FALL WEB-WORM—*a.* caterpillar; *b.* pupa; *c.* moth.

The *Fall Web-worm* (*Hyphantria cunea*) is another serious pest of shade trees. (Fig. 1759.) The moth is either pure white, or white spotted with black, and is a very pretty creature. It lays a cluster of 300 or 400 eggs on the leaves. The caterpillars feed in colonies, and each colony spins a web wherever it feeds. When full grown, the caterpillars leave the web and crawl down the trunk to the ground to spin their cocoons, within which they pass the winter as pupæ. Several methods may be adopted to rid the trees of the pest. The collection of the cocoons, and the spraying with Paris green are both effective, but perhaps, the most effective mode of treatment is to burn the webs and the contained caterpillars. A long pole, to the end of which a swab saturated with coal-oil is fastened, makes a good torch for burning the webs.

The *Bag-worm* (*Thyridopteryx ephemera-formis*), although rare with us on shade trees, is a pest in some cities to the south of us. During the winter silken bags, to which bits

of leaves and sticks are attached, may frequently be found on the twigs of conifers and other trees. These bags contain eggs which hatch in the spring, the little caterpillars emerging from the bags and feeding upon the leaves. They become mature, or full grown in late summer, when the bags, which they have constructed and carried about with them, are fastened securely to branches, or sometimes to fences near by. Within the bags the caterpillars change to pupæ. The male moths soon emerge, but the female moths being wingless and passive, never leave the bags, where they lay large masses of eggs.

The surest remedy for the bag-worm is to pick the bags during the winter and destroy them. If the bags are destroyed no caterpillars can make their appearance unless they come from some outside source.

3. The chief Sap-Suckers are the *Woolly Maple Bark-Louse*, or the *Cottony Maple Scale*, the *Spruce Gall Louse*, and several kinds of armored *Scale-insects*. These all have mouth-parts adapted for sucking the juices of the plants they infest.

The *Cottony Maple Scale* (*Pulvinaria innumerabilis*) is very frequently injurious to maples. (Fig. 1760.) These scales attract attention in the spring by the large cottony masses which envelope them. Within the cottony mass are the eggs, from which in a short time the young lice hatch, and spread over the branches and twigs. They soon settle on suitable spots, and begin feeding by sucking the sap. Full growth is reached about the beginning of September, when winged males appear. The females, how-

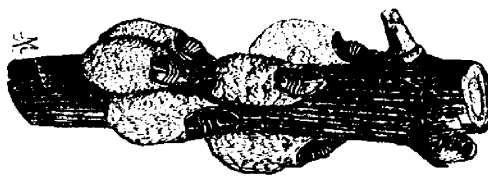


FIG. 1760. COTTONY MAPLE SCALE—Showing the insect lying on a cottony mass which contains eggs.

ever, remain under the scale all winter, and in early spring the eggs are deposited in the fluffy, cottony masses. The application of water by hose connected with the city or town waterworks has been found effective, in dislodging the eggs, and in brushing off the lice while moving about.

The *Spruce Gall Louse* (*Chermes abietis*) is undoubtedly a serious pest of the White, and other varieties of Spruce. During the last few years it has done much damage throughout the province. In early spring, about the first week of May, woolly, fluffy masses may be seen on the terminal twigs of the spruce, and if these be examined large numbers of eggs can be found. In another week the lice hatch, and settle at the bases of the young shoots, which soon show the character-

istic curl. (Fig. 1761.) The base of every infested leaf becomes enlarged and gall-like. The larvae are safe from insecticides as they now live within the base of the leaf.

About August 10th, the winged female adults appear, and prepare to lay eggs for a second brood. Lice soon hatch, and spread over the limbs, but those that survive the winter seek shelter at the base of buds. The second brood of adults appear at the beginning of May, when the fluffy, woolly egg masses are seen.

If the trees are sprayed thoroughly with a mixture of soap-solution and tobacco solution



FIG. 1761. SPRUCE GALL LOUSE--a, summer form of nymph; b, a sprig of White Spruce, with one twig affected by galls produced by the young lice.

soon after the eggs are observed, most of the young lice will be killed. The operation should be repeated in August, when the second brood of lice make their appearance.

Although several armored Scales were observed on shade trees during the past season, and perhaps some damage done to the trees, yet no general complaint has been made against their work.

My next article will deal with the Fungous diseases of shade trees, and the remedies which have been found effective.

W. LOCHHEAD.

O. A. C., Guelph.





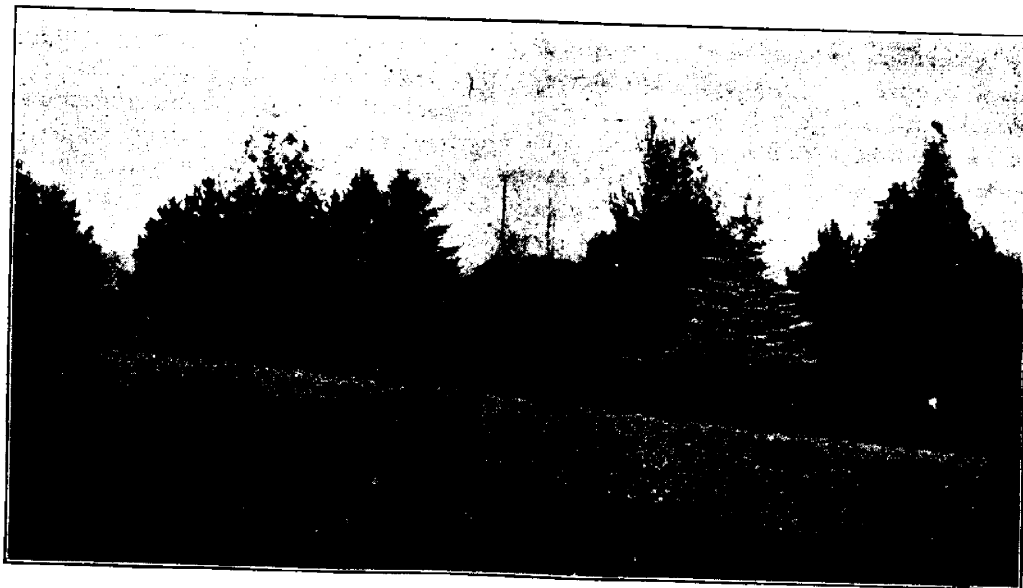


FIG. 1762. GROUP OF CONIFERS IN THE ARBORETUM AT THE CENTRAL EXPERIMENTAL FARM, OTTAWA, 1899.

## CENTRAL EXPERIMENTAL FARM NOTES—No. 5.

**A**LTHOUGH it is now late in January there has been comparatively little severe weather so far this winter. A few days before Christmas it became very mild, and nearly all the snow disappeared, but on the 24th there was a fall of four and a half inches, which prevented us from having a green Christmas. The week beginning with December 30th and ending with January 5th was cold. On six successive days the temperature fell below zero, the lowest temperature recorded so far, being that of December 31st, when the thermometer registered 17.9 degrees fahr. below zero. There has been comparatively little snow so far, and up to the middle of the month there were not more than ten inches of snow on the ground.

### PINES.

When the ornamental grounds are large, no trees are better adapted for giving character to a landscape and adding to the appearance of the buildings than pines. They

are stately and graceful; typical of strength, yet swaying and bending their branches with every breeze that blows. They are always green, and when the species are judiciously mixed or intermingled with other evergreens, the effect in winter is very fine. They afford considerable protection also, and partly on this account they are more suited for a northern exposure than anywhere else, giving a home an air of greater comfort. Pines are more difficult to transplant than many other trees, and the careless manner in which a maple or even an arbor vitæ may be handled should not be taken as an indication that all trees will survive under this harsh treatment. Pines have few fibres on their roots, and what there are are easily destroyed, for this reason the roots should be kept well protected until planted.

Pines are very varied in their form and the color of their leaves, some being also much more graceful than others. Our na-

ive White Pine (*Pinus Strobus*) is one of the best and most graceful of them all. If this were a tree from some foreign country it would probably be more planted for ornamental purposes than it is at present. The Austrian Pine beside it appears stiff and formal. The leaves, or needles as they are sometimes called, are of a lively green shade, which helps to make it one of the best appearing pines in winter. The white pine succeeds admirably in almost any kind of soil unless it be very wet, but seems to thrive best in good sandy loam. It is a rapid grower, averaging about two feet a year. Young trees ten inches high, planted in 1889, at the Central Experimental Farm, are now twenty feet in height. If good lawn specimens are desired, the trees should be planted when small, and if given plenty of room and cared for they will branch close to the ground and make beautiful trees.

Scotch Pine (*Pinus Sylvestris*). The Scotch Pine is planted more in Canada as an ornamental tree than the white pine. It is not as graceful a tree as the latter, nor its equal in any way, but it is a fine tree. It transplants easier, perhaps, than any other species of pine, and this may be one reason why it is so popular. The leaves are darker than those of the white pine, being of a bluish green color, which makes a fine contrast with those of the other species. It is a very rapid grower, and appears to succeed better on low land than the white pine, it will thrive well, however, in a great variety of soils, but it is best to plant it in well-drained soil. Trees planted in 1888, when eighteen inches high, are now nineteen feet in height.

Austrian Pine (*Pinus Austriaca*). Next to the Scotch Pine, the Austrian is probably planted more than any other pine. It is a rather stiff appearing tree, but very symmetrical, and makes a fine lawn specimen being compact, and, if good trees are planted, branching readily from near the

ground. The leaves are dark green in color and very stiff. It is a slower growing tree than either the White or Scotch pines. Trees planted in 1889 when eighteen inches high are now sixteen feet in height.

*Pinus resinosa* (Red Pine). The Red Pine is another native which has been used very little as an ornamental tree. At a distance, when young, it might be mistaken for an Austrian Pine, but on closer inspec-



FIG. 1763. RED PINE (*Pinus resinosa*).  
C. E. F., 1899.

tion the leaves will be found to be less rigid and softer to the touch. As the tree develops it becomes more graceful than the Austrian Pine, and is preferable in many ways. (See Fig. 1763.)

*Pinus ponderosa* (Bull Pine). This is a native of British Columbia, and also occurs in the Rocky Mountains in the United States. Very few specimens of this fine native tree have been planted for ornamental purposes in Canada, but where it can be grown successfully it should not be omitted. It is one of the most handsome species. The long glaucous green leaves, sometimes twisted into peculiar forms, and its upright

branches give it a majestic appearance, and make it a very noticeable and attractive object. It is a rapid grower when once established, a specimen planted in the Arboretum in 1890 when fifteen inches high, being



FIG. 1764. BULL PINE (*Pinus ponderosa*),  
C. E. F., 1899.

now fourteen feet eight inches in height. It is one of the most difficult pines to transplant, as there are very few fibres on the roots. Great care should be taken to not allow the roots to become dry. The trees should not be more than eighteen inches high when planted, after which they should be well looked after. (See Fig. 1764)

Dwarf Mountain Pine (*Pinus Montana Mughus*). On account of its dwarf, compact and symmetrical habit of growth, and its generally attractive appearance, this is a very desirable pine. It is a native of the mountains of Central Europe, but succeeds admirably in this country. The foliage is very similar to that of the Scotch Pine in some respects. It is a low growing tree, never probably attaining a height of more than ten to fifteen feet. Some specimens are dwarfer than others. This is a very desirable tree.

Swiss Stone Pine (*Pinus Cembra*). This pine is a native of Central Europe and northern Russia. It is pyramidal in form, with foliage somewhat resembling that of the White Pine, but while the latter is a loose growing tree the Stone Pine is very compact, and is one of the slowest growing trees at the Experimental Farm. A specimen planted in the Arboretum in 1889 when nine inches high, is now only two feet four inches in height.

Other pines which have been tested at the Central Experimental Farm and have proven hardy so far, are *Pinus contorta* and variety *Murrayana*, natives of the Rocky Mountains and coast ranges; *P. densiflora* and *P. Thunbergii*, natives of Japan, and *P. Penke*, native of Macedonia.

The pines are all interesting, and most of them are very ornamental. They should be planted in greater variety than they are at present.

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



## WESTERN NEW YORK FRUIT GROWERS.



S delegate of the O. F. G. Association, I attended the 45th annual meeting of W. N. Y. Horticultural Society, held in Rochester, on January 24th and 25th. This Society, notwithstanding its venerable age, is still in the full vigor of youth. The attendance at its meetings, and the interest taken in its work, is increasing from year to year.

The officers and members are an intelligent, energetic, large hearted lot of men, who not only know how to grow fruit, but to be happy themselves, and make their visitors feel at home among them. For although we live on the other side of an imaginary line, and under a different form of government it is no bar to the good fellowship and free intercourse among fruit growers, even if it does affect the fruit.

The meeting was called to order by the President, W. C. Barry, of Rochester.

No subject brought before the meeting commanded more attention than "Insect enemies of fruit," and among them San Jose Scale held first place. The alarm caused by this pest is much greater than it was at this time last year. In our country, out of 160 orchards inspected (mostly apple) 102 were found infested. One speaker said that the smallpox had been among them, and that they did not know it! We are only beginning to realize how serious the infestation is. Another speaker said "the scale has got away from us." Nursery stock from other States, with inspector's certificates attached, were found infested. It was stated that all that has been said as to the entire destruction of the scale by spraying was upset by facts. Kerosene, crude oil and soaps have all failed. Fire or fumigation with hydrocyanic acid gas are the only effectual treatment so far discovered. It is said that

some cherry and Kieffer pear trees are almost exempt from its attacks.

The State of Massachusetts has spent about one and a half million dollars fighting the Gypsy moth. Last year it spent two hundred thousand, and only succeeded in preventing its spreading to new territory. There is great danger that it may escape their vigilance and spread throughout America.

A new pest, the cherry fruit fly, has appeared; it attacks the fruit and is very destructive.

Professor Slingerland said that he could not say whether fumigation would kill the eggs of the tent and tentless caterpillar or canker-worm or not.

The disease known as "little peaches" continues to spread in some sections; burning is the only remedy known.

Black rot in grapes was bad in many vineyards last year. Scabbing of apples, and pears was not so bad last year as usual.

None of the new fungicide compounds have proved so satisfactory as Bordeaux mixture, it adheres to the tree and fruit better than any other preparation used.

Apple canker continues to spread, destroying whole orchards in some sections. Pear blight has been prevalent this year, best known treatment is to cut and burn affected parts.

Duchess and Kieffer pear are said to be the most profitable. Duchess wrapped up in paper and put up in boxes by Mr. Hooker, of Rochester, brought in the British market the equal of \$14 per bbl. Professor Van Deman says that hundreds of car loads of Kieffer pears are canned and labelled Bartlett.

The Champion quince is good but too late. The Orange quince is said to be the best. The Bosc pear does well grafted on Kieffer trees.

Japan Plums.—Mr. Smith, of Geneva, says that Burbank and Wickson are the best. M. Willard says that Red June and Burbank are his favorite, and that he is more favorably impressed with Wickson than he used to be. Red June matures from the 15th to the 20th of July.

Mr. Willard says that the Windsor is the most valuable sweet cherry ever introduced in York State, being a good bearer, fruit of excellent quality, and a good shipper.

Mr. Powell endorsed what he said, and added that the tree was a strong, hardy, vigorous grower. Montmorency was pronounced the best sour cherry.

Currants.—Since the enactment of the June food law, currants have been improving in price. Now that other materials cannot be legally used in the manufacture of currant jellies and jams the prospect for paying prices for this fruit is good. President Wilder and Fay's Prolific are said to be the best red currants.

Elwanger & Barry show a new seedling pear, of excellent quality, almost equal to the Seckel; it is a winter pear, a seedling of Winter Nelis, and about the size of the St. Lawrence.

Apples.—The prospect for profitable apple growing in this State is good. When orchards are properly cultivated and fed, satisfactory results are secured. Six counties in one section of the State sold five million dollars' worth of apples last year. It is estimated that over one half of the orchards of the State are not properly cultivated or fed, and that many of these are an encumbrance on the land; it is conceded that to achieve the best results, especially in dry seasons, that there must be thorough cultivation. The Baldwin is said to be the best commercial apple grown in the State. Fraudulent packing is damaging the fruit market both at home and abroad. California apples, uniform in size, perfectly packed, arrived in perfect con-

dition, and are bringing three times as much in the best markets as home grown fruit. It was stated that the same condition prevailed in Canada, and I could not contradict it.

Professor Roberts, speaking of the conservation of moisture in the soil, says, "the farmer's cistern leaks on top; to prevent this give more and better tillage; to conserve the moisture in the soil is better than to irrigate." He says that lime, at the rate of 50 bushels to the acre on sandy land, makes it more retentive of moisture.

Professor Van Deman says that there is a greater lack of humus or vegetable matter in the soil than of potash or any other material, and that nitrogen escapes from land ploughed in the fall and left over winter without a cover crop.

The New York State Fruit Growers' Associations are very enthusiastic over the Pan American Exposition, to be held in Buffalo in 1901. They propose to have the finest exhibit of fruit ever shown in America. Committees have been appointed to carry on the work, and a special grant of ten thousand dollars is asked from the government.

The exhibit of apples, pears and grapes was remarkably fine. Among them was a plate of beautiful Princess Louise apples shown by one of our Directors, Mr. A. M. Smith, of St. Catharines.

An act has been passed in the State of New York to define the size of fruit packages. The quart basket shall be 67-1/5 cubic inches, and similarly the exact measurements of other baskets are specified. All pints, quarts, etc., not up to the legal standard, must be marked plainly with the word "short." This is a move in the right direction, for always it is found that in the end "Honesty is the best Policy."

W. M. ORR.

Fruitland.

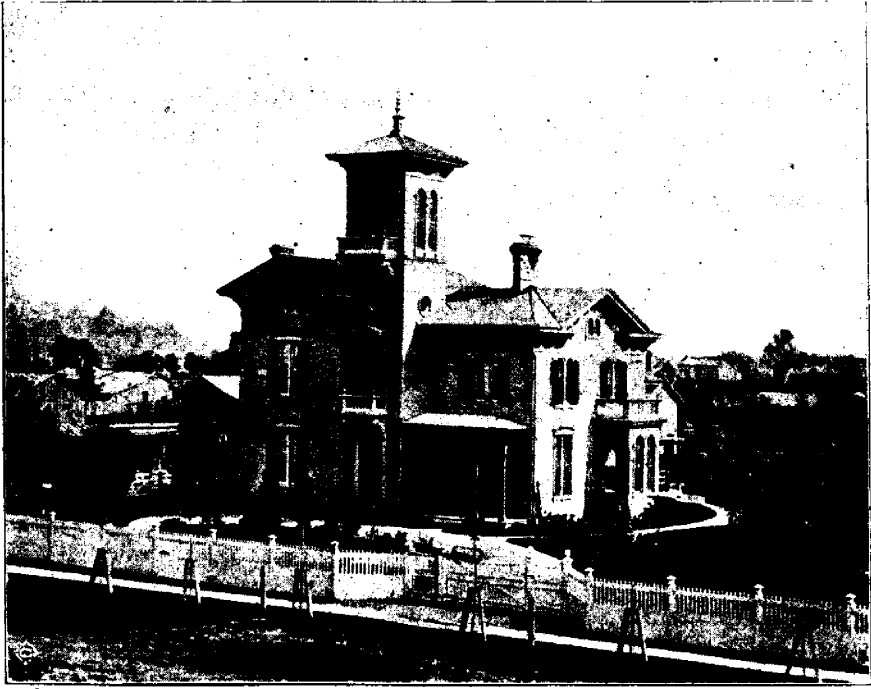


FIG. 1765. HOME OF MR. T. H. PARKER.

## FRUIT IN OXFORD COUNTY.

**I**T was my privilege last fall, as also the fall before, to visit the progressive town of Woodstock as judge of the fruit displayed at the agricultural exhibition there. That gave me an opportunity to compare the fruit grown in the Oxford district with that grown in the other sections of Ontario which I have from time to time visited in a similar capacity. It has long been held, and believed by many, that the Huron district surpasses all other sections of Ontario in the quantity and quality of apples it produces. I would like to uphold the supremacy of my own section in all things if I could honestly do so; but in the matter of apple production my observation and experience will not permit me. Having had an experience extending over seven years as a judge on fruit at many of the best apple centres in the province, I am compelled by my own close observation to

give the palm to Oxford County for the finest specimens of many of our standard varieties of apples. If those exhibits which came under my observation can be considered a fair criterion of the general crop produced, Oxford County stands at the head of the many fine sections of Ontario for the quality of apples grown. The Golden Russets and Snow apples that took the prize at Woodstock in 1898 would easily have beaten any collection shown between Toronto and Port Huron. In 1899, an off year for apples, four exhibits in the Fall Pippin class at Woodstock surpassed anything of the kind that I have seen anywhere, and the Golden Russet, Snows, Talman Sweets and Baldwins, would all have carried off the prizes in their respective classes at any of the several exhibitions that I attended in other parts of the province. All the other standard varieties shown at

Woodstock last fall were quite up to the average in size and quality, and some of them, besides what I have named above, a little better than the average. The display of Alexanders, for example, was only beaten by the display at Coldwater, north of Orillia, a district supposed to be peculiarly suited for the Alexander.

Nor is Oxford behind for its quality of pears, plums and peaches, though considerably behind the Goderich district in quantity. I was surprised to find at Woodstock a few exhibits of seedling and other peaches of fine appearance and fair quality, really better than I have met with on the shore of Lake Huron, though not grown in so large a quantity.

What pleased me next to the quality and quantity of fruit exhibited at Woodstock was the interest that the people of that progressive town and vicinity manifested in it. That interest in fact might justly be termed an enthusiasm. From our director there, Mr. J. S. Scarff, and the active president of the Agricultural Society, Mr. G. R. Pattullo, to the average citizen and district farmer,—all in fact seemed to take a lively interest in the fruit exhibit, and all seemed to feel special pride in being told that it possessed special merit.

And Woodstock holds the proud distinction of producing the finest under-glass grapes in western Ontario. Mr. T. H. Parker has been a successful exhibitor of indoor grapes at the Western Fair, London, for many years, and also at Brantford, where

he meets a keener competition than at the former place. Mr. Parker grows twelve varieties of indoor grapes, among them being all the finer sorts, and every year he ships a considerable quantity to Montreal at a high price. The wisdom of growing twelve varieties of indoor grapes in this country may well be questioned, as there are not that many sorts really worth the trouble. But Mr. Parker has to have that many owing to a foolish regulation of the Western Fair Association requiring twelve varieties for a collection. No industrial association should adopt rules requiring the production of an article that is not profitable to grow.

As to the town of Woodstock itself I consider it a thing of beauty and a joy as long as you remain in it. Many of its residential streets and avenues for their leafy shade, landscape architecture and rich floral display are quite equal to the finest seen in our largest cities. In 1898 I saw cannas and caladiums in Woodstock large and more luxuriant than in Port Huron or Detroit, and such a pleasing display was not an uncommon or isolated thing. I have visited a number of Woodstocks on this continent, including the one in New England, made famous by Mr. Bowen, of the New York Independent, but among them all, for the evidences of thrift, progressive refinement, and the love of a beautiful home, there is none to compare with the Woodstock of our own beloved Ontario.

T. H. RACE.

Mitchell.

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THE WICKSON PLUM was first sent out by Luther Burbank as of pure Japanese parentage; now, however, he has concluded it must be crossed with *Prunus Simoni*, and should be classed with the hybrids.

NEW SOUR CHERRIES.—Mr. F. A. Waugh, horticulturist, Burlington, Vt., gives a report on these cherries in the Twelfth Annual Report of Vermont Experimental Station. He also treats on Hybrid Plums.

## PRINCE EDWARD ISLAND ENTHUSIASTIC.



FIG. 1766. H. A. STEWART, PRES. P.E.I. ASSOCN.

EVERYWHERE horticulture at the present time is on the alert. The old associations are as strenuously exerting their influences as in the days of their inception; the new are starting out with a vigor and intelligence which promises everything for their usefulness. Nearly every province has now its well organized Fruit Growers' Association, and the valuable work they are doing to spread the principles of horticulture is before us all. Ontario, mother and mistress of all these daughter societies, has no need of blushing for her progeny.

In January the two Maritime Fruit Growers' Associations held their annual conventions. I have no brief to speak for Nova Scotia, which will be ably reported by some local pen. Our Prince Edward Island F. G. A. is in high spirits. Never since its inauguration was anything like the reception given it by the public at large as last week

when it held its meeting in Charlottetown. Not only did the best farmers and fruit raisers of the province turn out almost to a man, but the representatives of all the other walks in life, recognizing the good work she was doing, were there to do her honor and lend the assistance of their council and membership. The Governor of the Province, the Bishop of the Diocese, the Mayor of the city, the President of the Board of Trade—all vied with each other in giving her countenance—all admitted freely what she has already done for the Island and the still greater things she was to do for it in the coming years. And the Association was alive to the importance of her position, and rose to it magnificently.

The day sessions were for the transaction of business, the hearing of reports, adopting resolutions, appointing officers and committees and listening to and discussing papers. The hall was always crowded during those sessions, and even those who had never heard horticultural discussions before were at the opening and lingered until the last word was said at the closing. On one evening a grand entertainment, interspersed with five minute addresses on some subjects connected with horticulture, was held. The venture was a decided success, and reflected the greatest credit on its enterprising projectors. A large audience assembled and the best talent of the capital gladly contributed to the musical and literary numbers. The Governor himself presided. Everybody—those from the country and those from the towns—thoroughly enjoyed themselves, and the last feature, the giving away of the large fruit display, was by no means the part of the programme the least appreciated.

Prince Edward Island is now receiving nearly three-quarters of a million dollars yearly from dairying, and she only took to the industry a very few years ago. Nor is



she now to the end of her capabilities by any manner of means, she is simply commencing. The people have just only awakened to the conviction that there is money in the fruit industry for the garden province also. The apples we grow are good; there is no doubt of that. We are nearest the British market, that's patent. Our fruit coming in later than even that of Nova Scotia, we will have a great advantage in keeping qualities. All these conditions ought to help to build up a business in fruit for us that will rival Nova Scotia, two little counties of which made \$1,000,000 out of apples this year. Mr. Patrinquin, of Wolfville, N. S., was with us this year at our meeting. He is a wide-awake, practical fellow and his addresses were much appreciated. He says from his experience here and the exhibition of our fruit that there can be no doubt that Prince Edward Island ought to be turned into an apple orchard from end to end. And he thinks we can grow pears and peaches. We can grow pears, no doubt; have grown good ones even now when suitable varieties have not yet been tested; but the matter of peaches we had not thought of up to this declaration. Who knows where we may yet find ourselves in this fruit business?

At our sessions we had four good papers, which evoked much valuable discussion—one on "Pruning," one on "Commercial Orchardling," one on "A Ben Davis Orchard," and one on "Medical Treatment of Plants." All were adjudged worthy of publication. It was felt that no greater necessity than pruning confronted our orchards. As to time the consensus of opinion favored doing it whenever you have "a spare moment and a sharp saw," although there was a discussion on the "winter for wood, summer for fruit theory." Prune early was another condition all admitted, and if you must cut grown trees take the branches off a foot or so from the trunk and then cut them again up close to it when the weight of a whole big limb will not

interfere with a good job. The state of the market and its demands for success were all laid down in Commercial Orchardling. The Ben Davis apple for export—easily grown as it is here, resisting all the difficulties of transportation and fetching a high figure at home—was the favorite sort spoken of. A faithful account of an apple plantation of the Ben Davis variety was given in the third paper by one of our most intelligent and enterprising farmers; and, while he would not advise others to adhere to all his ways, he was able to give at best the assurance that his orchard was a grand success. The Medical Treatment of Plants pleaded for the systematic and persistent use of the spray pump in the orchard.

Perhaps the most important part of the meetings was the passing of practical opportune resolutions, all carefully considered and fully discussed. Two of those bore upon the transportation for fruit to the Old Country markets, one suggested by the F. G. A. of Ontario and another called up by local needs. The Ontario resolution, minus the recommendation as to size of apples, passed with unanimity. It has been forwarded to the Minister of Agriculture. As to grades the meeting thought we could not adhere to an absolute size scale for all kinds of apples. If the apples put on the market were branded and the contents of the barrels true to the brand, no harm was done to anybody, most thought. But deception ought to be located and punished. We asked for better facilities for shipping from here too, and for efficient inspection to see that our good name abroad should not be tarnished by rascally packing.

I don't know how you manage the business in Ontario, but it was thought that some restriction should be put on tree agents and some protection against sharpers given the public. The Local Government is asked to give legislation that will prevent the victimizing of buyers by nurserymen from within or without. As before stated, at least half

the stock planted here and imported from Ontario or New Brunswick is the veriest trash. We want to stop this imposture. The Government is also asked to secure to the Province a permanent exhibit of fruit, something that for educative purposes and purposes of identification ought long ago to have been established. And there were other resolutions of great local utility.

The appearance of a sample of Ontario Stark kindly sent me by the indefatigable Secretary of the F. G. A. of that Province, was the cynosure of all eyes. We have Starks of our own, so competent judges here and in Nova Scotia say. They are grown principally by Mr. Pigott, of Savage Harbor, but they are not at all like the Ontario Stark on exhibition. The difference of opinion on this and other apples shows us how difficult it is at times to identify some varieties in dif-

ferent provinces. I have had a little experience in this line myself this fall. Three apples were sent to three Ontario experts, and no two of them agreed as to the kinds and none of them were, in my opinion, correct in their decision. All here will watch the verification process with a consuming interest.

We have elected our President Mr. Stewart, again; he well deserved the compliment, and about all the other officers. A good man should be held when you get him; we have added many new members to our list and that of the superb Horticulturist; we have awakened a new and absorbing interest in our association all around, and now we hope for a year with *omnia fausta et felicia*.

A. E. BURKE.

Alberton,

Prince Edward Island.

A NEW CHERRY PEST.—The Cherry maggot is a new and serious pest in New York. During the past season many bushels of fruit were ruined by this insect. The fly lays its egg on the skin, as the fruit begins to turn red, and from this hatches a maggot which eats its way to the pit, and is carried off when the fruit is sold. The worst thing about this disgusting pest is that it is so hard to detect its presence. Some affected fruits show a sunken place on one side, but others appear perfectly free from injury, and are sold to the consumer as sound fruit. The protest comes mostly from the buyer, after he has put the cherry in his mouth. As yet, no satisfactory remedy or preventive has been found.—*R. N. Y.*

END OF THE CENTURY NOT YET.—Dear Sir, I houp ye winna cut aff a twalmonth fra the fag end o' the cent'ry, as a lot o'

itherwise able men are tryin to dae. Shurely the warld began wi' the year 1, and the end o' the first cent'ry was jist 100 years, nae mair an' nae less. Hoo then is that 1900 sidna hae the full compliment o' nineteen hunder years? To cut aff the cent'ry at the end o' 1899 wud mean that the warld commenced in the year 0, that is a year afore it began. Noo, ye ken that a hunder times naething is simply naething, and a saxpence is worth a hunder times that, or as muckle mair as ye like. This is nae gairdenin', but I'm only writin' tae warn ye, because the loss o' a hail twalmonth's produce oot o' the gairden, and a twalmonth's waages tae ilka gairdener wud mean a mighty lot. By the bye, that was a bonnie splatter at Edinbro' the ither week wi' the bubblyjock and the haggis. A'body at the feast will noo be strong enouch to turn ower the dew leaf we're aye hearin' about.—*Tam., in Gardeners' Chronicles.*

## NOVA SCOTIA FRUIT GROWERS.

**W**E HAVE just received an excellent report of the annual meeting of the Nova Scotia Fruit Growers at Wolfville, beginning Jan. 29th. A prominent member of our Association, Mr. A. H. Pettit, was present and gave an address reviewing the work of our Association and making especial reference to the Grading Inspection Act. The resolution of our own committee on this important question was presented by President Bigelow and received with general approval. The Ontario apple was commended for the commercial orchard by Mr. R. W. Starr, partly on the ground of its standing in Ontario and partly on the partial test it has in Nova Scotia. Mr. Ralph S. Eaton claimed that fruit growing in Nova Scotia was too much occupied with apples, and that plums, pears, cherries and even peaches should be cultivated. He advocated the early establishment of an Agricultural College at Wolfville.

Mr. P. Innes objected to the standard barrel to be introduced by Act of Parliament of Canada on the 1st of July next, the size of which was 27 inches between heads, 17 inches diameter of head and 19 inches diameter at bilge. This barrel, he claimed, would hold 103 quarts of fruit, while the barrel adopted by the United States Apple Shippers' Convention would only hold 100 quarts. He claimed that Canada would be at a disadvantage and that the same size barrel should be adopted in Canada. He also says that the same barrel should be the standard for pears, potatoes and other products, and that the Ontario Association should be asked to co-operate in seeking such amendment.

Dr. O. E. De Witt spoke on Bills of Lading, protesting against the present contracts

which place the shipper at a disadvantage. He said,—

"The clause in the bills of lading now in use, which particularly affect the shipment of our apples is clause 1, which reads as follows: 'That they shall not be liable for loss or damage done to goods by sweating, insufficiency of package in any respect; leakage, breakage of any kind, pilferage, wastage, rottage, rain, spray, rust, fire, heat, frost, decay of any kind, contact with smell or evaporation from any other goods, or loss arising from inaccuracies in obliteration, insufficiency of or absence of marks, numbers, addresses, or description of goods shipped, or injury to wrappers however caused.' The words in this clause to which I think this association should take exception are, 'breakage of any kind, pilferage, rottage, rain, fire, spray, heat, frost, injury to wrappers.' Why should the shipper be responsible for breakage or pilferage, or damage done by rats or rain, or fire, heat or frost? If the apples arrive in the cars at the port of export in good condition and if through the carelessness or rough handling of the steamship companies, the goods are injured or damaged in any way, when loading or in transit or unloading, why should the loss be borne by the owner or consignors? Apples are rolled from the cars in Halifax on to the wharf, put into slings and carried in the slings into the hold of the ship. In London, when unloading, there are three different modes in vogue, viz.: in slings, containing from 20 to 30 barrels; by the grappling hooks; and by sliding the barrels on skids from the rail of the vessel to the wharf. The latter mode is a severe strain on the barrel and may damage a barrel that is at all weak.

"The steamship companies have control of the apples from the time they leave the cars at the wharf in Halifax until they are loaded on the consignees' vans or lighters. If the barrels are taken on board intact, if in a good sound condition, they reach the hold of the vessel the responsibility of the shipper ought to cease. If damaged in voyage by breakage, pilferage, rottage, rain or heat, or by loading or unloading, the steamship companies should be responsible. I understand that when damage is sustained to general merchandise through the carelessness or negligence or mismanagement of the companies who carry it, they are held and made responsible for the loss.

"Why should not the product of the orchard have the same privilege? Scarcely an account of sales comes to hand but shows the sacrifice of slack, open or damaged barrels. In a few instances bad cooperage may be at fault, but it seems to me that when a barrel is found by the steamship company to be unfit for shipping it should be re-coopered at the expense of the shipper, or laid aside and the shipper notified, but not to be shipped in a damaged condition for the purpose of charging the freight. Innumerable instances have shown that when such barrels have

been sold, they have not realized enough to cover expenses. In view of the partial and unjust clause in the bill of lading referred to, I beg leave to submit the following resolution:

"Whereas the form of bill of lading now in use, and given by the Furness line of steamers to shippers of fruit by such steamships, contains as part of the terms and conditions on which the shipowners undertake the transportation of such property the following provisions:

"1st. That they shall not be liable for loss or damage done to goods by sweating, insufficiency of package in any respect, leakage, breakage of any kind, pilferage, wastage, rattage, rain, spray, rust, fire, heat, frost, decay of any kind, contact with, smell or evaporation from any other goods, or loss arising from inaccuracies in obliteration, insufficiency of or absence of marks, numbers, addresses or description of goods shipped, or injury to wrappers, however caused;

"And whereas great loss has heretofore arisen to shippers, causing their fruit to be sacrificed in the markets; and whereas great loss is likely to arise by reason of breakage, pilferage, rattage, rain, spray, heat and frost, and contact with smell or evaporation from other goods, occurring during the transportation of fruit and by injury done to barrels while loading and unloading at the docks;

"And whereas the said Furness line of steamers is in receipt of a subsidy from the government of Canada:

"Therefore, resolved that this Fruit Growers' Association, in annual session, assembled, petition the government of Canada to regulate the terms and conditions of such bills of lading so as to make the ship owners liable to the shippers of fruit for all damage done to goods by breakage, pilfer-

age, rattage, rain, heat, spray, contact with, smell and evaporation from any other goods occurring during transportation by such steamships, and by injury done to barrels while loading or unloading at the docks;

"And further resolved that a copy of these regulations be forwarded to the Honorable, the Minister of Agriculture for Canada."

LETTER FROM ENGLISH FIRM.

Dr. DeWitt presented a copy of a letter on this matter from Nothard & Lowe, of London, as follows:

"DEAR SIR,—We are continually receiving letters from shippers complaining of the loss they sustain through the low price obtained for slack, open or half-filled barrels. Shippers appear to be under the impression that we have only to make a claim on the shipping agents or owners here in London to have the matter settled, and our claims paid. We have been pushing these claims for some years past, and fought one case some years since on this very question and were beaten. While apples are shipped on this lading, containing the clauses at present existing, we are powerless to enforce claims, although we most sincerely wish we could make the steamer pay these heavy losses.

"We would suggest that the Canadian high commissioner here should be instructed by the government in Ottawa to fight a test case in London on this point, and this would solve the unsatisfactory state of things now existing. We hope you will bring your influence to bear on this matter.

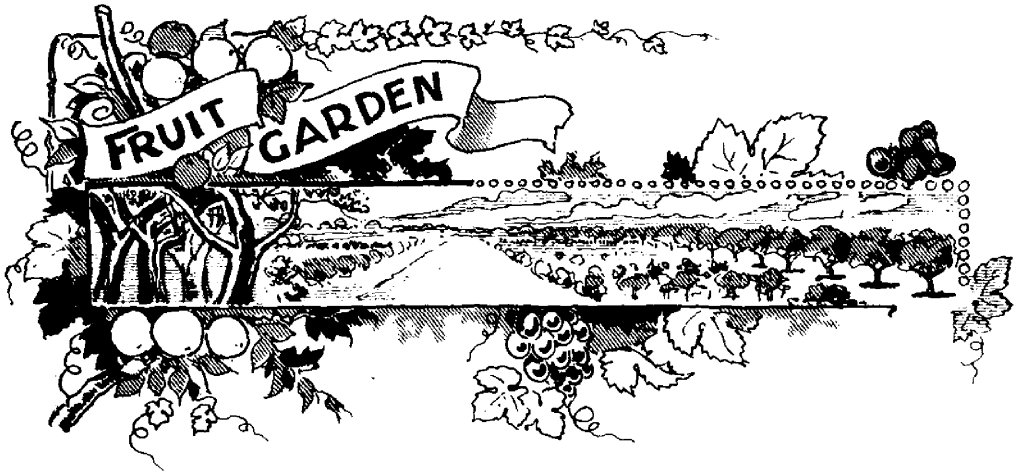
"Yours faithfully,

"NOTHARD & LOWE."

PRUNING PEARS.—Norman, in *The Garden*, says, "Pears are amenable to close pruning. Under this system they continue for many years in good health and bear regularly. \* \* The pyramid is by far the best for the open ground. I prune my trees to form cordonated branches—that is, they have a main stem in the centre with branches starting from it. Many trees have as many as fifty branches, some of which are twelve feet long, so that I have as it were fifty single cordon trees in one. Mostly the pruning is done in August by shortening the summer side growth to within an inch of the base. It is too common an error for spurs to be over crowded; they require room to allow the leaves to attain their fullest size, when large well-ripened bloom buds will follow.

It is better to err on the side of thinness rather than for the spurs to be crowded."

MELONS IN ITALY.—U. S. Consul Hayden, of Castellamare di Stabia, on December 12, 1899, says: "In this portion of Italy, muskmelons at best are very inferior to the American fruit, lacking the sweet flavor of our melon. Strange to say, however, this same melon when reserved for consumption in winter is very acceptable. A custom exists here of pulling the melon from the vine while green, and hanging it up in the open air until winter, when it is eaten. The melon becomes not only far superior to the ripe fruit of summer, but quite equal to the American product. If this system could be adopted in the United States, it might prove of value."



## FRUIT CULTURE.—II.

**T**ILLAGE. The cultivation of the soil, for centuries regarded as a necessary and common place part of the husbandman's labors, has received so much attention during the last twenty or thirty years that this part of agriculture may now be almost considered a science in itself. To grow certain plants and destroy others which interfered with their growth,—this was the sole object of cultivation in the older days. And even yet there are many whose conceptions of tillage go no further than this. Certainly this is a primary object. But the secondary benefits derived are so great as to cause the whole question to be looked at in a different light. As this matter of cultivation is of even more importance to the horticulturist than to the general farmer, it may be well to touch on a few points that affect all kinds of fruit alike. Broadly speaking the benefits of cultivation are four:

1. The destruction of weeds, which rob the plants and trees of necessary plant food and moisture.
2. The improvement of the physical condition of the soil, thereby giving the roots a larger feeding ground.

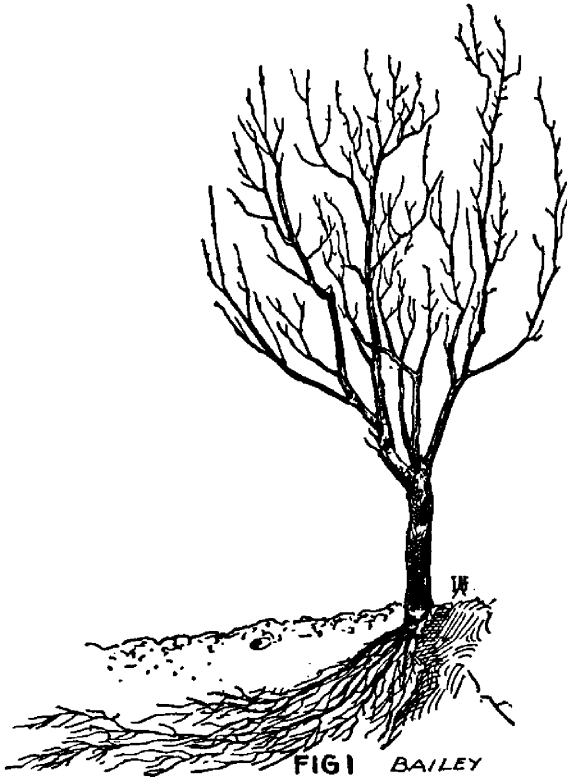
3. The improvement of the chemical condition of the soil, by rendering the decomposition of organic matter much more rapid, and by making locked-up plant food available to the feeding rootlets.

4. The conservation of moisture.

These are all important points, but cannot be elaborated here. The first benefit spoken of is so obvious that mere mention is enough. Of the third, viz., the chemical improvement, this much may be added. Soil may be really rich in plant food and yet produce inferior crops. "A hundred pounds of potash in a stone-hard lump is worth less to a given plant than an ounce in a state of fine division." The key by which many unsuspected riches in the soil are let out is thorough cultivation. On the second benefit from tillage of fruit trees, viz., the extension of the feeding ground for the roots, a few words may be said. All orchards should be thoroughly cultivated when first planted, and in most cases during their lifetime. The question of leaving orchards in sod when of a bearing age will be touched on under the chapter dealing with the apple. If an orchard is properly planted and carefully cultivated the first year or two the roots will

penetrate deeply enough to escape injury from the plow, and the subsoil itself by thorough tillage and efficient drainage will provide a large feeding ground for the tree. On the other hand if these matters are neglected a surface habit of root-growth is

mately related to the plant-food question, inasmuch as water is the medium through which all plants obtain their food. Nearly all fruits, from apples to strawberries, are composed of about 85 per cent. of water. The production of a crop of fruit, therefore, in addition to the building up of the plants and trees, requires an immense amount of soil moisture. Deep plowing and sub-



**FIG 1 BAILEY**  
Roots of a young apple tree in rich tilled land.

formed, which entails severe injuries when subsequent cultivation is attempted, to say nothing of losses in other directions. The differences are very clearly illustrated in the accompanying figures. Fig. 1 is that of an apple tree six years old cultivated from the start. Fig. 2 shows the result when neglect has been the order of the day.

The fourth benefit derived from the proper tillage of the soil, viz., conservation of moisture, is, in many instances, the most important of all to the grower of fruit. It is inti-



**FIG 2 BAILEY**  
Roots of a young apple tree in sod land.

soiling will enable the soil to receive more moisture, and the finer the particles of the soil the greater the capacity for holding water, while surface tillage, breaking the crust of the ground provides a mulch which checks evaporation of the moisture received in the spring and from subsequent rains. This

statement need hardly be dwelt on. It contains an obvious truth, and so important to the orchardist, that in a dry season it simply means the difference between failure and success.

**MANURING.**—What has been said above about tillage bears closely on the matter of manures. On improperly tilled and undrained lands, a good deal of fertilizing material already in the ground cannot be used by the roots of the trees, and a considerable portion of any that may be added is practically wasted. Speaking generally, land that is in a sufficiently fertile condition to grow good crops of grain or roots, is in condition, also, to grow fruit trees, or produce fair crops of fruit. The demands of the tree soil are, however, of a different character from those made by the fruit. The elements taken from the soil in the growing of trees, bushes, or vines, are in much the same proportion as in the case of many grain and hay crops. Barnyard manure—to the average farmer the cheapest and most convenient form—conveys these elements, nitrogen, phosphoric acid and potash, to the soil in a fairly satisfactory ratio, besides supplying the necessary humus. The composition of fruit is distinctly different. In some fruits practically no nitrogen exists, and with all fruit potash is the preponderant element. When fruit trees are bearing there is a diminution in wood growth, and a consequent less urgent call for nitrogen; and an increased demand for potash to supply the loss occasioned by the removal of the fruit. Unleached wood ashes will provide potash in an admirable form, and with it also a valuable proportion of phosphoric acid. It is much to be regretted that so large a quantity of Canadian ashes are annually exported when the orchards of Ontario are so largely in need of this fertilizer. People who imagine that good crops of fruit can be produced without high manuring would be vastly surprised if they knew the facts.

Prof. Roberts, of Cornell, has very carefully calculated the comparative demands on the soil of wheat and apples. Computations of this kind necessarily cannot be exact, but they are approximately true, and are a valuable guide to those who wish for light on the subject.

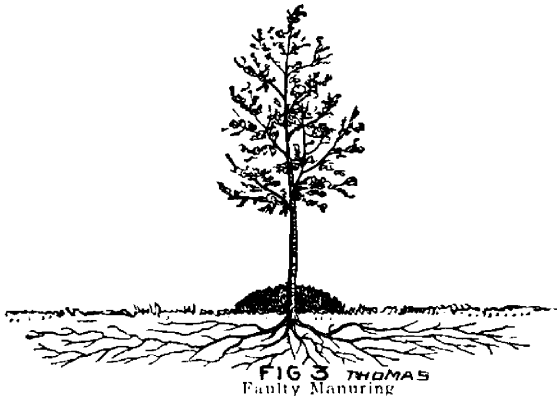
The plant-food taken per acre during twenty years by average crops of apples, counting also the leaves (but not that taken by the wood), and from one acre of wheat by grain and straw during twenty years, assuming an average yield of fifteen bushels and seven pounds of straw to three pounds grain is given below.

	Apples. lbs.	Leaves. lbs.	Value. \$ c.
Nitrogen.....	498.60	456.75	143 30
Phosphoric acid.....	38.25	126.	11 50
Potash.....	728.55	441.	52 65
Total value.....			\$207 45

Grain. lbs.	Straw. lbs.	
424.80	234.78	
160.20	50.40	
109.80	214.20	
.....	.....	\$128 23

Prof. Roberts adds: "The above tables show that the orchard requires, if fruitful, plant food equal in value to eighty-seven dollars more than the wheat. No one would think for a moment of trying to raise wheat for twenty consecutive years, even though the soil was fitted in the best possible manner yearly."

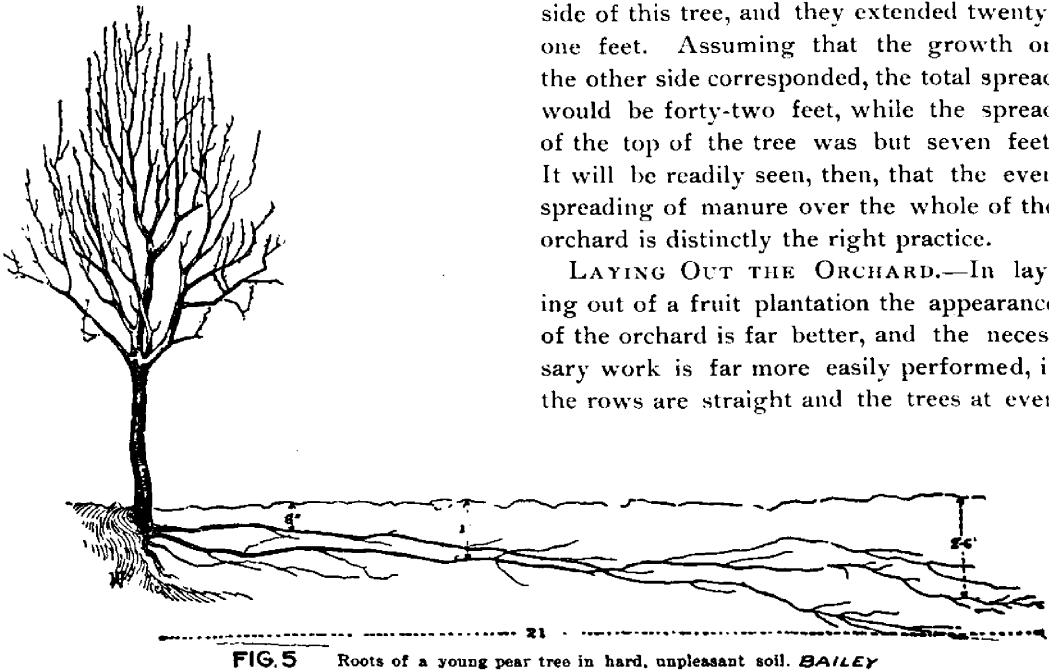
One more point regarding the manner of manuring orchards should be emphasized. The practice of piling the manure, or placing ashes around the tree is common, and is based on a radical misconception of the nature of the root system. Fig. 3 illustrates the point in question. In many trees, as growth advances, the main root is lost in laterals. From these laterals are developed small fibrous roots, and from these again minute root-hairs which convey food and



moisture to the tree. It has been accepted generally as true that the roots of a tree extend as far as the branches. As a matter of fact they extend a vast deal farther, often three times the distance, so that at the ordinary distance of planting there is probably not a square yard of soil in the orchard not occupied by these feeding rootlets when the tree is of a bearing age. Fig. 5 is a reproduction of the actual root system of a young pear tree.

Prof. Bailey laid bare two roots on the one side of this tree, and they extended twenty-one feet. Assuming that the growth on the other side corresponded, the total spread would be forty-two feet, while the spread of the top of the tree was but seven feet. It will be readily seen, then, that the even spreading of manure over the whole of the orchard is distinctly the right practice.

LAYING OUT THE ORCHARD.—In laying out of a fruit plantation the appearance of the orchard is far better, and the necessary work is far more easily performed, if the rows are straight and the trees at even



distances. Of the many methods of laying out, one of the simplest, and one in which the greatest accuracy is obtainable, is the following, illustrated by Fig. 6.

Take a long wire, No. 12 will usually be the right size, (in small orchards a cord will do) and mark off the required distance on it, either by a scratch of a file or by tying on a piece of waxed thread. Let each end of the wire be attached to a strong stake. A B C D represents the field. Measuring the distance from the fence where the first row of trees is to start, stretch the base line F to G placing a small stake at each mark on the wire. Take up the wire and in the same way stake out F H and H I. The wire is then simply stretched from J to K and so on down the field, staking out as before. Quite small stakes, a few inches long do, as no sighting is required. With this plan a planting board as in Fig. 7 is necessary. Take a strip five or six inches wide, and about



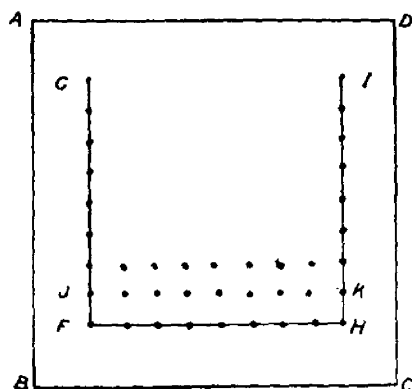


FIG. 6. STAKING OUT

St. Catharines, Ont.

six feet long, cut out a notch in the middle of one side and bore holes through the ends at exactly the same distance from the notch. The notch should be about the size of the tree. When all is ready for planting, the board is placed so that the notch fits around the stake, pegs are then put through the holes, the board lifted up over them, the hole dug, the board is then replaced on the peg and the tree placed so that it fits into the notch. If haste is necessary one man can go ahead with a duplicate board and a supply of small pegs, digging the holes and leaving the pegs for the guidance of the planter.



FIG. 7

M. BURRELL.

## A COMMERCIAL APPLE ORCHARD.

SIR.—I have just read your "Fruits of Ontario" in the report of the Department of Agriculture and would like your opinion on the following points:

(1) If you were planting a young apple orchard, would you consider Strathroy a safe district for profit?

(2) If you were planting 500 trees (ten acres), what varieties would you select for this district, and in what proportion (out of the 500)?

(3) How long could the land be used for gardening purposes?

(4) What should be the *average* yield per year for ten acres, say twelve years from planting? With six or seven sprayings and fair cultivation? Strathroy.

Yours truly, J. E. W.

(1) Regarding the adaptability of Strathroy to apple culture, a visit to local orchards, especially in fruit season, would be the safest means of judging. After all, the quantity of fruit, the size and color of the samples, together with the general condition of the trees, are the points to determine, and our correspondent is in a better situation to look into these questions than we are.

(2) The selection of varieties for the vicinity of Strathroy would not differ materially from that for any other portion of southwestern Ontario and should include such varieties as Blenheim, Gravenstein, Wealthy, Ontario, Spy and Baldwin. If top worked on Spy or Tolman Sweet the King should be added to this list, and there are other varieties which might be grown with profit.

(3) The land could be used for gardening purposes for perhaps eight or ten years, or until the shade of the trees hindered the growth of the crops planted between the rows. Otherwise hoed crops may be freely grown in an orchard because the cultivation of the soil and the fertilizers needed for such would be a direct benefit to orchard trees.

(4) The yield of an apple orchard for ten years would be practically *nil*, for these are the growing years, and all the fruit gathered in that period would be little more than samples, unless in an exceptional season. Planters usually forget to count upon the years of waiting they must endure before returns can come from fruit trees, or they would more often depend on other crops or resources to enable them to tide over the lengthy interim between planting apple trees and picking apples. Possibly an average of a half barrel per tree might be counted upon during the eleventh or twelfth year after planting, excepting from Spy and King trees, which would be later in coming into bearing. After that, for two or three years one might count on one barrel per tree, under favorable conditions, and so on increasing until at twenty-five years four barrels per annum would not be an unreasonable crop to expect.

## SOIL TREATMENT FOR FRUIT GROWING.



At the recent meeting of the British Columbia Fruit Growers' Association, held in Vancouver on Tuesday, the 9th of January, Prof. Shutt, chemist of the Central Experimental Farm, was present and gave an address on fruit growing of which the following is a synopsis:

In appearing for the first time in his official capacity as chemist of the experimental farms before the convention of British Columbia Fruit Growers, Mr. Shutt said there were two thoughts uppermost in his mind; the first was that he might be able to say something of real value to his hearers, something that might be of practical assistance to them in the prosecution of their occupation. The second thought or wish was that during his visit, though it was at an inauspicious season, he might be able to learn much regarding the nature of the various evils to be met with in the province, the fertilizers necessary to increase production and the climatic influences that prevailed. For many years he had endeavored to solve in the laboratories at Ottawa some of the problems that confronted B. C. agriculturists, and he hoped on this visit to gather information which would help him in this work, for he had the interests of British Columbia as much at heart as those of Prince Edward Island or any other province of the Dominion.

Commencing with a brief outline of the nature of soils in general, Mr. Shutt explained their origin and gave the chief characteristics as regards chemical composition and mechanical texture of soil of various classes. The importance of correct proportions of mineral and organic ingredients was then dwelt upon, if the best results as to crop production were to be expected. Mineral matter, including lime, phosphoric acid and potash were necessary for plant growth; organic matter was the store house of nitro-

gen—an essential element of plant food—and also the conserver of soil moisture—perhaps the most important of all the factors which go to make up fertility.

The next matter taken up in detail by the speaker was the nature and sources of plant food, explaining that the carbonic acid always present in the air furnished the larger portion of plant nutriment. This gas was absorbed by the leaves through the agency of sunshine. The mineral portion was extracted and absorbed by the rootlets from the soil.

The question of availability of plant food in the soil was then emphasized. It was only such plant food as was soluble that was of value to crops. Continuous cropping necessarily reduced the amount of such in the soil. Not only must plant food be returned if fertility is to be maintained or increased, but good cultural methods must be followed to render inert or locked up food assimilable, as well as to make the soil absorbent of moisture and a comfortable medium in which the roots can forage.

Acidity or sourness of soils was injurious to luxuriant growth. This was to be overcome by drainage and if necessary by an application of lime. Drainage is necessary for both light and heavy soils, not only to take away superfluous water but to render them mellow and improve their capacity for moisture and heat, for wet soils are cold soils. Many soils are deficient in lime, such are frequently sour. Mr. Shutt expounded a ready means or process whereby every farmer might easily ascertain whether a soil is lacking in this element, which is not only a direct source of plant food, but also useful in liberating potash from the rock matter in the soil. The exclusive use of lime was pointed out as an injurious practice, but together with organic manures was to be highly recommended. Light and frequent

application were to be advised rather than heavier ones at longer intervals. In answer to an enquiry Mr. Shutt mentioned twenty to forty bushels of lime per acre as an average dressing.

The furnishing of humus or vegetable matter was next taken up. After a brief account of the composition of barn yard manure and cautioning his hearers against allowing the loss of the liquid portion—which is by far the more valuable of the two—the value of clover as an economic means of supplying humus and nitrogen. The legumes—to which clover belongs—are the only crops which have the quality of appropriating free nitrogen from the air, they are therefore nitrogen-enrichers.

Experiments at Ottawa show that the turning under of a crop of red or mammoth clover would furnish a soil with as much humus and nitrogen as a dressing of eight or ten tons of ordinary manure. Clover should also be sown in the autumn as a catch crop in order to hold the soluble nitrates which would be leached out by the winter rains.

In bringing the address to a close Mr. Shutt briefly outlined the composition and function of the more important commercial fertilizers—bone-meal, super-phosphate and

the German potash salt. He suggested as a basic formula the following per acre:

Bone-meal, 100 lbs.

Superphosphate, 100 lbs.

Muriate of potash, 100 lbs.

Before prescribing more particularly it would be necessary to know the character of the soil, its history as to manuring, and the crops it is wished to grow. The value of getting a soil in good condition before planting the orchard was emphasized. It was a poor policy and loss of time to plant trees in impoverished soils. Good growth must be made in early years of the tree's life, so that they may be fruitful when they reach maturity.

After Mr. Shutt had finished several gentlemen took part in the discussion, and a number of very pertinent questions were asked, among others by Mr. Sharpe, from the experimental farm at Agassiz, and Mr. E. Hutcherson, Ladner. Among other questions was that of whether there might be any difference in the chemical constituents of plums grown in different parts of the province, which would affect their keeping qualities.

The meeting accorded a hearty vote of thanks to Mr. Shutt for his very able and instructive address.

## NOTES ON SMALL FRUIT CULTURE.

I NOTICE that some Canadian, as well as American catalogues, are advertising the following novelties as desirable and productive fruits to plant. Having had four years experience with them I thought I would let your readers know how they have done with me.

**STRAWBERRY-RASPBERRY.**—I have found perfectly hardy, it grew finely but set fruit very sparingly. The fruit was large and very handsome, the berries were firm but insipid and worthless to eat. But while it is worthless as a fruit, it is very handsome as

an ornamental plant. It never winter kills. It is easy to grow. Foliage hangs on till late in the fall, then it dies down to the ground, but comes up very early in spring and grows very rapidly to a height of about eighteen inches. The leaves are long and deeply serrated, are a beautiful bright green color; they grow thickly and lay over each other so as to completely hide the ground. It commences to blossom early in June and continues to bloom till October. The blossoms are about an inch and a quarter in diameter and pure white, about one tenth of

the blossoms produce fruit; both the blossoms and the fruit set up prominently on the outside of the bushes, making the bushes very handsome and interesting. It would make a very pretty border or miniature hedge.

MOUNTAIN CHERRY.—This is a small shrub growing only about four or five feet high. It is rather pretty, the leaves are small and abundant. The blossoms are very small and

very numerous. The fruit sets freely and ripens nicely. The fruit is black and small and poor quality. It would do to grow as an ornamental shrub.

JAPAN MAYBERRY.—This is very tender; it kills down to the ground every winter and is worthless here.

S. H. MITCHELL.

St. Marys, Ont.

### THE CANADIAN PAPAW.

DEAR SIR,—It is perhaps not generally known to the readers of your journal that there is such a valuable fruit grown in the Niagara district as the Papaw (*Asimina triloba*). This fruit is grown from the Niagara Glen to near Niagara-on-the-Lake, and from Queenston to Thorold along the mountain; the plants grow from a shrub to a small tree, and in some places where I found it growing it was in considerable plantations; the largest about one-quarter acre. The largest specimen measured twenty-three inches at the butt of the trunk in circumference. The tree flowers about the first of June, preceding the leaves; the flowers are at first green, but when fully expanded they are of a dark dull purple. The fruit resembles very much a small banana, and is kidney shaped; there are from one to three in a cluster on the ends of the branches, and they are eatable when touched by frost in the fall. A clump of these trees is a beautiful sight to look upon for a tree lover; they resemble very much the *magnolia acuminata* in tree and foliage.

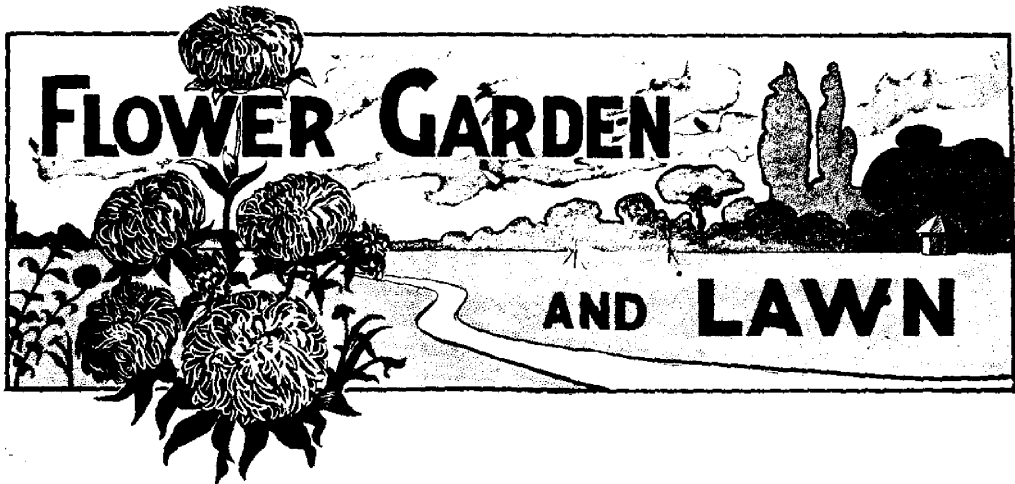
I was talking to Mr. Davis Allan, Commissioner to South Africa, this past fall, and he told me that the papaw fruit is very plentiful in South Africa, and one of the most useful fruits they grow. It is used princi-

pally by their cooks when their beefsteak is brought into the kitchen by the butcher; the cook rubs into the steak on both sides a ripe papaw, and when cooked it is as tender as a chicken from the effects of the fruit. Do you not think then that I have struck a gold mine since our beefsteak is so very tough in Canada? But there is still another use to which the people in South Africa put the papaw. Any person troubled with indigestion or dyspepsia takes a ripe papaw and grates it into a dish and eats or drinks the same, and it dispels the very worst attack. Now, Mr. Editor, you may think me foolish to give away such a good receipt, for many a man would make a fortune out of it. I do it to relieve the thousands of men and women troubled with this dreadful disease in Canada.

The ingredients of the papaw fruit, Mr. Allan says, are exactly the same as a fowl's gizzard, and that is why it makes beef tender and cures dyspepsia. So it will now pay me to put a watch on my orchard of papaw fruit, as well as on the chicken roost, lest the white boys pay them a visit for their gizzards.

RODERICK CAMERON.

Niagara Falls South.



TIMELY TOPICS FOR THE AMATEUR.\*



FIG. 1767. WM. HUNT, HAMILTON.

**M**ARCH! stormy, fickle March! probably the most trying month of the year for plant life, whether in the garden, greenhouse or window; its bright sunshiny days, that often lure the unwary plant lover into a feeling of false security, the sudden and extreme drops in temperature, and cold biting winds, seem all to combine to bring disaster to our favorites at a time when success seemed fully assured. Many a fine collection of plants has

been almost ruined, after a winter's close care and attention, by the delusive vagaries of March weather. Moral! watch the thermometer outside closely, don't neglect fires altogether, ventilate carefully, and do not forget to close sashes and ventilators early in the day.

**THE GREENHOUSE.**—Cinerarias, Calceolarias, Cyclamens, Hyacinths, Narcissi, Primulas, and perhaps a few blooms of early flowering fancy Pelargoniums, will make the greenhouse look gay at this time of year. Zonale Pelargoniums should also begin to make a display of bloom; these latter should have a little manure water to help them out if the pots are full of roots. The bright yellow-flowered Genistas should still brighten up the house with their golden beauty; a cool moist atmosphere suits these plants best, as they continue in flower for a much longer period than if grown in a high temperature. The Genistas are easily propagated by cuttings of the young growth, taken soon after the plants are out of flower; the cuttings should be inserted in sand until rooted, and then potted in rather sandy soil

\*NOTE.—It will be necessary for our readers to make some allowance regarding the time and dates mentioned for sowing seeds, etc., and for outdoor work in the garden, as this article is written more particularly for Southern Ontario.

and grown on until they can be planted outside in the border in June; they will make nice plants to pot up in the fall for next season's flowering.

Cuttings of Stevias, Eupatoriums, Heliotrope, Rex and winter flowering Begonias should be taken now and grown on for next winter's flowering, also cuttings of Coleus, Ageratum, Achyranthes, Alternantheras and other bedding plants. Chrysanthemum cuttings started now have yet time to make good sized plants, if treated liberally as regards repotting. It is late for Carnation cuttings, January and February are the best months for these; if a few are needed, place the cuttings in sand, in a pot or shallow box, stand them on a shelf near the glass, not in too sunny a position, keep the cuttings well watered; you will be more successful with them than if started in a cutting bed. Shade the cutting bed during hot midday sun. Autumn struck Geraniums should have their final potting into 4-inch pots. Dutch bulbs in flower, Calla and Easter Lilies and all growing plants require plenty of water, especially Spireas. Use tepid water, water thoroughly, and only when needed, and early in the day.

Old plants of Fuchsias that have been kept dormant during winter should now be brought out into the light, watered and syringed occasionally to start them into growth; as soon as the buds appear cut the tips of the old branches off so as to make the plant shapely, shake the plant out of the pot, removing about half of the old soil, repot into the same size or a size larger pot, give them good, rich, light soil, water when needed and syringe often. A partially shaded position suits them best. Freesias should be kept growing after they have done flowering until the foliage shows signs of decay, then withhold water gradually until the foliage is pretty well yellow, when no more water should be given them, the pots can then be stood back on a shelf or put into the potting shed, at a temperature of about 45°

and kept quite dry until they are repotted in July or August. Repot Palms, Cordylines and Ferns if needed, and not already done. Shade the plants slightly at midday to prevent scalding, which often disfigures palms, etc., badly at this time of year.

Insect pests will increase rapidly as the heat increases. Aphis and red spider will probably be the most troublesome. Tobacco water and fumigating with tobacco destroy the Aphis or green fly most effectually. Light fumigations and frequent are better than heavy fumigation; dampen the tobacco stems before using. Sprinkle the floors liberally with water, syringe the plants well and close the house early, so that the temperature rises quickly; this will help to keep down the red spider.

Seeds of Alyssum, Petunia, Verbena, Golden Pyrethrum and Lobelia should be sown at once for bedding purposes. A few Nasturtium seeds, two or three in a three-inch pot, will come in useful for hanging baskets and vases later on; all other hanging basket plants should be grown rapidly. Hydrangeas, Oleanders, Agapanthuses and similar plants that have been dormant during winter should be brought out, cleaned up, and repotted if necessary. Tuberous Begonias may be started at any time now. Ventilate cautiously during early spring.

WINDOW PLANTS.—Look out sharply for insect pests, avoid cold draughts, give air from windows in an adjoining room, rather than directly on the plants; lower the top sash, there is less risk than in raising the lower sash. Repot all plants that need it that are required for summer growth or flowering. Water the plants thoroughly when needed, syringe frequently with tepid water, choosing a warm sunny morning if possible for both operations. A few pots of flower seeds may be sown for early planting.

FLOWER GARDEN.—Very little can be done as a rule in the flower garden at this period, unless spring is unusually early. Toward

the end of the month take a peep at the Dutch bulb beds, if the bulbs are showing growth above ground, and the weather is mild, a portion of the winter covering may be taken off, but leave sufficient of the lightest part of the covering to loosely cover the growth; this can be removed later on, when the tips of the growth have hardened and the weather becomes warmer. Sow Sweet Peas and Mignonette as soon as possible after the ground is in good condition. Uncover all shrubs and trees as well as perennial and biennial plants that have been protected during winter; exposing them gradually to the sun and air, as recommended before for bulbs. Flower seeds of various kinds can be sown in pots or boxes and started in the hot bed for early flowering, such as Asters, Campanulas, Alyssums, Calliopsis, Cosmos, Dianthus, Gaillardias, Petunias, Marigolds, Zinnias, etc. Some of the new varieties of the Centaureas (corn flower) and the useful annual summer flowering Chrysanthemums, better known perhaps as Marguerites, are very beautiful and easily grown. A few of the old fashioned Antirrhinums (Snap Dragon) should be grown, they will give you spikes of bloom from July through the scorching hot days of August, when flowers are often scarce, and continue in flower until severe frost sets in. A few Nasturtium seeds, two or three seeds in a three inch pot, will make useful plants for trellises, vases and similar uses. Some seeds of the beautiful and vigorous exotic climber, *Cobea Scandens*, may be sown, one or two seeds in a four inch pot and transplanted into the open ground in June after all danger of frost is gone; this plant makes a gorgeous climber for covering wire trellises around verandahs during the summer months. Prune hardy roses as soon as the young buds show.

FRUIT GARDEN.—All pruning should be finished this month. Gooseberries, and both red and white currant bushes should be

pruned on the spur system, by cutting back the growth of last year, leaving only two or three of the buds at the base for future fruit buds. Black currant bushes should not be topped, but merely thinned out as required. Remove all useless suckers from all fruit trees, also all branches of fruit bushes that touch the ground, except gooseberries. The lower branches of these latter may be layered if young trees are needed, and this is done by pegging down the lower branches with a forked stick at a point as near the main stem of the bush as possible, and throw a spadeful or two of earth over the branch where pegged down; in a year's time you will have some nice young bushes for transplanting. Strawberry beds that have been heavily mulched should be partially uncovered.

VEGETABLE GARDEN.—The asparagus bed generally requires the first attention in the spring; fork it lightly over and rake off a part of the winter's mulching of manure, give it a good coating of salt, a bushel to the rod will not be too much if the bed is well established. This delicious and healthful vegetable should be grown by every one who has a small patch of garden ground, it requires very little care when once planted, and well repays any labor expended on it. Sow a few rows of spinach, parsley, onions and peas as soon as you can work the ground; sow early and late varieties of peas at the same time, you will then have a succession of pickings by this method. Sow parsnips and plant artichokes as early as possible. A row or two of early carrots and beets may be risked. Mustard and cress seeds may be sown and placed in a hot bed, or even in a window. A good method of sowing mustard and cress is to get some shallow boxes, about two inches deep, fill them three parts full of good soil, level and press the soil firmly, sow the seed thickly so as to nearly cover the soil, press the seed slightly into the soil with a smooth piece of board, but put no soil over the seeds at all,

water plentifully and carefully; by this method you will have an appetizing salad fit for use in a week or ten days that will be free from the customary ingredients of grit and dirt. Lettuce and radish seed may be sown, and any very small onions left may be planted in the hot bed, they will come in for an early relish. A few early seed potatoes may be taken from the cellar or pit and spread out near a window so that they are

safe from frost; they will be nicely sprouted by the time they are required for planting. A week or two can be gained by digging time by this method if properly managed. Sow a few pots or boxes of tomato, early cabbage, cauliflower, and a few pepper seeds, put them in the hot bed and transplant into cold frames when ready; they will make nice plants for early planting in the garden. HORTUS.

### NOTES ON SOME GOOD TREES AND SHRUBS.

THE following notes with accompanying photographs, were kindly furnished us by Mr. R. Cameron, Supt. of Victoria Park, Niagara Falls:

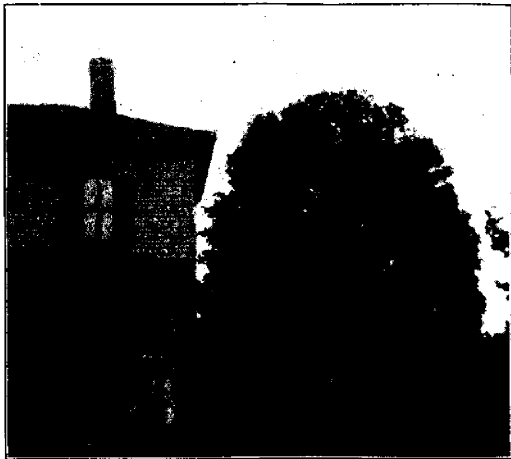


FIG. 1768. OAK LEAVED MOUNTAIN ASH.

The White Fringe Tree\* (*Chionanthus Virginica*), though a native of North America is very scarce; indeed I do not know of another in this vicinity excepting that shown in the frontispiece, which is growing on the beautiful grounds of Mrs. Jas. Wilson, who is one of the directors of our Society. I

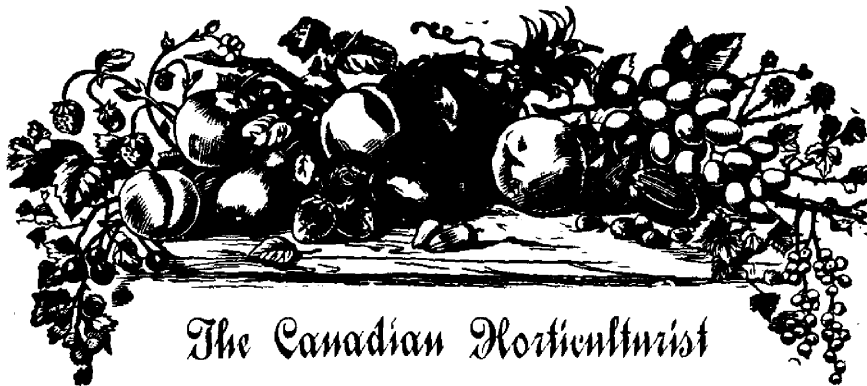
always admire the White Fringe when in bloom. The flowers are white, grown in terminal racemes, and are quite fragrant. After blooming in May, this plant of Mrs. Wilson's, which is about ten feet high, produces a crop of purple fruit, like small olives, and indeed the White Fringe is a member of the olive family (*Oleaceæ*). It receives its name, White Fringe, from the flower being cut into narrow segments.

The tree is propagated by grafting it upon the common Ash, or from the seeds, which resemble common plum stones.

Oak Leaved Mountain Ash (*Pyrus Quercifolia*). This tree stands at the side of the residence of Mr. J. Gallinger, Stamford, one of the directors of our Society, and is probably the finest specimen of its kind in Ontario. The Oak-leaved Mountain Ash is an excellent lawn tree and endures for many years. It grows to a height of thirty feet and the spread of its branches is about the same. The branches are very dense, the leaves deeply lobed, bright green above and downy beneath. When the tree is in flower it is a beautiful object, but when covered with fruit in the fall, few trees can be compared with it.

\*See frontispiece.





## 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.

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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.

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### NOTES AND COMMENTS.

The VIBURNUM OPULUS offered Horticultural Societies is the well known Snow Ball. The variety is *sterilis*, which is very free blooming, and satisfactory as a lawn shrub.

INDEX FOR 1899.—We regret a mistake of the printer of the index in using a page too small for binding. Anyone wishing an index suitable for binding will please write to the secretary for another one.

CANNED FRUIT SHORT MEASURE.—Chicago dealers in canned goods complain that eastern fruit packers are systematically putting up short measure. One can, for example, supposed to contain one gallon, was brought into court, and found to be  $1\frac{1}{2}$  pints short measure. We have no sympathy with such trickery.

OUR WORK TOO LITTLE KNOWN.—Major Sheppard, of Queenston, complains that the public do not know enough of our work and plans. With 5000 copies of our journal in circulation each month, and 7000 copies of the report of our meetings, we did not suppose much more publication needed to show the public what we are doing in the interests of Ontario fruit growers.

THE PARK SYSTEM OF TOLEDO, OHIO, has become the pride of that city. President Jermain, of the Park Board, recently presented his report, in which he states that more than 600,000 people have visited these parks during the past year. One interesting feature was the series of Park Concerts by the Park Board at a cost of over \$1000, which had proved an unqualified success.

## QUESTION DRAWER.

### The Stark.

1137. SIR,—Where do you rank the *Stark* among our apples?

INQUIRER, Strathroy.

The Stark is a large sized apple, rather coarse in texture, of a dull red color, but on the whole of good appearance, and good shipping and keeping qualities. We should rank it second to Baldwin as a commercial apple; though with our friend Mr. Dempsey, of Trenton, it is a favorite shipping variety.

### Plum Rot.

1138. SIR,—Has anything been discovered that will cure plum rot? Does *Curculio* increase rot?

G. F., Waikerville.

The plum rot (*Monilia fructigena*) is propagated by minute spores, which are produced on the outside of rotten specimens of the plum, and are easily distributed by the wind. When these light on a healthy plum, where moisture is present, they quickly start fresh rot. The rotten plums hang upon the tree and soon become dry and mummified. These mummified plums hold some spores until spring, at which time they seem to produce still more of them, and so continue the evil into a new year. It is there-

fore evident that all rotten and mummified plums should be gathered and burned as soon as discovered, as a precaution against plum rot; and secondly, that spraying should be carefully done with Bordeaux just before the blossoms open, then as soon as the fruit is well formed, and again about two weeks later. This is the only treatment we know of to prevent this evil, and this will only do so in part, not completely.

### Grafting.

1139. SIR,—If one were grafting Spy or King on Talman Sweet, at what age of the young tree should the grafting be done? and which is the best mode of grafting?

INQUIRER, Strathroy.

The grafting of an apple tree may be done at any age, but the mode would differ with the age. Two year old seedling apple trees may splice grafted at the collar in doors in the winter, and set out in nursery rows in the spring. Four or five year old trees are whip grafted four or five feet from the ground in spring as they stand; while older trees are cleft grafted, usually cutting limbs about two inches, more or less, in diameter, or they may be crown grafted on large branches.

## Open Letters.

### Dishonest Packing.

SIR,—I have from time to time followed with much interest your articles on dishonest apple packing, and when I saw on page 28 of the last Horticulturist that the "great indignation" of the fruit growers, in session assembled at Whitby, had culminated in a series of resolutions asking for legislation to carry out their proposed regulations, I earnestly hoped that a great step in advance had been taken to remedy this crying evil.

Is the proposed step really in advance? Is it not rather a backward one?

Sec. 3 of these proposed regulations reads: "That all apples or pears packed in closed pack-

ages be subject to inspection by the Government Inspector, and, in case of ten per cent. of the packages of any one grade being found fraudulently packed, the shipper be liable to a fine not exceeding 50 cents a barrel for all packages of that grade."

Briefly stated this section would allow a dishonest shipper to cheat you in nine barrels out of every 100; but if you were smart enough with the aid of the Government Inspector to catch him trying to palm off more than these permitted nine barrels, then he would simply have to discount 50 cents each from the market value of such fraudulent barrels, which he could well afford to do, as each one that he was able to palm off uncaught would net him from \$1 to \$3 more than its value.

To illustrate: A barrel of beautifully-faced Spys which I bought in Montreal last spring at a high price contained nothing but rubbish under the facings. The honorable dealer from whom I bought it paid me back \$1 of his own accord, and my own loss was certainly \$2 more. Now, what would a 50 cent fine against a packer of more than nine such barrels in a 100 amount to? Wouldn't it be a farce?

Everybody knows the penalty for light weight in the "staff of life," and heartily approves that *every loaf* so found wanting shall be confiscated and sent to the hospitals. Now, why should the fraudulent packer of this universally used fruit (which could very properly be called the "staff of good health")—why should he escape with any lesser penalty? If any discrimination between the two be made should it not be in favor of the baker, whose fraud can so easily be detected and without appreciable trouble, and which of course is by no means the case in a fraudulent barrel of apples, as so many of us know at our cost?

I therefore beg leave to "move an amendment" to Sec. 3, and to substitute therefore:

"Sec. 3.—1. That all apples packed in closed packages be subject to inspection by the Government Inspector, and in case of any package of any one grade being found fraudulently packed and not up to the standard of the grade labelled upon such barrel, that the same be confiscated by the Government Inspector.

"2. That full reports of all such confiscations be published in the next succeeding number of the Canadian Horticulturist and such other papers as may be deemed advisable."

It seems to me that any less stringent regulation would be ineffective, and would not commend itself to the public generally, and I hope your *honest* fruit growers will be satisfied with nothing less.

There is still another serious objection to your section 3. Every one knows that a packed barrel of apples cannot be properly inspected and repacked without injury to the keeping qualities of the fruit, for no matter how carefully it be done, many of the apples are sure to get fresh bruises.

Now, under your section 3, no one would be at all safe in buying any barrel *not inspected*; but the proposed amendment would very soon, I think, be effective in reducing the number of barrels necessary to be repacked and inspected fully 75 per cent, perhaps more, to the considerable advantage of the keeping qualities of the fruit, and would of course greatly reduce the work and cost of inspection.

Is not "an ounce of prevention" worth far more than "a pound of cure" in this case?

Would not this suggested amendment be to the *eventual* profit of *all* fruit growers, for would it not force some of them, perhaps unwillingly at first to invest in sprayers and to carefully use them, and also to cut down worthless trees in their orchards, replacing them by better kinds? They might also soon get into the way of thinning their growing fruit, to its great improvement and better financial return.

Does some one "second my amendment" or offer a better one? GEO. O. GOODLINE.

Danville, P.Q., 26th Jan., 1900.

NOTE BY EDITOR.—The criticisms of our correspondent reveal an ambiguity in the wording of clause 3, which has since been corrected. The clause was intended to save the labor of inspecting every package by providing that if ten per cent. were found fraudulent the whole lot might be so classed without further examination. Thus, if the first ten barrels opened out of a lot of 100 be found fraudulent, the inspector could count the whole lot as fraudulent and fine the shipper \$50 on the whole lot.

The following is the amended reading of the clause:

"3. That all apples or pears packed in closed packages be subject to inspection by the Government Inspector, and if on opening one-tenth of the number of packages in any one lot, these be found fraudulently packed, then the nine-tenth. remaining shall be so classed, and the shipper be liable to a fine not exceeding 50 cents a barrel for all packages of that grade in the same shipment."

#### More About Flowers.

SIR,—I like your magazine; it is good in every way, except that more space might be devoted to flower and vegetable culture. I don't grow any fruit, and I suppose there are a dozen who are fond of gardening who do not to one who does. We have not got one good *gardening* magazine in Canada that I know of. I cannot call yours such yet, though I hope it will become one—that department of your magazine is only, one might say, rudimentary yet. I know *American Gardening*, and better still, in its earlier stages, *Gardening*, of Chicago. It was an excellent publication then, now sadly fallen off. I'd gladly double my subscription to yours to get the information and helps *Gardening* once furnished its readers with. I say this to encourage you to work in the direction of gardening as distinct from fruit growing more. There is a large and growing field for such a magazine in this country.

Yours truly, A. B. O.

Ingersoll.

We have frequent requests from flower lovers asking that more attention be given to floriculture, and quite as often we have letters from fruit growers asking that more attention be given to their particular department. Primarily, of course, our journal is intended

for fruit growers, but since so many horticultural societies have affiliated and our membership now includes so many interested in floriculture, we are compelled to give more attention to this department. We shall always appreciate suggestions from our readers, and beg their aid in making this journal increasingly useful.

## Our Affiliated Societies.

ORILLIA.—At a meeting of the Directors on the 13th of November last, it was resolved that a grant of \$30, or so much less as might be required to pay the prizes awarded for fine arts, be made to the East Simcoe Agricultural Society, provided it could legally be done, and the Secretary was instructed to communicate with the Department of Agriculture in the matter. The following is the reply of the Department: "In reply to your letter, I beg to state that it seems to us the present proposal of making a grant to the District Society sufficient to pay the fine art prizes, in no way differs from your previous practice of paying these prizes direct. The act certainly does not contemplate allowing Horticultural Societies to pay for prizes outside of Horticulture, and we are not in a position at present to know whether such action on the part of your Society would meet with protest from any source, or whether it would meet with the approval of all parties concerned. The District Society, of course, would be pleased. Then, I take it for granted that the members of

your Horticultural Society are unanimously in favor of it. There are, however, four other societies interested, and it would be quite within the province of any one of them to object to our paying money to your Society to be used for the purposes other than the act states. We are not going to say under the circumstances that you must not make the grant this year. If you make it you must assume full responsibility, and it must not be taken as a precedent for next year." The foregoing letter was read at the annual meeting, and the Secretary stated that on receipt of the letter he had consulted with the President, and it was deemed advisable to reserve the matter for the action of that meeting. Some discussion ensued, and it was moved by Mr. Alport and seconded by Mr. Street, and resolved, that, in view of the letter from the Deputy Minister of Agriculture just read, this meeting is of opinion that none of the funds of the Society should be expended for any object not fully justified by the act of the Legislature.

## Our Book Table.

EXPERIMENTAL FARMS.—Report for 1898. Dr. Wm. Saunders, Ottawa.

A fine report, showing what valuable works these farms are doing for Canada.

THE GARDEN.—A weekly illustrated journal for garden, orchard and woodland, Volume 57. Office, 20 Tavistock street, London, W. C., England.

For a long time this journal has been among the most valued of our exchanges, being conducted with exceptional ability and containing articles of exceptional value to gardeners and fruit growers. Of course the matter is adapted to English conditions, but aside from this it is in advance of American journals in teaching methods of intensive horticulture. The journal has recently changed hands and is the property of the managing owners of "Country Life." The editors are Miss Jekyl and Mr. E. T. Cook, whose ability is well shown by the excellent issues so far sent us for 1900.

FRUIT AND ORNAMENTAL TREES, Roses and Shrubs, grown and for sale at Central Nurseries by A. G. Hull & Son, Central Nurseries, St. Catharines, Ont.

DIRECTIONS FOR SURVEYING AND ARRANGING HOME AND SCHOOL GROUNDS, a well illustrated pamphlet, written and published by W. H. Manning, Tremont Temple, Boston, Mass.,—in press. Price, 25 cents. 1900.

A HAND BOOK FOR PLANNING AND PLANTING HOME GROUNDS.—Written by W. H. Manning, Boston; published by Stout Manual Training School, Menomonie, Wis., 1899. Price, 35 cents.

These are two books of great value in their respective spheres, the one giving directions for surveying and arranging home and school grounds, the other for planning and planting the same. Being prepared by one of the leading landscape architects in America is alone a sufficient guarantee of the practical nature and excellence of these books, which has been so highly appreciated by Mr. Stout, the founder of the Training School at Menomonie, Wis., that he has published the hand-book for use at the school.

We shall be pleased if we can be the means of introducing these books into Ontario for the encouragement of landscape gardening, and thus helping to beautify the parks and gardens of our country.