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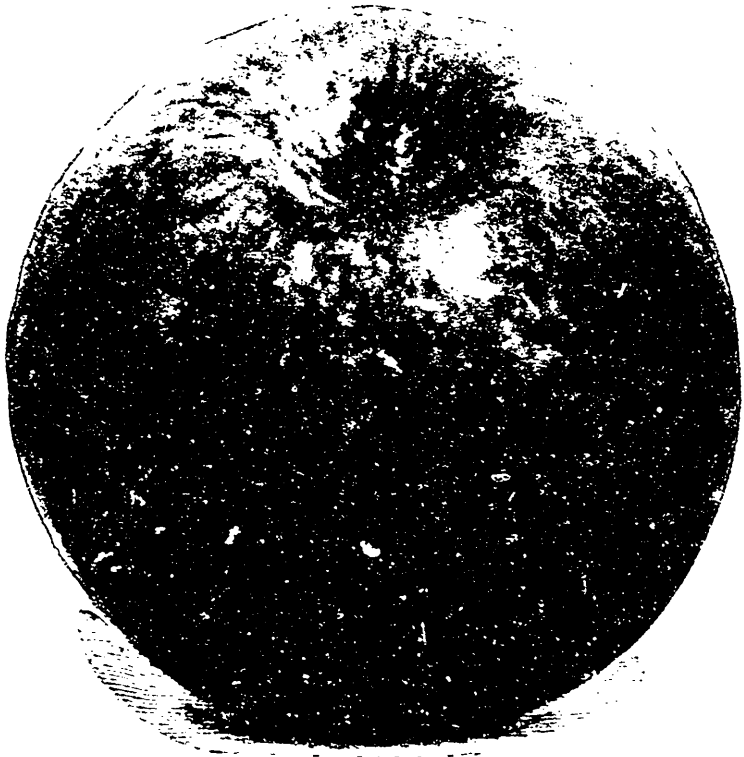


FIG. 2256. GRAVENSTEIN.


Photo by Miss Brodie.

THE CANADIAN HORTICULTURIST

Vol 25 1902 No 5

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THE GRAVENSTEIN.

F all the general purpose apples ripening in October, we know of none that can at all compare with the Gravenstein, an apple which is too little grown in the province of Ontario.

In the Annapolis valley of Nova Scotia this apple has been grown quite extensively for export, but delays in transportation to the seaboard and ill-ventilated steamship accommodation have resulted in considerable loss in the cargoes exported. This has led many of the Nova Scotia orchardists to cease planting this variety, and to prefer varieties which will endure more abuse in transit, as for example Ben Davis, Baldwin and Stark.

At a recent Fruit Institute meeting in Colborne, Mr. G. H. Vroom, of Middleton, N.S., was present, having been sent to attend our meetings by the Federal Government. Being asked if the Gravenstein was the most important commercial apple of Nova Scotia, he said: "No, that is not our most important commercial variety to-day, even in point of numbers of trees, and while other varieties are increasing in numbers, no

new Gravensteins are being set out. The reason is that the Gravenstein is an early apple, and we want a keeper."

Now, our experience is in favor of planting this apple to a limited extent in the commercial orchards of Ontario, especially in sections where there is good connection with the export steamers, so that too much delay need not occur in transportation. Cold storage accommodation too is becoming year by year more nearly perfect, and will afford a sure means of safe carriage for such varieties as the Duchess, Alexander and Gravenstein.

Those who plant large orchards find great waste from dropping when all the varieties are winter fruit, and are all ready for harvesting at one time; whereas by having a succession of varieties, e.g.—the Duchess in August, the Alexander in the early part of September, the Gravenstein about the middle, the Blenheim about the end, and the winter varieties to work upon during October and November, the work of an apple grower is more evenly distributed throughout the

season. Besides this he can keep up continuous shipments, which is often an important condition of success.

At Maplehurst we usually make up a carload of Astracan and Duchess in August for export in cold storage, and forward our Gravensteins about the middle of September, just as soon as they color, and just before beginning on our King apples.

Our Gravensteins have equalled any variety for profit, bringing the top price in the British market about the first of October.

The following is our description of this apple, as written for Fruits of Ontario :

Origin.—According to Hogg, the original tree grew in the garden of the Duke of Augustenburg, at the Castle of Grafenstein in Schleswic-Holstein in Germany, and was still standing about the year 1850. Leroy inclines to accept a statement by Hirschfelt, a German pomologist, who in 1788 wrote the first description of the apple, and stated that it was brought to Germany from Italy. The earliest trace of the apple we can find dates back to about 1760. It is now widely grown in Western Europe, and is a favorite everywhere.

Tree.—Much more vigorous in growth than ordinary varieties, and when in bloom remarkably beautiful with its extraordinary sized pure white blossoms ; hardy and productive.

Fruit.—Large to very large, the sample photographed was 3 inches long by $3\frac{3}{4}$ broad ; form oblate conical, somewhat one-sided and more or less pentagonal ; skin, greenish yellow to orange, beautifully striped and splashed with two shades of red ; stem, stout $\frac{1}{2}$ inch in length, set in a deep narrow cavity ; calyx partially closed, wide long segments, set in a wide irregular, slightly russet basin.

Flesh.—White ; texture, crisp and very juicy ; flavor, rich, vinous and aromatic.

Season.—September to October.

Quality.—Dessert, very good ; cooking, first rate.

Value.—Home market, first-class ; foreign market, first-class.

Adaption.—General in the apple sections, especially on the borders of the great lakes.

In order to study this question of adaption more closely we have made enquiries of some of our leading fruit growers in various sections and have received the following replies :—

“For real quality there is nothing in all our list of fall apples that will surpass the Gravenstein. But it does not seem suited to all the varied conditions that we have even in this province. In its favorite conditions the tree is a strong, vigorous and upright grower and a good bearer of well developed and handsome fruit. But it does not find these conditions in our inland counties. It seems to require a somewhat humid atmosphere for its proper development, and while it does well along the shore of Lake Huron and on the Georgian Bay it produces too many gnarled and unshapely specimens to be considered a success in this or in any of our inland districts. I have watched it closely for eight years at the Western Fair, London, and the best specimens have invariably come from some of the districts bordering on our great lakes. It will never be a profitable apple for the inland farmer of Western Ontario, though I would not be without one tree of it.” T. H. Race, Mitchell, Perth County, Ont.

“Gravenstein is in my judgment the best apple we have for fall use. High in flavor, large, fine color, tree a strong grower and very good bearer. Only for its liability to spotting with fungus it is as near perfection for its season as any we can hope for. With attention in cultivation and manuring and regular spraying in proper times this apple can be produced profitably for home use and foreign markets.” Alex. McD. Allan, Goderich.

“Gravenstein is very little known in this locality, but I have seen very fine specimens at Collingwood, though it is not grown there only to a very limited extent. If there was a good market for it I have no doubt it would be grown and would succeed well in the Georgian Bay District.” G. C. Caston, Craighurst.

“I have three trees of Gravenstein apples that have borne heavy crops of very fine fruit each alternate year, and always bring the best price in the market. I consider it one of the best varieties of September

apples for all purposes. The tree is a medium grower here and fairly healthy." W. H. Dempsey, Trenton.

"The Gravenstein has not been largely planted in this district, but what have been planted have succeeded quite satisfactorily. The tree is a vigorous, spreading grower, especially while young. I do not know of any Gravenstein trees that have been blighted or frozen or been scalded by the sun,

although some here have been planted 30 years. The trees are good average bearers of very handsome fruit of excellent quality, but like many other varieties of fine apples, they are only fall or late fall apples, ripening generally before Christmas. Taken fully matured it is very delicious. For home market, or the North-West, it should prove profitable." R. L. Huggard, Whitby.

ON THE PREPARATION OF LIME, SULPHUR AND SALT SPRAY.

BY FRANK T. SHUTT, CHEMIST, DOMINION EXPERIMENTAL FARMS, OTTAWA.



HIS mixture has recently received considerable attention in the horticultural press and several formulae, with varying methods of preparation, have appeared. This has given rise to enquiries as to the best mode to adopt in making the spray. To answer these the more satisfactorily, we have within the past few weeks made a series of experiments using the quantities and methods of procedure advocated by the more important authorities, and as a result have obtained information on one or two points that may be of interest to orchardists.

1. **Proportions.**—Since the insecticidal and fungicidal properties of the spray appear to be due to sulphide of lime and not to free (uncombined) sulphur or lime, it is desirable on the grounds of economy and efficiency that the proportion of sulphur to lime should be such that after boiling there may be little or no free sulphur in the mixture. We find to ensure this that the quantity of lime should at least equal that of the sulphur. An excess of lime apparently does no harm; indeed, according to some authorities, it is necessary in order to give the spray the correct consistency, but too large an excess is certainly to be avoided as it will be apt to cause clogging of the nozzle. We have found the following proportion satisfactory :

Lime 25 lbs.

Sulphur 20 lbs.

Water 60 gallons.

We also tried a formula with a large excess of lime and obtained a good result:

Lime 35 lbs.

Sulphur 15 lbs.

Water 50 gallons.

2. **The Lime.**—The lime should be thoroughly slaked to avoid subsequent clogging of the nozzle. If part of the lime is added after the spraying mixture is made as directed in some recipes, the proportion of lime to sulphur in the mixture as boiled should not be less than that indicated in the first formula given above.

3. **The Boiling.**—It is essential that the boiling should be continued a sufficient length of time to allow all the sulphur to enter into combination. This, if accompanied by constant stirring, will be usually between 2 and 3 hours.

4. **The Salt.**—The addition of salt (usually at the rate of 15 lbs. to each of the foregoing formula) is recommended by all writers. This may be from its alleged action in increasing the adhesive qualities of the spray. It does not seem to affect its properties otherwise.

5. **Apply Hot.**—On cooling certain of the lime sulphides formed crystalize out. It is, therefore important, we consider, to make the application while the mixture is still hot.

NOTES AND COMMENTS.

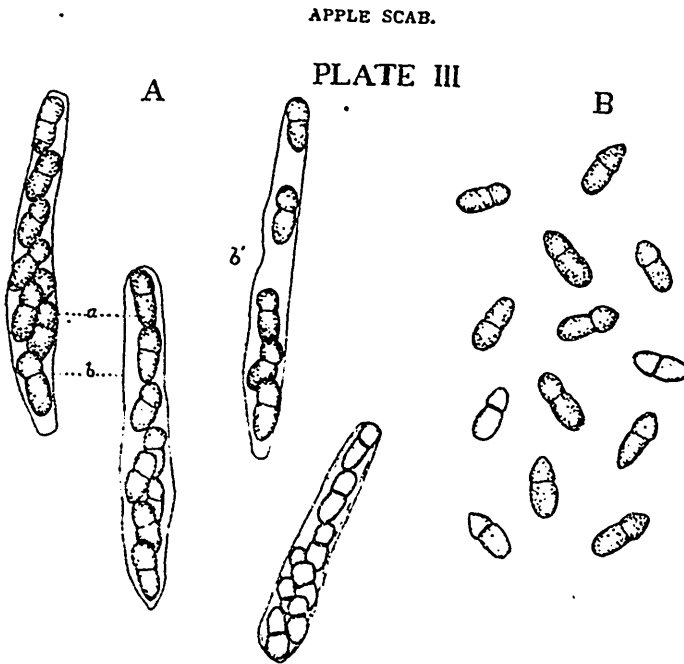


FIG. 2297.

A. Spores (a) in asci, (b) in ruptured ascus. B. Loose spores of scab.

Apple Scab (*Fusicladium dentriticum*) is one of the most serious hindrances of successful apple growing. By the fruit marks act, fruit so affected is virtually ruled out of the market as No. 1 grade, and in many orchards this will make seconds of nearly one half the crop. This fungus has been steadily increasing upon us, during the last twenty years, and we must now face it with faithful spraying or go out of apple growing. Green, of Ohio, made experiments in 1897 showing an average of nearly seven bushels of apples per treated tree and only two and one half per untreated; and in the case of Spy and Baldwins the actual average of

profit derived from the treatment was more than \$5.00 per tree!

The first application of the Bordeaux should be made soon after the leaves begin to unfold; the second when the petals fall; and, if weather is wet, a third should follow about two weeks later.

Clinton, of Illinois, found the scab was preserved over winter in the fallen leaves of the affected trees, and this stage of the life history of the scab is known by the name of *Venturia*. Fallen leaves gathered in October from scab infested trees, show, on the under side, small black round pustules, sometimes congregated in greyish spots, which mark the

place of the winter scab colony. These pustules are called perithecia, which is the latin plural of perithecium. Figure 2298 C. shows one of these which has been placed fifteen hours in apple broth and the threads are the mycelial growth from the spores enclosed, which penetrate among the cells of the leaf tissue.

Figure 2298 D. shows some of these spores separated, (a) spore not yet swollen, (b) a germinating spore.

Figure 2298 E. shows germination of spores within 24 hours after placing them in water, (a) being a spore and (b) a germ thread.

Figure 2297 A. shows spores (a) asci, (b)

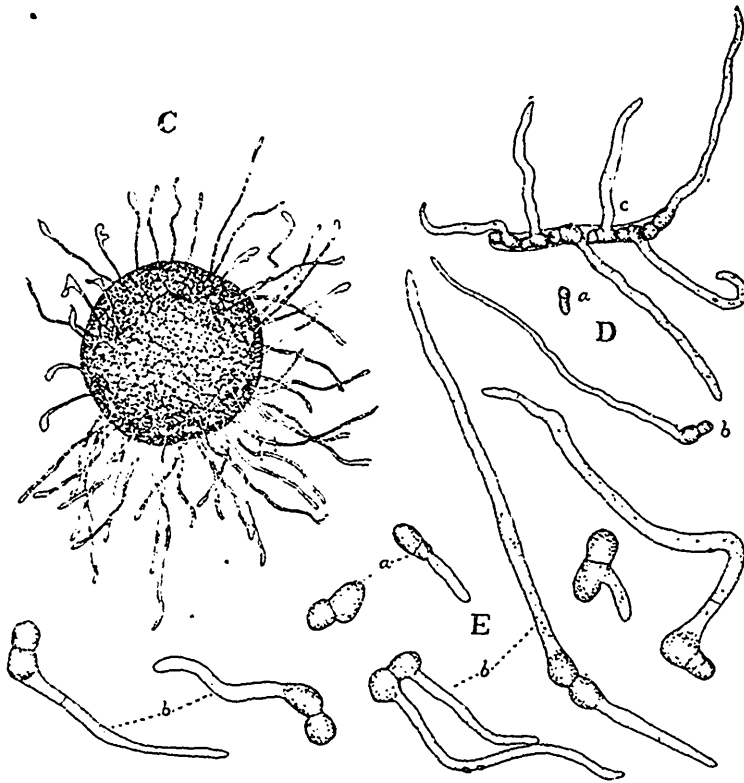


FIG. 229S.

C. Perithecium of apple scab with germinating spores.
 D. (a) Spore not swollen,
 (b) Swollen germinating spore.

E. Germination of spores, after 15 hours in apple leaf broth.
 (a) spore, (b) a germ thread.

partially escaped from a ruptured ascus, and (b) loose spores.

When we consider how highly these drawings are magnified and that these spores are microscopic in size and float like particles of dust in the air, it is easy to understand the rapidity with which scab will spread throughout an orchard, especially in moist weather, for moisture is necessary to the growth of the penetrative threads of the spores.

So far, a coating of Bordeaux has been found the only safe-guard against these scab spores fastening themselves on the leaves and fruit, but this is an expensive as well as a disagreeable operation, and we are encouraged to hope that a coating of the lime, salt and sulphur spray may be equally effective,

and certainly much less expensive, because one application may suffice.

The Cow Pea.—Formerly it was said that “this pea is to the South what red clover is to the North, and alfalfa to the West,” but of late it has been found that the Cow Pea is of great value in all of these sections, and, during the last year or two, it has been sown in some parts of Ontario for the improvement of orchard land. It is sown in spring about the same time with beans, in drills about 2½ or 3 feet apart, and constantly cultivated until August 1st, when the peas will occupy the ground, though in some cases Crimson Clover is sown among the Cow Peas at the last cultivation. In

this way a large amount of vegetable matter is provided, which decays during the winter and permits of early spring plowing. Some orchardists turn in sheep or hogs in the fall to eat up the fallen fruit, along with the excellent pasture afforded by the Cow Peas, and find themselves well repaid with fat marketable live stock.

For sowing in drills, about 3 pecks of seed per acre is sufficient and it should be covered about two inches deep.

The Cow Pea, like other legumes, has the faculty of taking up the free nitrogen of the atmosphere, holding it fast and mingling it with the soil; so that only the mineral elements, phosphoric acid or potash, need to be added to make a complete fertilizer for the soil.

The North Carolina State Horticultural Society has published a bulletin on the Cow Pea, to which we would refer any reader who is interested in studying further the question of its value for orchard land. We shall be much pleased to hear from any reader who has had any experience with this pea.

Where Doctors Disagree.—At the Fruit Growers' Institute, at Colborne, Mr. Coyle seemed to have some curious notions about grafted fruit. He said: "I have during twenty years' experience in the fruit trade, noticed this, that fruit from *grafted stock* will not carry such a long distance, will not stand as long in storage, will not give as good color, as that grown on the original stock."

Surely Mr. Coyle forgets that he has no apples in his orchard of the varieties he names, which were not *grafted*, either upon young seedlings by the nurseryman, or top grafted on old trees in the orchard.

No doubt the question of the best variety to use as stock is still an open one and worthy of most careful study; and if it were possible for nurserymen to use Tallman Sweet Seedlings no doubt the results would

be excellent. But the choice of scion is perhaps more important than that of stock, for in it we are propagating the individual characteristics of the tree from which it is cut, such as size, color, flavor, etc.; and this individuality in breeding is seldom if ever considered by the professional nurseryman in grafting seedlings. The orchardist should carefully consider it in top grafting, and choose his scions from those trees which bear the finest fruit and the most of it.

The Grape Vine may be easily grafted, and a knowledge of this may transform a profitless vineyard into one of great value. This work must be done early in the season before the buds begin to swell. The scion should be about six inches long, and is inserted very much in the same way as described for cleft-grafting the apple, except that the old vine is cut some three or four inches below the surface of the ground, and that no grafting wax is used. Instead, the cleft stock is tied with a string, and the earth is carefully heaped about the scion so as to leave but one bud above the surface.

In case the old vine is too knotty for cleft-grafting, the work may be accomplished by splice-grafting a smaller branch. This is done at a distance of two or three feet from the stump, and the grafted branch is then laid down and fastened in place with a peg. The earth is pressed about the scion, leaving a bud above the surface, which is the only one that should be allowed to grow.

Currant Anthracnose.—The loss of foliage by our currant bushes, early in the season, is becoming a serious hindrance to the successful cultivation of this fruit. For a long time we thought ourselves helpless to control this evil, but it is now shown that it may be largely prevented by spraying with poisoned Bordeaux mixture.

There are two distinct fungi to which this loss of currant foliage is due, viz.:—*leaf*

spot (*Septoria ribis*) which produces dead brown spots about one-eighth inch in diameter (Fig. 2300), and anthracnose (*Gleosporium ribis*) which produces spots only about the size of a pin head (Fig. 2299). The former is the common leaf spot disease, but occasionally, as 1901, we have serious attacks of anthracnose.

Hepworth, a fruit grower on the Hudson, estimates his loss on 18 acres of currants in 1901 as 24,000 quarts, due to anthracnose and subsequent sunscald, there being little foliage left after July 22nd to protect the fruit. Sprayed bushes at Geneva, on the other hand, held nearly full foliage until the middle of October. Fay and Victoria seem peculiarly liable to the disease, while Prince Albert and President Wilder are almost immune.

As a remedy we advise the use of poisoned Bordeaux instead of hellebore, thus destroying both worms and fungi with the same application. For thorough work one should give the first



FIG. 2300. A LEAF OF RED CURRANT AFFECTED WITH LEAF SPOT.

spraying before the leaves appear, and the second treatment when they unfold.

The Bordeaux is made after the usual formula, 4 lbs. lime, 4 lbs. of copper sulphate and 40 gallons of water; for the worms we add 3 oz. of Paris green to the 40 gallons of mixture.

The San Jose Scale Act was amended at the last session by adding the following subsections,—

(1) All persons owning, leasing or managing any orchard or collection of plants, other than a nursery, shall, when any plant therein becomes infested with the scale, and forthwith on becoming aware, whether by notice or otherwise, of such infestation, destroy such plant by fire, or shall effectually treat the scale by fumigation, or by spraying with crude petroleum, kerosene or soap, or by any other material prescribed by the Minister.

(2) The council of any city, town, township or incorporated village may, and upon



FIG. 2299. A LEAF OF RED CURRANT AFFECTED WITH ANTHRACNOSE.

the petition of fifteen or more ratepayers shall, by by-law, appoint at least one inspector to enforce the provisions of this Act in the municipality, and fix the amount of remuneration, fees or charges he shall receive for the performance of his duties. All such appointments, as well as such remuneration, fees or charges shall be subject to, and be only operative on the written approval of the Minister, communicated by him to the clerk of the municipality.

(3) Every inspector appointed by any by-law passed under subsection 2 of this section is empowered to act as inspector under the **Yellows and Black Knot Act** and under the **Noxious Insects Act** in all respects as if he had been appointed an inspector under the last mentioned Acts by by-laws specially passed for that purpose.

(4) All such inspectors appointed shall be subject to and observe the regulations and directions of the Minister, and shall be subject and subordinate to the inspector appointed by the Minister, and in case of any neglect of duty, such inspector shall be subject to the penalties prescribed by this Act.

(5) The council of the city, town, township or incorporated village shall pay the remuneration, fees or charges of such inspectors, and shall be entitled to receive from the Department of Agriculture one-half of the amount so paid upon furnishing the department with statements of the sums so paid, certified to by the Inspector appointed by the Minister.

Inspectors are to be appointed in Saltfleet, Grimsby, St. Catharines and Grantham. At each of these places, after the Fruit Institute, a petition was got up and signed by fifteen fruit growers who were rate payers, petitioning the Municipal Council for the appointment of an inspector, who should enforce the provisions of the Act, and thus save the section from devastation by scale.

A **Cold Storage Steamer** has been promised the Prince Edward Island Association for carrying their fruits to the old country markets; also the Federal Government has promised to send an instructor in fruit culture, who will visit the whole province, and give advice and information on the most ap-

proved methods. The president, the Rev. Father Burke, writes a most encouraging letter, and hopes that the provincial organisations may work together so heartily as to attain the two important objects just now in view, viz., (1) the appointment of a Railway Commission, to whom we may appeal for justice in the freight rates for fruit; and (2) a more perfect system of transportation of tender fruits, both on land and sea.

The **Fruit Marks Act**, though not yet perfect, is on the whole working out the interests of the fruit grower. There is little encouragement for one man out of ten to put up his apples honestly, when the other nine face their packages and hide rubbish in the middle of them. The work of the inspectors is bringing every man into a uniform method, and will soon establish confidence in Canadian apples as the best packed and the best graded of those from any country, because Canada is the first to adopt such an Act. This will gradually cause the value of our apples to advance in the foreign markets, and all our apple growers will share in the benefit.

It was a good provision that all closed packages of apples should be marked with the correct name of the variety, for this will obviate one of the evils, which unfortunately prevails in the large markets, of re-marking packages of fruit with the name of some popular variety. Many varieties of yellow fleshed peaches are sold as Crawfords; and many kinds of red apples are sold as Spys because they are known and wanted in the markets. In New York city, for example, the Western Ben Davis is often sold for New York state Northern Spy; and the Missouri Pippin for Vermont Spitzenburg. This, of course, is a fraud upon the buyer and tends to discredit the value of those excellent varieties, and in the end to bring general loss upon apple growers as well as disappointment upon the purchasers.

Grafting.—There are very many apple and pear orchards throughout Ontario which are unprofitable on account of the varieties planted. Many kinds also, once profitable, are so no longer on account of the apple scab, as, for instance, the Fameuse, the Early Harvest, and the Fall Pippin.

Now any man, who has a little skill in the use of tools, can easily transform such trees to kinds that are valuable by grafting; an art by many looked upon as difficult, and invested with many secrets.

The first thing to do is to secure scions of the kinds wanted; for these must be cut while the buds are yet dormant, and be laid away packed in earth, or in fresh sawdust, until needed. If near a good city market it will pay to grow a few such fancy apples as Red Astrachan, Duchess and Wealthy, and scions may be secured at a very small cost from almost any of the nurserymen who advertise in our columns.

Apples and pears may be grafted much later in the season than stone fruits, for while the latter may be done as early as possible in the Spring, the former need not be done until the last of May, or even the early part of June.

Cleft Grafting is the usual method, and for the smaller limbs it is the best. For this the tools required are a sharp saw for cutting off the limbs where the graft is to be inserted, a sharp knife to sharpen the scion, a

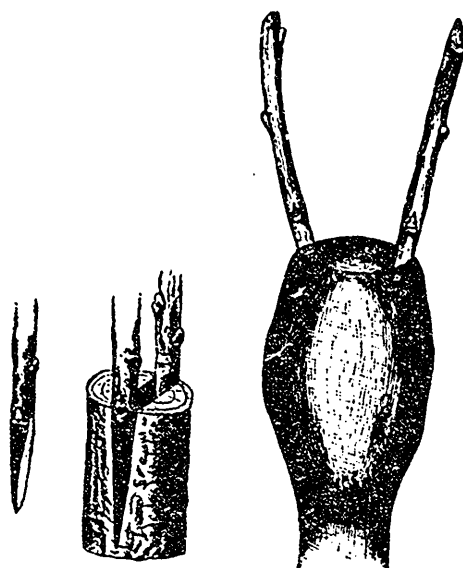


FIG. 2302.

FIG. 2303.

grafting chisel, such as is shown in Fig. 2301, to open the cleft where it is to be inserted, a mallet to drive the chisel, and a small kettle, with a lamp so fixed in it as to warm the water in which the wax is placed till needed.

Our illustrations will represent the process of grafting. The scion, Fig. 2302, is bevelled equally on both sides, with the outer edge if anything a trifle thicker than the outer to ensure firm contact between the cambium layer of the scion and the stock. It is an advantage to have a bud on this edge as shown; if the stock is small one scion may do, as in the engraving; but if large it is better to have one on each side, and thus if one fails the other may succeed.

The stock should be smoothly cut across with the saw, and then split with the grafting chisel, the narrow projection on the back of which is used to open the cleft for the insertion of the graft. All the cuts are then covered with grafting wax and the work is complete.

Grafting Wax may be made in a variety of ways, but in all the ingredients are resin,

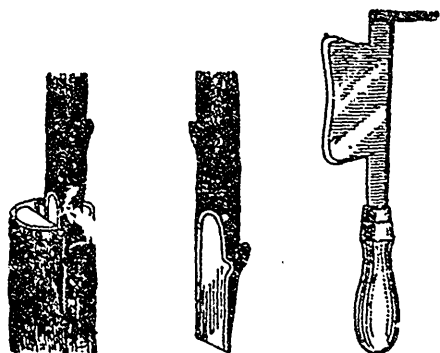


FIG. 2301.

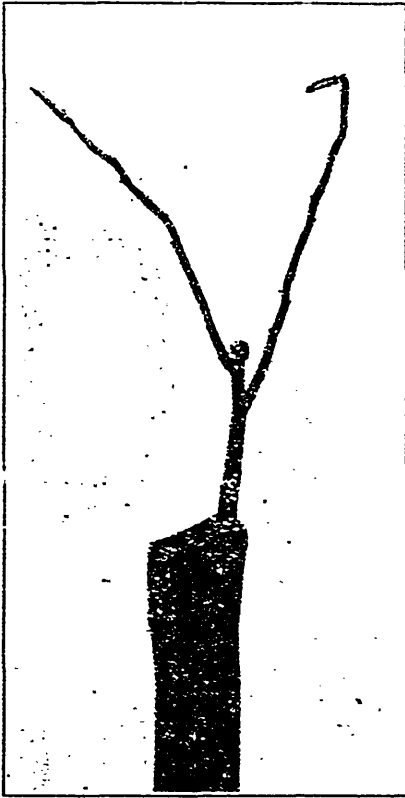


FIG. 2304. MR. MORRIS' APPLE GRAFT AS SHOWN AT COBOLURG.

tallow or linseed oil and beeswax, and it is more or less expensive according to the proportion of beeswax used. A very good recipe is one pint of linseed oil, one pound of beeswax and four pounds of resin. The resin and the beeswax should first be melted together, and the tallow or oil be added, when the whole should be well stirred up together. The mixture is then poured into cold water, and when cooled worked by hand until ready for use.

Stringfellow Grape Planting.—True to his principles, Mr. Stringfellow advises that vines be reduced practically to cuttings just before planting; first pruning the tops down to almost one foot, then cutting away all

side roots entirely, and those at the base to about a quarter of an inch. He would plant with a dibble, watering if the soil is very dry, and pressing the soil firmly with the foot.

Cheap Grades of Fruit should never be shipped; they should be sold at home for cider, canning or evaporating. It is all very well to say that the fruit grower should never grow second grade stuff. Theoretically he should not, and this is the aim of the best growers, but practically there must be second-class fruit when you practice sorting and grading: some samples will be curculio stung, some mis-shapen or otherwise blemished and cannot go in for No. 1 grade.

It would be the ideal thing if every farmer could have an evaporator on his own ground, but he cannot. It would not pay him to neglect his more important duties to try to work a business with which he is unacquainted. He had better sell all such stock to a well organized company, who understand the business and can afford to pay him a fair price. We have a number of such companies in Ontario and Mr. George Rilett, who has been buying largely for one of these fruit packing companies, surprised us the other day with some figures:

The Simcoe Packing Company, he said, has branches at Simcoe, Hamilton and St. Catharines. I have been buying for the Hamilton Branch alone, and I will give you some idea of my purchases. In 1901 I bought for them from fourteen to twenty carloads for evaporating, about seven carloads about Collingwood at about one cent a pound, all varieties; besides two carloads of fancy varieties for canning and for jams. I put about six hundred bushels in a car.

What do you consider the best variety of plums for canning?

The Reine Claude is one of the best for all purposes. In 1899 when there was a heavy

plum crop, I bought two carloads of this variety at Winona, and paid from 30 to 35 cents a twelve quart basket for them.

Do you buy cider apples?

"Yes, indeed I do; but not for the Simcoe factory. I buy them for S. Allen, of Norwich, who makes a special business of cider making. This man started business as a poor boy. He got a small cider press and set it up in his woodshed, and kept at the business till he mastered it, and now he has the best outfit in the country and has made a fortune out of the business. He is known the country over, and sends his travelers as far west as Winnipeg to sell his cider."

Does he get apples enough in Norwich?

"Oh no, he buys everywhere. Some years he almost sweeps the country for cider apples. In 1901 I bought about fifty carloads for him at 20 cents a bushel. Of course that was exceptionally high, but he always pays a fair price. Some years I buy one hundred carloads for him, and I get most of them in the northern sections, along the east coast of Lake Huron and south of the Georgian Bay, especially about Collingwood and Owen Sound."

A Visit to the Hamilton Factory.—Calling at the works of the Hamilton branch of the Simcoe Canning Co., one day in April, we were courteously received by Mr. Moffat, the manager, who was pleased to give any information of value to fruit growers. "I would be sorry, however," he said, "to have you fruit growers run away with the idea that this business could be successfully run by a company of farmers. It is a special business and needs experts to manage it or it would result in financial failure. We do a large business; in 1899 we put up 40,000 bushels of tomatoes, and paid about 25 cents a bushel for them."

Please give me some idea of the prices you pay for fruits.

"Well, we buy in twelve quart baskets, and for red currants we pay 25 to 30 cents, sometimes 35 cents; black currants 70 cents;

red cherries 75 and 85 cents; ox heart cherries \$1.00; gooseberries 60 cents; Keiffer pears 25 to 30 cents."

Do you like Keiffer as well as any for canning?

"Yes, it is as good as any for this purpose. We let them stand until they yellow up a bit, and we can take our time in handling them. We add a little sugar and they can splendidly.

We use Bartlett and Flemish Beauty also, but do not care for any pears less in size than two inches in diameter."

Plums for Profit.—Mr. Vance Cline, of Winona, is one of our principal plum growers; he has a very large commercial orchard near Winona, a part of which has been in full bearing for many years and a part is just beginning to be profitable. We took the occasion of his recent call at our office to ask him which plum he found most satisfactory for the profit. "The Bradshaw," he said, "it is excellent in quality, early, productive and carries fairly well."

How about Washington?

"Well, it is a plum to eat, but it does not carry. I have a good lot of trees, but I am digging them out on that account. No matter how careful you are in packing them they will open up spotted when they reach the market. Once I tried wrapping each plum separately, and shipping them in fancy packages, but they opened out spotted just the same, and do not sell well.

Do you like General Hand?

"Well enough, if I can get it, but the trouble is I cannot get the fruit. It does not bear well, and hence is unprofitable."

Is Pond's Seedling profitable?

"No, it is beautiful in appearance, but like the Keiffer pear it has no quality, and nobody wants a second basket.

Quackenbush is all right and so is Reine Claude. Both of these are profitable varieties. I think the French prune too would

be profitable ; it is such a good shipper and evaporates so easily."

Why don't you top graft your General Hand and Washington to some other variety ?

"Well, they don't do well in my experience. I have a lot of Lombard trees which I top grafted to Reine Claude and Bradshaw, but after a few years the grafts died off, and we have still an orchard of Lombards. I think I will dig those trees out and plant the orchard all over again."

What is your prospect for this season ?

"Oh, too good, I am afraid, for the price. I expect there will be a heavy crop all through the plum sections. Still, even at the low prices of the past two years, they pay very well ; and perhaps the Canadian Northwest will soon open up excellent plum markets for us."

The Transportation of fruit at reasonable rates is a burning topic with fruit growers and fruit shippers everywhere. The time was when this business of fruit growing was too insignificant to command either special cars or special rates, and it is no wonder the rates were exorbitant. But now all is changed, and the fruit products are becoming more important in Southern Ontario than the grain products. Why then should not as reasonable rates be made for the carriage of fruit as for grain ?

At our meeting at Cobourg, a report was brought in by Mr. W. H. Bunting, chairman of the Transportation Committee, which was very much to the point, and although the report was superseded by a resolution looking toward the appointment of a railway commission, the report of the committee should not be lost sight of as expressing some of the points of grievance which we fruit growers have against the carrying companies. The following is the resolution :—

Local and Provincial Distribution.—Resolved
1. That a revised schedule of reductions in rates and improvements in service be laid before the railway officials for their consideration, with a

strong request for their acceptance, in order that at least to some extent justice may be done to the fruit industry.

2. That, inasmuch as improved systems of refrigeration and ventilation, in connection with the carriage of fruits, have been favorably reported on from the tests already made, and since the car service in this respect has not been satisfactory in the past, the railway company be requested to arrange for a more extensive equipment in this respect on some plan that may show reasonable prospect of success.

3. That matters of local grievances or hardships in connection with the transportation of fruits be promptly reported to the secretary of this association, with full details, in order that complete information on this point may be obtained and efforts put forth to relieve the same if possible.

4. That some comprehensive plan be adopted whereby the local conditions of over supply or scarcity of fruit in any particular district may be promptly made known, so that a more even and satisfactory distribution of the more perishable fruits may be obtained.

Export Trade.—Your committee note with satisfaction that improvements in the service are being made by the steamship companies, and, while they regret to learn that the financial results from export shipments have not yet been of such a nature as to inspire confidence in the shipper, they trust that the time may not be far distant when it will be possible to land our apples and pears in the English market in uniformly good order and with a reasonable assurance of a safe and careful handling throughout the entire journey. To this end it is hoped that the Dominion and Provincial Governments will continue to supplement the valuable assistance already rendered in this respect, which has been productive of good results.

We solicit the co-operation of local and provincial Fruit Growers' Associations in securing for fruit growers fair play in the matter of freight rates on fruits, so that we may be agreed upon details when we again seek for a better classification of freights on fruits.

Civic Improvement is certainly one of the most important fields of work for our local Horticultural Societies, and the noble example of the Cayuga Society might well be followed by every other such society in Ontario. The plan of work laid out by the American League of Civic Improvement includes the following suggestive sections,—public recreation, a gymnasium, playgrounds, etc ; parks ; municipal art ; village improvement ; rural improvement, including good roads, country schools, etc. ; sanitation ; libraries and museums ; social settlements ; public nuisances, as smoke, advertising, etc. ; preservation of nature ; arts and crafts, etc.

The openings for such philanthropic work are many and great, the fire of public spirit is spreading, it has caught the city of Hamilton, where our society is working enthusiastically along the lines of Civic Improvement, and interesting the school children in helping to carry out some of their plans, and we hope other cities and towns will make up in like manner.

The Barberry Shrub. This is a beautiful ornamental shrub which has so long held a prominent place among ornamental shrubs, has been tried, convicted and condemned. The students of Mycology (fungus plant life) have discovered that this beautiful shrub is the host plant upon which the wheat rust fungus spends the winter, and from whence sends forth broadcast the summer spores for the spread of the wheat rust. This may not be an evil in sections of southern Ontario, where wheat is no longer a principal agricultural crop, but in those parts where it is still grown, the barberry shrub is a nuisance, and must be destroyed.

The following are the important sections of the Act relating to the shrub, recently passed by the Ontario Legislature.

1. No person shall plant, cultivate or sell the shrub known as the barberry shrub, and every person guilty of the violation of this section shall be liable, on summary conviction thereof before a justice of the peace, to a penalty not exceeding \$10.00, besides the costs of conviction, to be recovered as provided by the Ontario Summary Convictions Act.

4. Where prior to the passing of this Act any has planted or has growing upon lands owned or occupied by him and situate within any city, town or incorporated village any hedge or fence formed by the said shrub or any plants of the said shrub, the Minister of Agriculture may, upon a petition signed by at least three owners or occupants of lands in an adjoining rural municipality, and after the report of one or more qualified persons appointed by the Minister for such purpose, require the person owning or occupying the said lands to remove and destroy such hedges, fences, or plant, and upon his neglect or refusal to do so within one month after service of notice in writing regarding such removal and destruction, the Minister may cause the same to be removed and destroyed.

5. Provides for Compensation; and

6. Defines the variety as *Berberis Vulgaris* L.

Unfortunately for landscape gardeners, the beautiful purple leaved Barberry is a variety of *vulgaris*, and is included under this Act as an enemy to wheat growers, and therefore doomed to destruction.

THE ALPHABET OF SUCCESS.

Attend carefully to details.

Be prompt in all things.

Consider well, then decide positively.

Dare to do right, fear to do wrong.

Endure trials patiently.

Fight life's battles bravely.

Go not into the society of the vicious.

Hold integrity sacred,

'njure not another's reputation.

Join hands only with the virtuous.

Keep your mind free from evil thoughts.

Lie not for any consideration.

Make few special acquaintances.

Never try to appear what you are not.

Observe good manners.

Pay your debts promptly.

Question not the veracity of a friend.

Respect the counsel of your parents.

Sacrifice money rather than principle.

Touch not, taste not, handle not intoxicating drinks.

Use your leisure for improvement.

Venture not upon the threshold of wrong.

Watch carefully over your passions.

Extend to everyone a kindly greeting.

Yield not to discouragement.

Zealously labor for the right, and success is certain.

MEN WHO HAVE SUCCEEDED—II.

THOS. MEEHAN, PHILADELPHIA.

A Remarkable Career—How He Rose from Small Things to Great—An Example to Young Canadians.

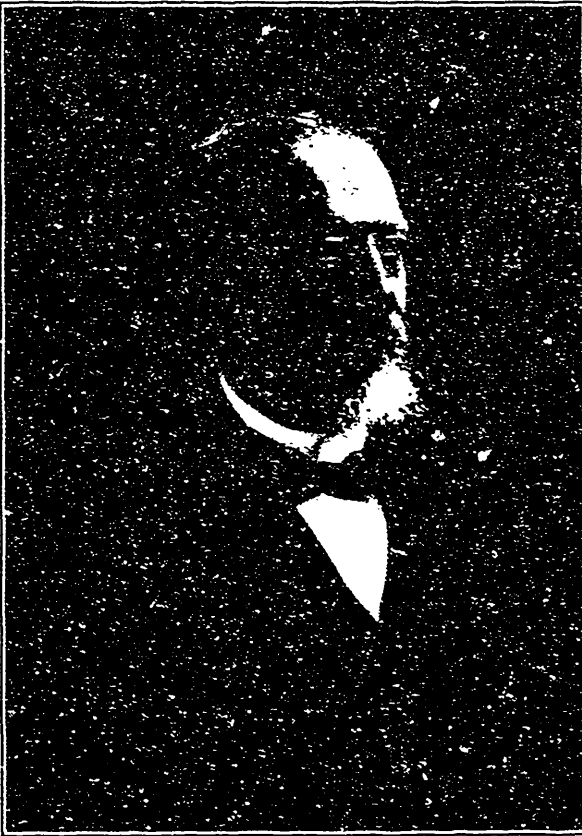


FIG. 2305. THOMAS MEEHAN.

IN part owing to his most valuable labors in connection with that well known journal, Meehan's Monthly, and in part owing to his great success as a nurseryman, the name of Thomas Meehan has become a household word among the fruit growers of America. Success in life

does not seem to depend so much upon outward condition, or even upon college training, as upon that inherent faculty which some men have of taking advantage of opportunities which lie along their pathway, and turning them into gold, or into position.

On Tuesday, the 19th of November, this noted botanist and nurseryman passed away, aged seventy-five years, mourned by a large circle of personal friends and associates in scientific pursuits.

We are only able, in our limited space, to give a most condensed account of Professor Meehan's life and labors, as a source of inspiration to young Canadians, who may thereby be led to seek the realization of some praiseworthy ambition.

Early Life.—He was born near London, England, in 1826, and soon after this date his father became head gardener upon a large estate in the Isle of Wight. "Here, in the backwoods of Squire Young's Scotch fir plantation, young Thomas Meehan used to love to sit on

the brown pine-needles and alarm suddenly the young snakes till they scampered into their mother's mouth for protection. With no other boys to play with for miles around, he spent his time in writing boyish essays on what he saw. In after years, one essay of an eight-year-old boy got

into print, and brought on him a burlesque by Dr. Lindley, the eminent horticulturist and botanist, of England, in an early number of the *Gardeners' Chronicle*, of London—a cut with Meehan's viper still further evolutionized till its tail had become sagittate, so that it could spear a mouse and pass it to its mouth without moving itself. Professor Brown Goode, of the Smithsonian Institution, took up the question and proved by overwhelming evidence that the eight-year-old boy was right. A cut of the "Meehan viper," as it originally appeared in the *Gardeners' Chronicle*, December 16, 1848, is herewith reproduced."

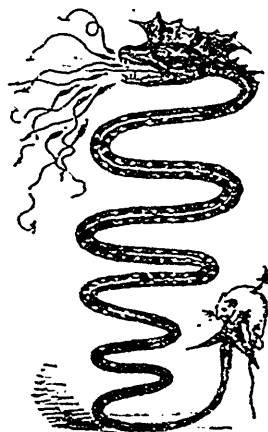


FIG. 2306.
MEEHAN'S VIPER.

It was not that his father and mother did not appreciate the value of an education but because the schools were not at hand, that his education was neglected, except for such rudiments as his mother could find time to give him, until the age of ten, when he was given two years at a Lancastrian school, after which he went into regular work in gardening under his

father's training. But success was in him, and circumstances could not bar it. He determined to know, and spent his evenings in the study of botany and horticultural books and literature, thus early evidencing that habit which in later life brought him, with only two years of school life, the well earned reputation of scholarship in specific lines, superior to that of hundreds whose names are adorned with B.A., Ph.D., M.A., or other titles.

Aptly in connection with his life have the following lines by Lowell been quoted :—

No man is born into the world, whose work
Is not born with him—there is always work,
And tools to work withal, for those who will
And blessed are the horny hands of toil.
The busy world shoves angrily aside
The man who stands with arms akimbo set,
Until occasion tells him what to do—
And he who waits to have his task marked out
Shall die and leave his errand unfulfilled.

At twelve years of age he began contributing articles of scientific value to the public press, and thereby was brought to the notice of the members of the Royal Wernerian Society, and made a member while still a mere lad of about fifteen ! While still in his teens, young Thomas formed an excellent plan for the continuation of his studies ; he associated together a band of young men who met at nights to take up languages, mathematics, chemistry and studies, the one most advanced in a study always taking the lead of the others,—a scheme of work afterward developed into our well known Mechanics' Institutes.

Positions of Trust.—His first position was that of Head Gardener to Paymaster Vaux, and during the next five years he filled several engagements, each one giving him valuable opportunities for gaining a knowledge of details of horticulture. This was especially true of his engagement at Kew Gardens, where he had charge of houses containing plants from all parts of the world. These opportunities he made the most of ; for example, at Kew he made a catalogue of 1600 varieties, studying up the history of each. At the same time he continued to contribute to the public press, and thus made the most of every opportunity for advancement.

Through a friend he was induced at the age of twenty-two to come to America, where his first engagement was with Robert Buist, as superintendent of nurseries ; afterward he filled several positions of trust, as, for example, that of manager of Bartram's gardens, and in 1852 that of Cope's

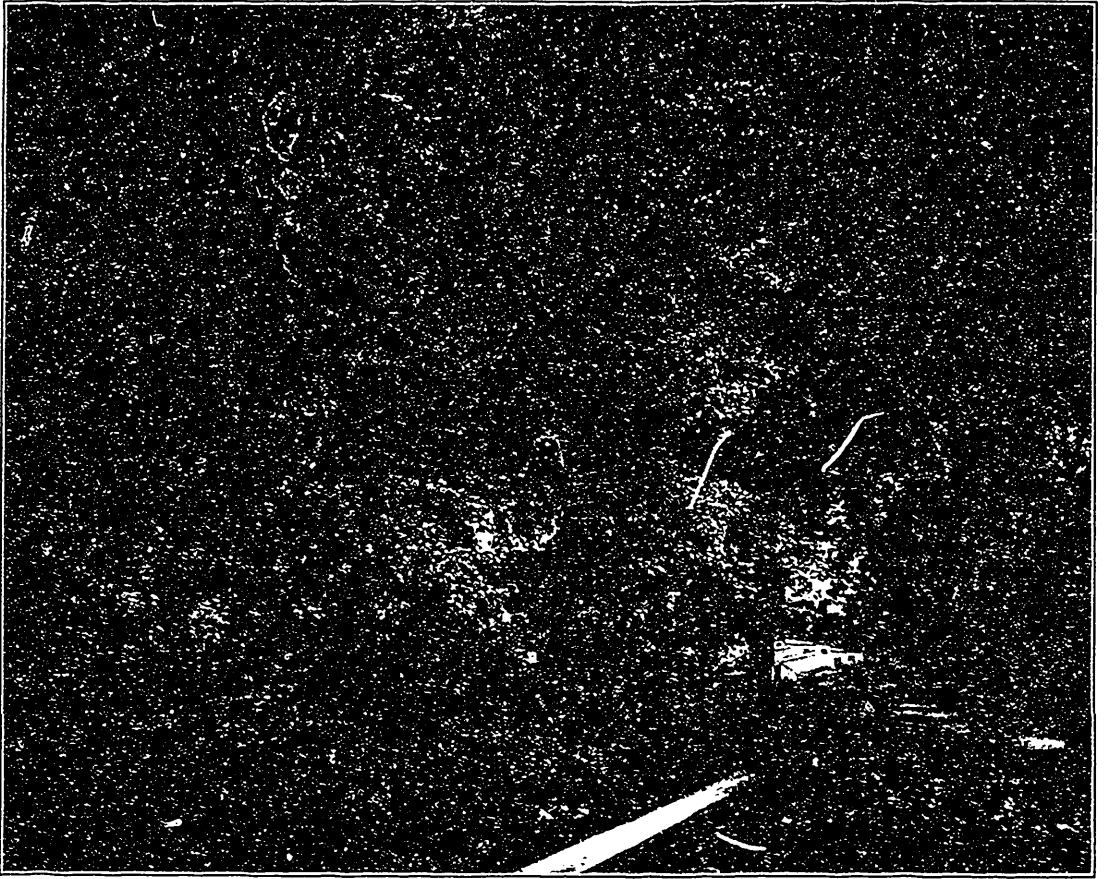


FIG. 2307. THOMAS MEEHAN'S OFFICE.

grounds and conservatories; during which time also his pen was always busy.

Meehan's Nurseries.—In the spring of 1854 Mr. Thomas Meehan decided upon a bold and independent stroke, and, with the seeds he had collected from time to time and \$1000 of his savings as his capital, he rented ground in upper Germantown, and established what are now so widely known as Meehan's Nurseries. Here was got together the first collection of the beautiful native trees and shrubs of America, which soon required much additional land, until in time some seventy-five acres was completely covered with nursery stock.

His title of Professor came to him on his

being appointed State Botanist, and Lecturer at the University of Illinois.

Travels.—Thomas Meehan travelled much, including trips to Canada, Alaska, the far West, and in all these his one thought seemed to be the study of his favorite science. His mastery of details was well proven by his ready acquaintance with plants. From every land "Plants, specimens, twigs, leaves or flowers," it is said, "were almost daily received at his office for identification, and it was a cause for wonderment to those about him to see him, usually without hesitation, write off the names and possibly add some remarks about their history."

Writings.—He was a prolific writer, and among his productions we may just mention "The American Handbook of Ornamental Trees"; frequent contributions to the "Horticulturist" (American) on Landscape Gardening; the editing of the Gardener's Monthly; agricultural editorials of Forney's Weekly Press; important papers before the A. A. A. S.; Native Flowers and Ferns of the U. S.; many of the articles in Meehan's Monthly, etc., etc.

Public Service.—To his lasting credit, let us chronicle of Mr. Thomas Meehan, his public and philanthropic spirit. Neither business affairs, nor literary work, was allowed to interfere with his interest in the public schools and public parks. In the interest of the first of these, he was instrumental in securing \$2,000,000 for new school buildings, and, in the second, his influence led to the organization of the City Park Association, and the laying out of some twenty-eight small parks, as public resting places,

in various parts of the town. Among the honors conferred on Prof. Meehan, and well deserved, was the Veitch medal presented for "distinguished services in Botany and Horticulture" and this is all the more noteworthy because he was only the third American to be so honored.

Our young Canadian readers should study the face of one whose career has been so remarkable for achieving great results with fair opportunities, and therefore we have secured from Mr. S. M. Meehan, the son who now edits Meehan's Monthly, a good cut of his respected father. He sent in addition, a cut of the old office, adding that "the office shown in the picture has been in use, though added to, from the commencement of father's business in 1854; and nothing can be much more strongly connected with his daily life, for he went there every morning almost as regularly as he ate his meals,—right up to the time of his last sickness."

Use of Cover Crops and Fertilizers.—Prof. I. P. Roberts, of Cornell University, says: "Cover crops may, in a measure, take the place of fertilizers and manures. They are not, however, a universal panacea for all soil deficiencies, neither are they a full substitute in all cases for fertilizers. There is always a wide field for the profitable use of one or all of the concentrated forms of fertilizers named, and in many cases there is also a special place for the use of fertilizers, therefore the more need of honest goods. Commercial fertilizers furnish available plant food, but no humus. The cover crop furnishes both, but it is only fair to say that the plant foods in the former are more available than in the latter. Cover crops improve the physical condition of the soil, lessening the cost of tillage. Physically, fertilizers benefit the soil little or none. The humus furnished by the cover crops increases the availability of the plant food already in the soil; fertilizers do not. Cover crops shade the land and conserve moisture.

"It is impossible to accurately compare the cost of fertilizers with the cost of seeds for the cover crops and the preparation of the soil for them. The cost of increasing productivity by extra tillage, by the use of fertilizers, by cover crops or by all three means, can only be determined in each case by the farmer interested. I give below a single illustration of what a cover crop contains, knowing that another cover crop, under other conditions, might either be more or less valuable. Second growth of clover, furnished in roots and tops per acre, the following: Nitrogen, 138.86 lbs.; phosphoric acid, 87.85 lbs.; potash, 109.90 lbs. There is removed by 25 bush. wheat and accompanying straw, nitrogen, 43 lbs.; phosphoric acid, 20 lbs.; and potash, 27 lbs. It is believed that most of the nitrogen taken up by legumes is secured from the uncombined nitrogen in the atmosphere. The clover did not add to either the stores of phosphoric acid or potash. The plant took them from the soil and made them available."

OUR FRUIT INSTITUTES.

FROM Mr. Creelman's report of these meetings it will be seen that a new and most effective line of operation has been undertaken by our Association, bringing a fruit expert in close contact with the fruit men in every section, and coupling practical demonstrations with verbal instructions.

Mr. Hutt's addresses stirred up much discussion, and led to a considerable improvement on the crude methods of pruning commonly followed. About the middle of April, Mr. George E. Fisher, Provincial inspector of San Jose Scale, conducted three of these meetings in Lincoln County, in the orchards of A. H. Pettit, Grimsby; Chas. Purdy, St. Catharines; and J. J. Cook, St. Davids. The Demonstration Meeting in the orchard occupied about two hours, from 2.30 to 4.30, at which several spraying mixtures were made and applied; and in the evening an address, giving details and formulæ, was given by Mr. Fisher, who answered a great number of questions to everybody's satisfaction.

THE SPRAYING MIXTURES.

Crude Petroleum was first applied at each place with a combination pump, in the proportion of twenty-five per cent. of the oil to seventy-five per cent. water. This is the most effective spray known against scale insects, is most simple of application, and it may be applied in the finest spray imaginable. It is also a remedy for aphids on the cherry tree, which hatch out just before the leaf buds open. Every inch of wood should be covered in treating for scale, and the work should be done before the buds open. The cost is about \$5.00 a barrel delivered in the Niagara District.

Fish Oil Emulsion.—While the crude petroleum was being applied to the experimental rows of trees, Mr. Fisher prepared this emulsion, with full explanations. This he said is a combination of oil and potash without saponification, which is therefore more effective than any soap, and easier prepared. For ten gallons of this mixture the following is the formula: 5 quarts of fish oil, 5 pints boiling water, $1\frac{1}{2}$ pounds whale oil soap (or even of ordinary soft soap). Churn five minutes, add $2\frac{1}{2}$ pounds caustic potash, and enough water to make ten gallons. It is expected this will prove more effective than whale oil soap and is less expensive, ten gallons costing only about sixty cents, compared with \$1.00 for the soap. This is an excellent remedy for cherry aphids, applied just before opening of the buds, also for plum pockets, peach curl, in fact a general substitute for whale oil soap.

Lime, Sulphur and Salt.—While the fish oil emulsion was being applied to the trees, Mr. Fisher proceeded to make the lime, sulphur and salt solution. The formula was, lime 35 pounds, sulphur 15 pounds, salt 10 pounds. Boil two hours, and apply hot. The lime was slacked first, covering it three or four inches deep with hot water. This is applied once, just before foliage opens. The trees treated were first a golden color and then a golden white, every portion from the ground up being treated.

Kedzie Mixture.—This is a mixture of white arsenic, and is more effective than paris green, because the great demand for the latter has caused much adulteration. The formula is, 2 pounds white arsenic, 4 pounds of sal soda. Boil in two gallons of water for fifteen minutes. This will make two and a half gallons of the stock solution.

Use one pint in forty gallons of water, adding two pounds fresh slacked lime. This is excellent for all insects that eat the foliage, such as the canker worm, tent caterpillar, etc. It is also useful in killing curculio and codling moth. It may be used in the Bordeaux mixture.

QUESTIONS ANSWERED BY MR. G. E. FISHER.

Is Gillett's lye a good spray?

It is useful in cleansing the bark of trees, but it is soda, not potash, and I think the latter more useful. Mr. D. J. MacKinnon said he had used Gillett's lye to counteract the evil effects of an over dose of crude petroleum on his cherry trees, and had thereby saved his trees.

What is the cost of potash and fish oil?

Potash costs from seven to eight cents a pound and fish oil thirty-five cents a gallon.

Do you advise applying crude petroleum without dilution with water?

No, I do not. It is much safer to apply it diluted. Crude petroleum should not be applied to peach trees at all; they are quite susceptible to injury from it.

Would crude petroleum destroy the eggs of the Canker worm as well as cherry aphid?

I am inclined to think it would if applied just before their hatching season.

Where does the aphid winter?

The eggs remain in the bark near the buds all winter, and hatch out just before the buds open, so the young are waiting there to feed upon the leaves. Mr. Emory of Burlington, used whale oil soap, two pounds to a gallon

of water, and thoroughly cleaned out the aphid with that spray.

Mr. L. Woolverton said he had used a very fine kerosene spray, with an atomizer to his rose bushes for destruction of green aphid without injury to the young foliage, and he proposed to try undiluted crude petroleum for cherry aphid, put on with a very fine nozzle.

Mr. W. H. Bunting had used diluted crude petroleum for scale and found that he could keep it under control by this spray.

Is not the Lime, Salt and Sulphur wash more expensive than Bordeaux?

No, the one application costs about one cent a gallon, possibly a little more than one application of the Bordeaux, but you see you only apply it once, coating the tree before the foliage comes out.

At Mr. Pettit's, we noticed that the ten gallons mixed covered ten medium sized pear trees, so in that case, the mixture costs only one cent a tree. The men were about five minutes at each tree.

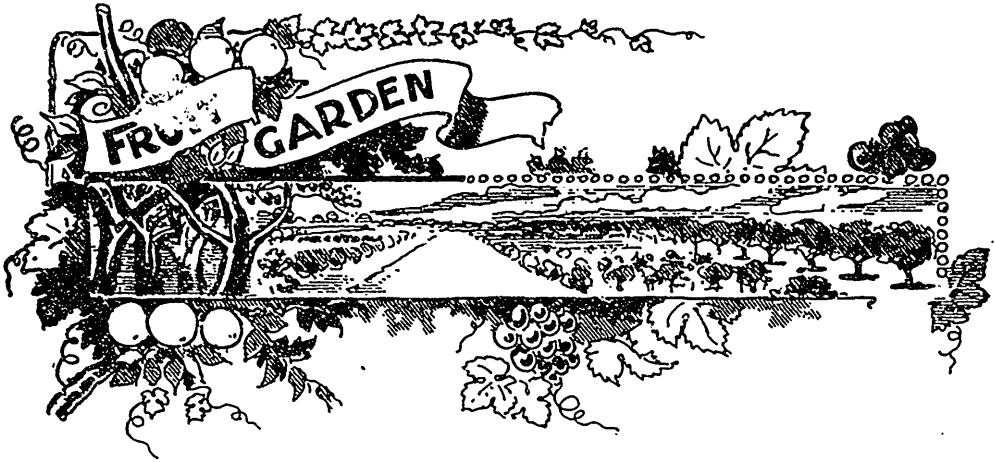
Two hours is surely a long time to wait for the mixture to cook?

Well, if you have much spraying you need something bigger than a kettle. You need two large boiling pans, and let one pan full boil while you apply the other, and in this way you can keep the pump moving.

Does peach curl winter on the trees?

I have no hesitation in saying that it does, and I think apple scab does also; hence cleaning the tree bark may rid use of both scab and peach curl.





OBSERVATIONS ON BUDS.*

BY PROF. H. L. HUTT, B. S. A., O. A. C., GUELPH, ONT.

BUDS afford a very interesting subject for study, because they represent the possibilities of the tree, not only in the growth of leaves and branches but also in the production of flowers and fruit.

Their Systematic Arrangement.

First, let us notice where the buds appear upon the stem or branch. At the end of the branch will always be found a well-developed prominent bud, known as the *terminal bud*. Upon this rests the responsibility of extending the growth of the branch. Along the sides of the branch are numerous *lateral buds*, which share the varied responsibility of producing leaves or branches or fruit.

If a growing shoot be examined in the summer, when out in leaf, it will be noticed that each bud is situated in the axil of a leaf; or, if it be examined in the winter, the scar left by the fallen leaf may be seen under the bud. Such buds are known as *axillary buds*, because they are formed in the axil of a leaf. If the branch is from an elm or basswood, or any of the ordinary

fruit trees, the buds will be found to be alternately arranged along its sides. But if the branch is from an ash or maple, or lilac, it will be seen that they are arranged in pairs opposite each other. The buds, therefore, naturally have a regular order of arrangement, which varies in different kinds of trees.

Accidental Buds.

Sometimes buds are formed which do not arise from axil of a leaf. Such buds are usually the result of some injury to the part where they appear, and are known as *accidental* or *adventitious buds*. The suckers, or water sprouts, that make their appearance on large limbs where pruning has been done, usually arise from buds so formed.

Old Country gardeners, who give great attention to the training of trees into fancy forms, often resort to the practice of nicking the bark so as to induce the formation of accidental buds, from which branches may be grown wherever desired.

As there is a difference between the origin

*First Lessons in Fruit Growing--V.

of these buds and those formed in the ordinary way, there is also a difference in the connection which branches, arising from them, have with the branch upon which they are situated. Terminal and axillary buds are formed as the young shoot grows, and

are connected with the pith or centre of the shoot. The branches which arise from such growth are therefore formed in the tree. Accidental buds are formed on the older wood, and, as they originate in the cambium layer, they have no connection with the pith or centre of the branch; consequently the branches produced from them are not deeply seated. That is why branches from such buds may at first be pulled off so easily. Each year's growth, of course, helps to bury them deeper, and after a time, they become as firmly united as the other branches.

What Buds May or May Not Do.

If we observe buds to learn what they produce, we will find that some produce leaves or branches. These are called leaf-buds. Others bear blossoms and fruit and are known as fruit-buds. Others simply do nothing, but remain inactive. These are dormant buds. Let us study each of these classes of buds a little more carefully, and we shall learn some interesting things about them.

The Buds That Grow.

Leaf-buds, of course, produce leaves, but every perfect leaf-bud is also capable of producing a branch. This is one of the most important points to know in connection with the propagating and pruning of trees. It is, in fact, the foundation upon which is based all of the most important nursery operations in propagating by cuttings, by layering, by grafting, and by budding.

The terminal bud nearly always produces a branch, or it at least extends the growth of the branch on which it is situated.

The lateral buds are all capable of producing branches, but only a few of the strongest ones near the end of the shoot naturally do so. If, however, the end or the branch should be cut off, thereby giving one of the less vigorous buds below the prominent position of a terminal bud, it



FIG. 2309. PEACH SHOOTS.

The large buds near bottom being fruit buds and the smaller single ones above leaf buds.



FIG. 2310.

(b) Branch of Sour Cherry, showing fruit spur forming on two year old wood, and fruit buds at the base of new wood.

(a) Branch of Sweet Cherry, showing these young fruit spurs with clusters of fruit buds; also plump fruit buds at base of new wood.

(c) Another of the same, with lengthened spurs, which have been fruiting seven or eight years.

soon rises to the occasion and produces a branch, as well as if it had been a terminal bud from the start. Any perfect leaf-bud may thus be made to produce a branch by cutting off those above it and giving it the position of a terminal bud. In this respect buds and some people are much alike—they

do much or little depending upon the prominence and responsibility of the position in which they are placed.

The Discouraged Buds.

If we examine any vigorous shoot after the leaves have fallen, numerous 'small, more or less indistinct buds may be found near its base. These are the dormant buds that have been left so far behind in the race by the growth at the extremity of the shoot that they have apparently given up trying to do anything, and unless they are given another chance, by heading off those above them, they will always remain inactive, and will soon be covered up by the annual deposit of new wood along the sides of the branch.

The Buds That Bear.

Fruit-buds are those which produce blossoms, and if all goes well bear fruit. In the early stages of the growth, they were leaf-buds, or, in other words, fruit-buds are all developed from leaf-buds.

The transformation of leaf-bud to fruit-bud is one of those mysterious natural changes which go on so smoothly and imperceptibly that we usually see only the result without knowing just how it was brought about. If we study the question carefully, however, we will find that there are certain conditions that have a direct influence upon the development of fruit buds.

In the first place the tree must attain a certain state of maturity. The age at which this stage is reached varies greatly with different species and varieties. Plums, for instance, usually reach a bearing age much sooner than apples, while a Ben Davis or Wealthy tree often reaches a bearing age in about one-half the time that a Northern Spy does.

Then again, we may notice that anything may tend to check the vigor of growth hastens the development of fruit-buds. For instance, trees that are more or less checked



FIG. 2311.

(a) Three-year-old fruit spur of Lombard Plum. Fruit buds clustered around end of spurs.

(b) Another of the same, after ten or twelve years growth. The rings show annual increase in length.

in growth by being planted on poor soils usually begin bearing sooner than those growing more vigorously upon moist rich soils. Apple and pear trees which have been stunted and made dwarf by grafting on slow-growing stocks usually begin fruiting in one-half the time that the same varieties do when allowed to grow unchecked as standards.

The transformation of leaf buds to fruit buds can sometimes be prematurely brought about on a single branch of a tree by tying it down so as to check the vigor of growth at the extremity.

The time required for the development of fruit-buds varies with the different kinds of fruits. In the peach and apricot, the transformation takes place during the latter part of the first season of growth, and fruit is borne the second season; while in the apple

and pear the change does not apparently take place till the second season. The bud that year produces a cluster of leaves, enlarges considerably, and bears blossoms and fruit the third season.

Fruit-Buds Distinguished From Leaf-Buds.

One of the most striking differences in the appearance of the fruit-bud which distinguishes it from the leaf-bud in its rounder and plumper form. This may easily be noticed when examining a branch of any of the stone fruits, such as the peach and cherry, Figs. 2309 and 2310. In the kernel fruits, such as the apple and pear (Fig. 2312), the fruit-bud has the distinction of being the prominent bud on the end of the fruit-spur. In the plum and cherry, where the fruit-buds are usually grouped around the end of the

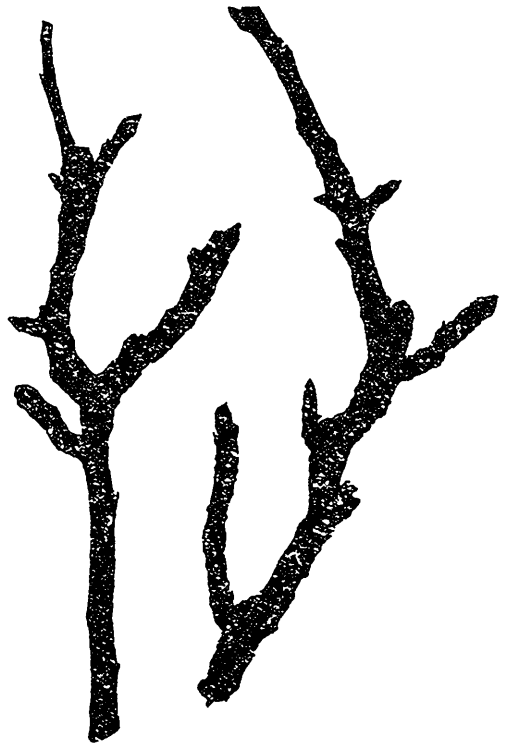


FIG. 2312.

Pear Fruit Spurs, showing sears where fruit has been borne, and fruit buds on end of spurs which should bear again.

spur, the leaf-bud, more pointed in appearance than the others will be seen, in the centre of the group, which extends the growth of the spur (Figs. 2310 and 2311).

In the peach, the fruit-bud may be found somewhere about the centre of the shoot.


Another distinctive feature of the fruit-bud is that it usually enlarges and shows signs of growth in the spring much earlier than the leaf-buds.

Simple and Compound Buds.

The peach and apricot have simple fruit-

buds, that is, each bud produces but one blossom. Most of the other trees have compound fruit-buds, which bear two or more blossoms. The plum buds bear usually two or three blossoms, the cherry four or five, and the apple and pear six or eight. Hence, the peach and apricot are always produced singly along the branch, while the other fruits may hang in clusters, although this does not always follow, particularly with apples, as only a portion of the blossoms usually set fruit.

THE DIAMOND GRAPE.

 THE following additional notes on the value of Moore's Diamond have been received, and our readers will note the great variety of opinions with regard to it. This is of course due in part to the difference of adaptation to different localities:—

"SIR,—I have fruited the Moore's Diamond Grape for six or seven years, and consider it one of the best of our white grapes for the amateur. It is a vigorous grower and good bearer, and of a sprightly vinous flavor, far in advance of the Niagara. It is, however, a little inclined to rot and not as good a shipper, but I consider it valuable for a near market." A. M. SMITH, St. Catharines, Ont.

"SIR,—Respecting the subject of your letter of 11th inst., I beg to say that I grew Moore's Diamond Grape for several years. The vine was quite hardy and produced plenty of wood. After fruiting it three years I found, that although the fruit was of air quality and the clusters of moderate

size, the small quantity of fruit produced yearly, when compared with the Niagara, would not pay me for the trouble of its further cultivation. It was therefore destroyed." THOS. BEALL, Lindsay, Ont.

"SIR,—I have not found the Moore's Diamond Grape profitable. Three vines planted in 1892 on a sandy loam were totally destroyed by the continuous zero weather of February, 1899. They were fine strong vines, but very tender as compared with the Worden and not so hardy even as the Niagara. As to fruiting qualities, I found them earlier than the Niagara, but very spasmodic and unreliable, one year a heavy crop and the next one or two, few if any at all. The grapes are of good quality, free of musk, with large often shouldered, handsome, compact bunches. I still have about a dozen young vines, planted in the spring of 1899. From my present experience I could not recommend it for commercial purposes." A. W. PEART, Freeman, Ont.

ORCHARD INSTITUTE MEETINGS.

BY G. C. CREELMAN, SECRETARY.



At the last annual meeting of the Ontario Fruit Growers' Association, we were requested to arrange for a series of orchard institute meetings throughout the Province. At the beginning of the year we commenced corresponding with fruit growers in almost every section of the province in order to find out the best points at which to hold meetings. It was deemed best not to commence the series until the close of the Farmers' Institute meetings in March. We realized also that this would be a better time for practical demonstrations than when there was more snow on the ground.

Advertising.

Again we found the press of this country quite willing to co-operate with us in forwarding this movement. We sent notices to each newspaper in the several districts where meetings were held, asking them to publish the dates and places of meeting, and also a short synopsis of the work we hoped to accomplish. This was done so well that in almost every instance splendid meetings were held, and we are now getting letters every day congratulating the Ontario Fruit Growers' Association on the success of this new venture.

Districts Visited.

In all 49 meetings were held, reaching from Iroquois in the East to Leamington in the West, the province being divided for this purpose into seven districts.

- 1st. The Ottawa and St. Lawrence Valley District.
- 2nd. The Lake Ontario District.
- 3rd. The Burlington District.

- 4th. The Niagara Peninsula.
- 5th. The Georgian Bay District.
- 6th. The Lake Huron District.
- 7th. The Lake Erie District.

Plan of Campaign.

The object of the meeting was twofold, first, to give a practical demonstration of the best methods of pruning and grafting, and the general care of an orchard, together with a discussion on matters generally pertaining to fruit. Secondly, the formation of local Fruit Growers' Associations in each place for the purpose of giving the fruit growers an object in meeting together once a month to discuss their business. This was the work of the evening meeting, and many associations have been formed and plans laid for regular meetings to be held, where the following subjects, among others, will be discussed :

Methods of cultivation.

Picking, packing, grading and handling of fruits.

Co-operative shipping, and co-operative buying of packages.

Practical results in co-operative buying.

Already the Georgian Bay people have taken this matter up, and have sent out a circular to each of their five branch associations, containing the following information :

"Believing it to be the general wish of the members of the Georgian Bay Fruit Growers' Association to do something in the co-operative buying of packages and chemicals with the object of placing orders during the slack season, thereby obtaining a reduction in prices, we would be glad to have at your earliest convenience a return of the enclosed blank form properly filled out."

Form.

I agree to take the following stock to be delivered at the undermentioned place and at prices not to exceed those mentioned below.

.... Apple barrels	at....each	Delivered....02
.... Apple boxes	at....each	Delivered....02
.... Fruit baskets	at....each	Delivered....02
.... lbs. Paris Green	at....per lb.	Delivered....02
.... lbs. Blue Stone	at....per lb.	Delivered....02
	Signed.....	

Place of Delivery.....

Suggestions:-

The Secretary at the same time asks for any suggestions that would be for the general welfare of the Association, and asks the ideas of each member upon the following subjects:

- Co-operative buying of supplies, trees; also what they think of establishing an information bureau for the purpose of collecting data on the transportation question, and also to keep the members informed as to fruit prices and other matters of special interest to fruit growers.

In the Lake Huron District.

Reports from this district show a decided interest in the meetings, and the series closed with 108 paid members, and the formation of six societies. These separate societies hope to join hands and send delegates to a central point at an early date when they will organize the Lake Huron Fruit Growers' Association. With Mr. Sherrington in charge of the fruit work at Walkerton we have no doubt this Association will always be a useful organization.

In the St. Lawrence Valley.

Here Mr. Harold Jones, Director of the Experimental Fruit Station, Maitland, held a series of five meetings. An association was formed at each place, and local parties have written to say they do not regret having travelled, some of them on foot, ten miles to the meeting. At each place an orchard meeting was held and in many instances

local men took an active part. This is especially true in Iroquois, where Dr. Harkness, who has always been an active worker for the fruit interests, met with the farmers and took part in the discussions.

In this district, strange to say, it was necessary to clear up some superstitions. At one point Mr. Jones was confronted with the statement that it was understood they had been sent there by the Ontario Government to cut down their trees, because they believed there was an insect called the San Jose Scale, working in their orchards. Mr. Jones was able to inform them that there was no scale in that part of the country, and took occasion to tell them how serious the pest was in other parts of the province.

The Lake Erie District.

Here again, a fruit experiment station man takes part in the work, Mr. W. W. Hilborn, of Leamington. A fruit man writing to us after the meeting in Kingsville says:

"I was present yesterday at the meeting of the fruit growers and heard Mr. A. McNeill and Mr. W. W. Hilborn discuss the subject of 'Care of Fruit Trees.' We afterwards adjourned to an orchard where they splendidly demonstrated how to prune the different kinds of trees and bushes. It was very instructive and I wish it could be done in every neighborhood each season."

In Halton County.

Commencing at Bronte, on the lake front, and working back to Waterdown and Georgetown, a series of good meetings was held, Mr. Murray Pettit being the local director in charge. A full report of one of these meetings appeared in the "Weekly Sun," March 29th.

Lake Ontario District.

Here good meetings were held, commencing in York County and working east to Prince Edward County. The series is not

yet completed, but such reports as we have show, as we expected in this splendid apple-growing district, first class meetings and many strong local associations formed as a consequence. The local directors, Mr. Elmer Lick, Oshawa, H. J. Snelgrove, Cobourg and W. H. Dempsey, Trenton, were assisted by Mr. G. C. Caston, of Craighurst and Mr. G. H. Vroom of Middleton, N. S.

Practical Suggestions Made at Orchard Meetings.

In planting, trees should be given a slight slant toward the prevailing wind. The main roots should be placed so as to brace the trees against the wind, and the tree should be so headed that the main branches would not when loaded bend directly away from the tree and so be apt to break off.

Trees, after they have grown crooked, may be straightened somewhat by the use of the spade early in the spring when the ground is soft.

In pruning the south side of the tree it can be left a little thicker than the north side, as it receives more light and moisture.

It pays to thin over-loaded trees at least 20% as the remaining fruit will be of better quality.

A man who does not know a fruit bud from a leaf bud should never be allowed to prune a tree.

You can hasten the development of fruit spurs and multiply the fruit buds by checking the growth of the wood. This can be done by pruning the roots with a spade, or by nipping off the ends of twigs. The latter method is preferable as it does not impair the vitality of the tree as does the root cutting.

Where large wounds are made in the trees from cutting off large limbs the wound should at once be painted over. A good paint mixture is made by mixing 2 lbs. cement with 10 lbs. of milk. For an old wound where rotting has set in further in-

jury may be prevented by using two parts of cement and one of sand, completely covering the wound so as to exclude the air.

Orchards should be cultivated constantly until the middle of July, then a cover crop of clover, rape or rye, to be plowed under next spring.

Apples must be handled more like eggs than turnips if we expect to realize good prices for our fruit.

The Baldwin, Ben Davis, Greening and Spy are at present the favorite commercial variety.

Four years ago Reeve Coyle of Colborne purchased an orchard containing ten acres. The price was \$2,600. The crop gathered from that orchard in 1900 netted, after all expenses were paid, \$2,130. Mr. Coyle made the following statement at an orchard meeting in Colborne last week:—

"I shipped 800 barrels of apples from my orchard two years ago. The dealer to whom I consigned them said they were the best apples he had ever sold in the Liverpool market. There were not five barrels of wormy or scabby apples in the lot. The superiority of this fruit was due to the fact that I had persistently cultivated the orchard and pruned and sprayed my trees."

Bordeaux Mixture.—After the blue stone is dissolved it should be put in 20 gallons of water, and the lime after it is dissolved should be put in another twenty gallons of water. The two mixtures may then be brought together. If the lime and blue stone are mixed together undiluted they will curdle.

Mr. Caston strongly advises the use of lye as a wash for trunks of trees. It should be applied every second year after the old bark has been scraped off. It not only destroys all bark lice, but seems to have a tonic effect upon the tree.

Mr. A. McNeill says, "Each bud has its own individuality apart from the variety to which it belongs, just as each man has his

individuality apart from his race. No two buds, no two trees are exactly alike. Hence in budding or grafting, it is important we should select for that purpose."

Speaking at the Georgetown meeting, Mr. McNeill also made the following remark :—" I do not think our Fruit Experi-

ment Stations could do more useful work than by developing good trees from which to supply cuttings for grafting on commercial orchards in their neighborhood. This would be more useful work than developing varieties of doubtful merit."

Township Inspection for Scale—One of the most alarming features of the plague of scale is the apathy of some orchardists. Mr. Purdy's orchard we found badly infested ; his peach trees, Japan plums and pear trees were covered with it, and yet he was most apathetic. " I cannot get rid of this scale " he said, " it will clean out my orchard in a year or two I expect, but I lived before I had an orchard, and I can live after it is gone."

Now, if nobody suffered but Mr. Purdy, the situation would not be so serious ; but this plague is carried by wind and insects, robins carry it on their feet, and their very nests are alive with it, even flies will carry it ; what then will result if Mr. Purdy and others like him, have breeding orchards from which these pests will spread and cause their neighbors to suffer. Fortunately under a recent Act, local inspectors must be appointed by any municipal council, on the petition of fifteen ratepayers, and such inspectors will compel the owner of any such pestiferous orchard either to destroy his trees at once by fire, or to treat them as directed by provincial inspector.

Action was at once taken both in Grimsby, St. Catharines and Grantham, to the appointment of such local inspector for each of these municipalities.

The Stoney Creek Basket Factory is at work and has been since January, turning out several thousand baskets per day, in anticipation of a good crop the coming season.

About 30 hands are employed and the number will increase as the season advances.

The speed which the workman acquires is wonderful. In answer to my enquiry one man said he could make up from 400 to 500 a day. One little fellow of eight or ten was working in the divisions for berry crates. " I get," he said, " 10 cents a hundred for making them up, and I can make that many in about one hour and a half."

The basket business is one of the most important industries, because of the immense number now used by our fruit growers, who always give them away with the fruit. A traveller for an Ingersoll house says he sold 250,000 between Winona and Grimsby right under the nose of the local factories. One reason for his success was a patent fastener which saves much time in closing up or opening ; and then he was enterprising enough to have the new forms to correspond with the sizes required by the Act, while many of the factories are still at the old sizes, which will all need stamping the number of quarts they contain. The following is a list of the legal sizes of baskets :

No. 1. Capacity, 15 or more imperial quarts.

No. 2. Capacity, 11 imperial quarts, depth 5 $\frac{1}{4}$ inches.

No. 3. Capacity, 6 $\frac{2}{3}$ imperial quarts, depth 4 $\frac{1}{2}$ inches.

No. 4. Capacity, 2 $\frac{2}{3}$ imperial quarts, depth 4 inches.

No. 5. Berry box, 1 Winchester quart.

No. 6. Berry box, 1 Winchester pint.

THE QUARTER ACRE STRAWBERRY PATCH—II.

BY T. C. ROBINSON, OWEN SOUND.



FIG. 2313

Cultivation comes next. Some skilful growers say "begin the same day you plant, if the ground is dry enough," for it seems to start the plants into immediate growth. If not just then, as soon after as possible start cultivator and hoe close around every plant, or, best of all, loosen the soil with a hand rake. Keep the ground clean all summer. Don't wait for the weeds to start. To kill them before you can see them is by far the easiest way and pays the best. So long as the ground is loose on the surface, and the weather dry, the plants will do well without further cultivation. But as soon as a shower come the land settles, and the weed seeds sprout; so that as soon as the weather gets dry enough, cultivator, hoe or rake must loosen up the surface again, or the plants will suffer. This is the great rule in strawberry culture. But it is not for the strawberry alone. The strawberry does not need it any more than vege-

tables do. It is the one sure rule in growing a hoed crop of any kind.

Training.—Now for the training. This really involves a judicious sort of pruning. To get a large crop of fruit we want large plants and lots of them, and we want them well equipped with fruit-buds. These fruit-buds must be formed the summer and fall before fruiting; and the plants must have sufficient room and close cultivation in order to form them. Now most varieties, if allowed to grow unchecked, will use the sap, which we want to go to elaborate fruit-buds, in producing runners and young plants, and it will throw out these runners so as to root the young plants in the way of the hoe and cultivator, and especially so as to crowd each other. As a result, the matted row will contain a crowded mass of little plants which cannot be kept clean, and cannot produce more than one or two small fruit-stems per plant. These will all push at once, or nearly so; and hence there must result finally an inferior crop of small berries, all ripening within a few days causing an embarrassment to pick, a glut in the market, a drop in prices—and then—nothing more! To avoid such disaster, we resort to pruning and layering. Cut off the first two three runners, which are apt to be weak. The benefit of this will speedily appear in vigorous growth and size of plant. Then when good stout runners start out vigorously, select four of them to complete the plantation, and keep all the others cut off the whole season.

Now for Layering.—Consider where we want the plants—out of the way of the cultivator and far enough apart to admit the hoe. I have fixed upon the double row as

the best in most cases. First choose one pair of runners to complete the old row. Lead one runner out towards the nearest plant in the row on one side, drawing a little furrow with a stick to keep it from getting blown out of place, and lead the other runner out in the opposite direction. When this is done with every plant allowing each runner to form just two plants, all the rows will be full of plants about eight inches apart.

Now lead out to one side the other pair of runners to form a second row about eight inches from the first row. You need not wait till the first lot of rows are finished before starting the second lot. Each runner to be layered had better be done as soon as it is ready. The process of forming young plants will be greatly hastened by placing moist earth over the runner close around where the roots of the little plant are to strike out—if the runner is strong enough. But beware of putting earth over a young budding runner, or it will die. When a couple of leaves as large as a fifty cent piece have formed on the runner, it is old enough to be covered on the side next the parent plant. Now when this layering is all done, your rows will be arranged in couples with paths of about twenty-eight inches between each couple and the next, and your quarter acre should contain ten or twelve thousand plants, everyone of which can easily be kept clean with little or no hand weeding, which is the great object. Of course runners will start to grow from the young plants as they form and afterwards. They must vigorously be removed if the best results are wanted. Do not be tempted to train out a third row on the other side of each original row unless you want to shorten the fruiting season in order to produce a great rush of berries at first. This would be an advantage with the very early sorts. Michel's Early, possibly Crescent, and especially Excelsior, will probably be decidedly more profitable grown in

triple rows eight inches apart, with paths of twenty inches between triplet and the next; because they come in just when prices are so high. Often the grower will make more money out of half a crop of these early varieties than of a full crop of later ones. Then when they have done their best, and the berries run down in size to mibbins, the wise cultivator will clip off all the rest of the fruit unripened so as to throw the remaining strength of the plants into foliage, new root-growth and fruit-buds for next year's crop. Some early varieties thus treated in triple rows, followed by later varieties in double rows, will spread the fruiting season over a month on level soil, while if the early sorts can be set on a southern or south-eastern slope on light land and the late ones on a northern slope on clay loam, abundance of fruit may be gathered for six weeks. But the slopes must not be steep.

Yield.—How much should such a plantation yield? The yield will vary, not only as to careful treatment, soil, fertility and season, but also as to the age of the plants. With fair treatment the same plants will fruit three years in succession. The first crop should be over 1,500 quarts in a fair season; the second about 3,000; the third about 1,000; but on rich soil in good seasons, careful treatment might produce twice as much in each case.

The best tool for working between the plants is a "push hoe." Get one made to order as I did if you can't find what you want in the shops. A piece of cross-cut saw blade about five inches long and two inches wide fastened by two rivets at the middle of one side to a single six-inch shank of $\frac{3}{4}$ inch steel attached to a good long rake handle—this can easily be fashioned by any machinist or good blacksmith for sixty or eighty cents. Let the shank be curved so that when you stand upright and hold the end of the handle in one hand, with the arm stretched down-

wards at full length, the blade will lie quite flat on the floor with the shank on the upper side. Now file or grind the blade always on the upper side, and you have a tool with which you can hoe all around every plant and cut runners without stooping or jar, and do it as fast as two men with common hoes, even if your muscles are those of a lady. Such a hoe indeed may be used to clean the wide spaces also, if you have no horse; but in this case the blade should be longer, so as to cut a wider strip. A foot wide is not too large for a strong man in loose soil, but it works much easier if the cutting edge is not straight, but comes to a point in the middle and falls away at each side like a half-flattened-out letter "V." But beware of having two shanks attached to the blade like the old fashioned Dutch hoe, as they prevent the weeds from passing through in case you should be so unfortunate as to get behind with the work. But don't get behind if you can possibly help it. Your quarter acre patch can be hoed from beginning to end in a single day when the weeds are sprouting, more easily than it could in a whole week if they get established.

Varieties.—Stick to standard sorts for the crop, is the safe rule. Experiment with

novelties at one side in a small way, for that is how we get all our best varieties. Better not break a row with two varieties. Select your land, count your rows, measure their length, decide on how many rows for each variety, then order the plants.

For setting out eleven hundred plants on a quarter of an acre, I recommend to those just starting the following varieties in about these proportions: 500 Clyde, 300 Williams, 200 Excelsior, 100 Michel's Early. If the land is very light, and good Crescents can be obtained cheap, by all means get them instead of Clyde, but Clyde will sell far the best if you can raise them. If the land is low and mucky, William Belt may do better than Williams. If the berries must travel far or stay long in the box before using, leave out Michel's Early and add another hundred Excelsior, and in this case, if your land is rather clayey and quite rich, it might be well to grow good Wilsons instead of Clyde, because though smaller and less beautiful, the Wilson excels in firmness.

General descriptions of varieties, new and old, I must postpone to a later article, hoping that some who would be glad to grow this beautiful fruit may find these plain directions of some utility.

SOIL FOR CAULIFLOWER.

A deep, moist, clay soil is the best for cauliflowers, although good crops can be grown on any good garden soil. I cover the ground two or three inches deep with stable manure, and plow it in. Then harrow and furrow two and one-half feet apart. If I have well rotted manure, I scatter it in the furrow and mix it with the soil with the cultivator; or, if the manure is not at hand, I set the plants and in a few days apply around them a little commercial fertilizer that is rich in nitrogen. Vegetables of which the leaves or stocks are the edible parts need plenty of nitrogen in an available

form. The plants are transplanted at different times from May until June. Cauliflower plants from the hotbed should not be set too early, unless they are well hardened, for they are more easily injured by frosts than cabbages. I do the most of the cultivation with the wheel hoe and horse cultivator.

To insure success in a season, one must have some means of irrigation. I have now irrigating works in my garden, so that I may be prepared for drouths when they come. The plants should not stop growing at any time, hence the importance of irrigating them during a drouth.—*Ticks' Magazine.*



BEDDING GERANIUMS.

BY W. H. HUNT, SUPT. GREENHOUSES, O. A. C., GUELPH.

IT is oftentimes a most difficult task to select the best varieties of these most useful and popular bedding plants, and those most adapted for bedding out purposes, from amongst the numerous varieties now offered by florists and nurserymen. Despite the fact that many of the most prominent landscape architects and gardeners consider that a bed of scarlet or of any decidedly prominent color of geranium is somewhat out of keeping and shows bad taste if planted on a front lawn, the geranium is still the one universally popular bedding plant amongst the great majority of flower-lovers. The increased demand for these plants every season of recent years have brought to the front many beautiful varieties and types that have proved most useful as decorative plants, whether for the greenhouse or window in winter, or for the lawn and flower-garden in summer. Those of us who remember the varieties of bedding geraniums grown upwards of a quarter of a century ago, such as Scarlet Stella, which though beautiful in color would with its narrow petaled flowers and its loosely formed truss, bear no comparison (especially in

form) with such varieties as J. P. Cleary or even of the better known Alphonse Riccard, Gen. Grant and others having good records as bedding varieties at the present time. The old pink Christine and the Dwarf Scarlet Gen. Tom Thumb grown so extensively about the time that Scarlet Stella was such a favorite, have all been superseded by many varieties of greater merit, not only as decorative plants for the garden but also for cut flower purposes for use in the home. Although the old fashioned varieties that I have mentioned had of necessity to be dropped from our list they will be remembered by old time plant lovers as having been most useful in their day and as being the progenitors of the beautiful varieties and types now in existence.

A New Era.—With the introduction of the really double flowering varieties Glorie de Nancy (scarlet) and Madame (pink) about the year 1866, came a new era in geranium life. These were the heralds of the beautiful semi-double varieties that are so popular at the present day. Both of the varieties mentioned caused quite a sensation at the time of their introduction, but like many other new types of

plants did not apparently meet the requirements of the flower-loving public even at that time, their strong rank habit of growth and the density of their flowers in the truss, made them undesirable as either greenhouse or garden plants. Like the earlier types of the single flowered varieties before mentioned these, however, were useful in their day, and were the pioneers of the lovely double and semi-double varieties now so extensively grown and admired.

Amongst the double and semi-double varieties of geraniums useful as bedding plants, there is none more reliable and deservedly popular than the rich crimson flowering variety, S. A. Nutt. Whether planted in masses or used in ribbon borders, or even as a simple plant in the border, this variety with its dwarf and free flowering habit, is generally regarded as the peer amongst what may be termed the ironclad varieties of geraniums, having a good robust constitution.

Amongst Scarlet Geraniums for bedding, C. Morel seems destined to become a great favorite. The trying season of 1901, with its alternate intervals of intense tropical heat for a few days, followed by a quite temperate spell for the same period, seemed unable to dim the lustre of its vivid scarlet flowers, or check it in its sturdy growth. Unless it develops some unexpected form of deterioration, the same as the Bruant geranium has of recent years, viz., in going back almost to a single flowering variety, C. Morel must have a place amongst the scarlet bedding geraniums.

Alphonse Ricard is also a reliable variety, succeeding well under very adverse circumstances, its flowers also give us a pleasing relief with their soft orange shading. Raspail Improved I do not consider a good bedding variety as it does not stand the sun well and is too upright in its habit of growth to make it a good bedding variety.

Beaute Poitevine is a good bright salmon flowering kind, and succeeds well outside in summer.

For a pink flowering variety Jean Viand can be recommended. Where this variety was tested last season it gave good results, stood the hot sun well, the flowers retaining their form and color even when severe heat and heavy rain storms sadly marred the beauty of many other varieties growing near it. The old dwarf growing variety Waddington, that has deservedly earned for itself the name of "Pink Bedder" as well as several other synonyms, cannot yet be discarded from the list of pink geraniums. For a small bed or for ribbon effect this variety is in my opinion still unsurpassed as a bedder, but is of little use as a pot plant or for winter flowering purposes.

Amongst the lighter colored double varieties, La Favorite for a white is probably the best white flowered bedding variety. Hermine that produces its ivory white flowers in such profusion, when grown as a pot plant for the window or greenhouse in winter, is not adapted for a bedding geranium, the hot sun stunting its growth and often stripping it almost entirely of its small delicate foliage. Gloire de France, another good variety when grown as a pot plant, is also of very little use as a bedding variety. Its pretty pink and white flowers and its pretty marked foliage, however, make it still one of the best varieties for a window, or for the conservatory.

Amongst the single flowering kinds, Gen. Grant for a scarlet still holds a place, and is very effective when massed in large beds, or when used in ribbon or mixed borders.

Meteor is another good variety, not quite as intense in color as Gen. Grant.

John P. Cleary comes as near what is considered a perfect flower as any of the single flowering varieties, and where tested has stood the sun extremely well. A fully

developed truss of this variety is a pleasing sight to all who love a soft orange scarlet flowering geranium.

Mrs. E. G. Hill is not yet surpassed for habit of growth and for producing a wealth of bloom under almost any condition of growth.

Dryden is a single flowering variety that promises well as a bedding variety. Its finely formed and beautifully blotched and tinted rose red flowers, makes it quite an acceptable addition to the list of single bedding geraniums.

Amongst the silver foliaged geraniums there is nothing can outdo Madame Salleroi, especially as an edging or border plant. Mountain of Snow is about the only other variety of silver edged geraniums worthy of growing as a bedding plant.

Tricolors and bronze geraniums cannot be included amongst the list of bedding geraniums, being far more difficult to succeed with than even the most delicate of our summer flowering begonias. As pot or window plants they still have a place, but are of too delicate a nature to succeed as bedding plants.

There are many more varieties of geraniums that could be spoken of as good bedding varieties other than those I have mentioned. Those that I have mentioned are varieties that will give good satisfaction with perhaps less care and attention than many other varieties, a fact that has influenced me materially in recommending them for out door decorative purposes.

HARDY PERENNIALS.

BY WEBSTER BROS., HAMILTON.



MAY *QUILEGIA* *Oxysepala* continues to excite great interest when in flower; it is the earliest of the *Columbines* so far as we know. This is the same variety disseminated as a premium some years ago by the F. G. A. as *A. Bergeriana*, but according to the Central Experimental Farm the former name is correct.

Anemone, *Queen Charlotte*, is a real beauty, it is the first pink *Anemone* of this class and is at the same time the best of all the *Japan Anemones*, being larger and of better substance than *Whirlwind* and a beautiful pink shade much like *Rose La France*. These *Anemones* may be flowered to great advantage, if lifted and potted before the buds begin to open, a little shade for a few days is all that is necessary to get them established; then, if kept in a cool conservatory or even in a cold frame, away from the

wind or light frosts, the flowers open much larger and more perfectly.

Doronicum plantagineum excelsum is a dwarf yellow flowering plant, bearing handsome flowers resembling some of the *Sunflowers*; it is very pretty but suffers somewhat during winter when the snow fall is light.

Helenium Autumnal Superbum is one of the most noticeable of late bloomers; its flowers remind one of *Giant Buttercups*; it is a plant that should have lots of room. When it blooms it is a specimen of great beauty.

Phlox Etna has proved the best scarlet variety of the tall *phloxes* we have tried. We are trying some of the *potentillas* from a British collection but fear they will not stand the rigor of this climate.



FIG. 2314. CAMELLIA.

SPECIMEN CAMELLIA.

BY W. H. HUNT, HAMILTON, ONT.

THE accompanying cut from a photograph of a splendid specimen of these almost forgotten greenhouse shrubs will no doubt interest most readers of the *Horticulturist*, more especially those who have seen these plants in conservatories and greenhouses in the old land. There are few even of the smallest specimens of the *Camellia* to be found amongst our plant collections of the present day.

Very few plant lovers have been successful in their culture in Canada, three or four years of a gradual declining existence being as a rule the outcome of any attempt to grow these natives of Japan and China. Mr. Thos. Kilvington, the well-known Hamilton florist, has certainly overcome the difficulties usually experienced in the successful culture of the *Camellia*. The plant, as shown in the engraving, is really a noble specimen and can be seen at any time in his greenhouses. It is seldom that it can be found without a few buds or blossoms of its

beautifully imbricated rose-colored flowers, its flowering season usually extending from September until well on to June or July of the following year. It was planted in its present position by Mr. Kilvington about eighteen years ago and has produced annually, for ten or twelve years past, about two hundred and fifty blossoms. It is planted in an open border, in a lean-to house, having an east aspect. The border is about two feet six inches in depth and about three feet in width, so that it has plenty of root room as well as allowing facilities for an abundant supply of water at the roots. This latter condition is probably the principal factor in its successful culture. It endures a very variable temperature during the year from 50° in winter to 120° in the hottest days of summer.

The plant is about six feet in height and three or four feet through the densest part of the plant, and but for a severe annual pruning that it receives, it would, as its

owner remarked, soon require a much higher house to accommodate it. Near by the Camellia in the same border is a splendid specimen of the beautiful trailing shrub *Rhynchospermum jasminoides*, which at this season of the year is usually almost completely covered with its white, sweet scented jasmine-like flowers.

It is a pleasing sight, and will well repay a visit to Mr. Kilvington's green-

houses to see these choice specimens of plants that are so seldom seen now in greenhouse collections, not to mention anything of the pleasure a flower lover derives from a walk through his well kept and select general collection of florists' plants.

The accompanying photo was taken very recently at a time when it does not show up the plant to the best advantage, so far as its profuse flowering habit is concerned.

NEW FRUITS.

The McKinley Grape was introduced last year by Allen L. Wood of Rochester. It is a cross between Niagara and Moore's Early, and is two weeks earlier than Niagara in ripening. The originator claims that the berries are as fine as those of Diamond, and that the vine is very productive. The bunches are said to be compact and firm, and the fruit sweet throughout the pulp.

Perfection Currant.—The fact of this currant having received the award of the Barry medal at Rochester this season, leads us to look upon it as of real value. It was originated by Mr. C. E. Hooker of that city, and has been tested at the Geneva Station, where it has been given a favorable notice. Cuttings were planted in 1897 and these are now bearing so freely that it is pretty safe to look upon the bush as productive, while the size of both the cluster and berry are even larger than Fay. The flavor and quality, too, according to Prof. Beach, is better than either Fay or Cherry.

Harris Raspberry.—The originator writes us that we must plant the bushes in heavy rich soil, and that they must not be trimmed at all, at any time in the year, except to remove the dead wood; that they will be a failure if treated as other berries are treated. We have sent samples for testing to A. E. Sherrington, Walkerton, and A. E. Peart, Burlington. This raspberry was a chance seedling found growing near Rochester. The following points are claimed in its favor. (1.) A dwarf plant, needing no staking or trimming back. (2.) Fruit larger than Cuthbert. (3.) Longer bearing season, $\frac{1}{4}$ crop ripening before Cuthbert and $\frac{1}{4}$ after. (4.) Very hardy. The report of the Geneva Experiment Station gives it credit for greater productiveness than Cuthbert, a yield of 25 feet of row yielding 290 ounces, and Cuthbert only about 150. Prof. Beach wrote of it in 1896 as follows.—A row of Harris set in 1889 yielded nearly twelve pounds of fruit per rod in 1894. This is at the rate of over 5000 pounds per acre, with rows 6 feet apart as we grow them.



The Canadian Horticulturist

COPY for journal should reach the editor as early in the month as possible, never later than the 12th. It should be addressed to L. Woolverton, Grimsby, Ontario.

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

REMITTANCES by Registered Letter or Post-Office Order addressed The Secretary of the Fruit Growers' Association, Parliament Buildings, Toronto, are at our risk. Receipts will be acknowledged upon the Address Label.

ADVERTISING RATES quoted on application. Circulation, 5,500 copies per month. Copy received up to 24th.

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.

ADDRESS money letters, subscription and business letters of every kind to the Secretary of the Ontario Fruit Growers' Association, Department of Agriculture, Toronto.

POST OFFICE ORDERS, cheques, postal notes, etc., should be made payable to G. C. Creelman, Toronto.

QUESTION DRAWER.

Pears to Cover the Season.

1282. SIR,—I have about three-quarters of an acre here, clay soil, which I intend to plant in pears. I am planting because I do not like to see bare land, and I have no intention of building on it. I expect to derive much pleasure in growing the fruit, and I desire to make it as profitable as I can. I have done some farming and managed to make the farm pay expenses, so I hope to do all right in pears when I have found out what to plant. I am intending to plant 24 feet apart, I want the crop to drag through the whole pear season, so that I will have pears to use and sell from start to finish; and, what is more, I want to have the crop coming in so gradually that its care will furnish me with occupation over a long season, without amounting to a rush. There will be fifty trees. What pears I do not use I could likely find market for in the village, or at the canning factory; and I would like you to advise me what kinds to plant and how many of each. I want summer, autumn and winter pears, and it strikes me I should not have many varieties. From reading my journal and the reports of the fruit growers, etc., I begin to fear there is more difficulty ahead of me than I at first thought. At home in Norfolk, where we were farmers, we had Bartlett and

Flemish Beauty pear trees standing in sod, but never heard of blight, etc. We did not know there were these enemies.

Cayuga.

T. A. SNYDER.

For such a collection, as is proposed by our correspondent, chiefly for home uses, we would recommend the following as a desirable list:—

Summer—Doyenne d'Ete, Giffard, Wilder, Clapp's Favorite, Bartlett.

Autumn—Bose, Clairgeau, Sheldon.

Winter—Lawrence, Josephine de Malines, Easter Beurre.

This list would cover the season, beginning with that delicious little dessert pear, the Summer Doyenne, which is as pretty as it is good, and ripens in July; and ending with the Easter Beurre, which makes up in good quality what it lacks in appearance, and may be held for market until March.

*Questions Answered***Grafting.**

1283. SIR.—I am grafting in this section this spring. There are some who have set out Talman Sweets for grafting; this will be the third year they have been planted. Would you advise them to be grafted this spring and if so would you graft them near the ground, just below the branches, or graft the limbs. Some want them done one place and some another, so I would get your opinion in the matter.

Port Perry.

JOHN MACLACHLAN.

It is simply a matter of choice. We would prefer to splice graft the trunk just where the top is expected to form, especially if it has made a nice straight growth. The Talman makes a fine healthy stock, and should form a good trunk for carrying the top.

Kettles for Cooking Lime and Sulphur.

1284. SIR.—What kettles ought I to use for cooking the lime, salt and sulphur wash.

A SUBSCRIBER.

If kettles are used I would prefer two fifty gallon kettles, as plenty of hot water should be always on hand, and two are almost necessary to economize time. A second lot may be commenced in one while the first is finishing, and, when the first is emptied into the barrel it can at once be filled with water for completing a second lot. Cooking by steam is no doubt much more economical, where practicable.

Burlington.

G. E. FISHER.

Crude Oil for Canker Worm.

1285. SIR.—Do you think spraying with crude oil, before the leaves open, would kill the eggs of the canker worm, now thick on the orchard trees.

A SUBSCRIBER.

Henry Clendenning of Manilla says he killed oyster shell bark louse eggs by spraying his apple trees with crude oil, immediately before the leaves appeared. The oil might kill the eggs of the canker worm but I have had no experience. The vitality of eggs is hard to destroy, but I think it well worth trying. I think I have succeeded in catching most of the canker worm moths in my orchard last fall with the sticky bandage.

Freeman, Ont.

GEO. E. FISHER.

Canker Worm.

1286. SIR.—The canker worm was bad in my Spy orchard last year, and the eggs are very abundant. How had I better treat them? Would crude petroleum kill the eggs? A SUBSCRIBER.

I have your letter of the 31st ult. I consider the best remedy for Canker worms is to band the trees in autumn and spring with bands of paper smeared with a mixture of castor oil and resin, as recommended in my reports. In spring as soon as the leaves expand the trees should be sprayed with poisoned Bordeaux mixture using the regular formula recommended by us, namely, four pounds of copper sulphate, four pounds of fresh lime, four ounces of paris green and forty gallons of water.

J. FLETCHER,

Dominion Entomologist.

Export of Fruit.

1287. SIR.—Do you think it best for a shipper of fruit to England to deal with one commission house, or with a number of large "purveyors" or retailers?

What is the smallest amount of space to be obtained on board of ship in cold storage?

Does all fruit delivered at Liverpool have to be shipped via canal if for Manchester, or is railroad as cheap?

If you were one of a company expecting to trade as above, would you think it best to have a representative meet personally the commission firm to whom shipments are expected to be made? In other words, isn't it more satisfactory on both sides to come into personal touch at the start?

How many bushel boxes, or how many barrels can be packed in the smallest space a steamer will contract for in cold storage?

SUBSCRIBER AT ROCHESTER.

I think it far best that you should deal entirely with one first-class house, and grow into mutual confidence.

The amount of space you can get in cold storage depends upon the outfit of the steamer. The usual amount is about four carloads, or between 5000 and 6000 cubic feet, but sometimes these compartments are subdivided.

In shipping to Manchester, you can have the fruit forwarded either by rail or ship canal as you please; the latter is considered

cheapest. I think a personal interview at the outset might prevent a great many misunderstandings.—*The Editor.*

Cherry Aphid.

1288. SIR,—I propose to try the crude petroleum for cherry aphid. When should I apply it? Is it useful for any other purpose? A SUBSCRIBER.

In treating trees for aphid I think the treatment should be late, when here and there a blossom is open is the time. Crude oil is useful for many purposes. It is good to paint tools with to keep them from rusting. Whale oil soap applied very late has reduced aphid very much.

Freeman.

GEO. E. FISHER.

Ferns and Insects. (See question 1277).

SIR.—No doubt the insect destroying the foliage of the ferns belonging to Miss E. P. Battersey, is the fern thrip; an insect not easily got rid of. I thought that some might be glad to know the following receipt for destroying this insect: take one ordinary tea cup full of whale oil soap, dilute the same in a patent pailful of hot water, when cool, dip or spray the plants; this will kill the scale, green fly and red spider. Before using test a branch of your plants in it, for fear that it might be too strong. I use it on all plants, even on coleus.

Niagara Falls South.

R. CAMERON.

The Laburnum. (See question 1274).

SIR, I have no doubt that your answer as to the tree not being hardy in the province of Quebec is quite correct, but in the vicinity of Niagara Falls it grows and blooms beautifully. This tree is better planted in the shade, in a heavy loam, well drained.

Niagara Falls South.

R. CAMERON.

OPEN LETTERS.

Apple Boxes.

SIR,—In the January number of your valuable journal page 55, Mr. N. J. Brandrith, Secretary B. C. F. G. Association, writes regarding apple boxes, suggesting uniformity.

This question is of importance throughout the Pacific slope fruit growing region, and has attracted the attention of the fruit growers and handlers, as well as the box makers for some time.

At the meeting of the Northwest Fruit Growers' Association in Portland, Ore., in February, 1901, the matter was up for consideration during a part of two days, and after careful deliberation of a representative committee, of not only orchardists, but also commission men, railroad men, express men and box makers, they reported recommending two sizes, or rather two forms of boxes for apples, which report was unanimously adopted.

One box, the "Standard", to be 18 inches long, 11½ inches wide, and 10½ inches deep. Another the "Special" to be 20 inches long, 11 inches wide and 10 inches deep, all inside measure. It was recommended that end material be ½ inches thick and the sides ¾ inches.

At the recent meeting of the Association, January 25th, 26th, 1902, at Walla Walla, Washington Ty., the matter was reviewed at length and the action of a year ago affirmed, to adopt and use these sized boxes. These boxes are destined to become the standard in the states of Oregon, Idaho and Washington, and as British Columbia is included in the territory covered by this Association, it should be the standard in that Province as well.

H. N. J. R. Anderson, Deputy Minister of Agriculture for B. C., is an active member of the N. W.

F. G. Association, and Vice-president for the B. C. Association, was present when the action was taken in 1901, and would, I have no doubt, render the B. C. F. G. Association valuable assistance in settling this troublesome question. I would advise Secretary Brandrith to put himself and the Association he represents into communication with Mr. Anderson, and use their best endeavors to bring about a uniformity in apple packages throughout all our territory. Hoping to see this accomplished.

Nampa, Idaho.

ROBERT MILLIKEN,

Sec'y Idaho Station Hort. Soc.

We cannot see the wisdom of recommending two sizes of apple boxes. Here is the great fault with our fruit packages, now that we have so many sizes, that no longer can we tell what we mean when we quote the price of box or basket? And when it comes to loading a car for distant shipment, how in the world can we pack to advantage, with so many different sizes? And again, when engaging space on the steamship in a cold storage compartment, how can we reckon how many cubic feet we need for, say one thousand packages of different sizes? If, on the other hand, a box is say 10½ x 11½ x 22 outside measurement, we can, allowing for

ventilating space, and count that each box will require two cubic feet of space.

We in Ontario have thought this matter out so closely that we are trying to bring all cases for all fruits to one exterior size, and trying to fit the smaller interior boxes to fit. To do this we may possibly have to vary the standard exterior a little from the apple box, but we would certainly hail such a case with great satisfaction, and we are trying to work out the problem this very season.



FIG. 2315.

Two Rare Plants.

SIR,—I enclose you a photograph showing two rare plants, the one to the left with the palm-like leaves is *Begonia luxurans*; the plant looks very unlike a *begonia* in growth and flower; it produces flat panicles of pure white flowers in summer. The plant is very decorative on account of its beautiful foliage.

The plant to the right is a shrubby variety of the *Eupatorium*, producing very large terminal corymbs of purple flowers during winter. The leaves are large ovate, height three feet, a native of Mexico. This is a very useful winter flowering greenhouse plant, that should be better known. The flowers are larger in panicle, and the florets individual, in form and color of flowers very like a large *Ageratum*.

Niagara Falls South.

R. CAMERON.

Prize for Hardy Plants.

SIR,—I have noticed for some years in the Toronto Industrial Exhibition prize list, a prize offered for the best collection of hardy plants, including fancy foliage or ornamental foliage, cutspecimens. Now, Mr. Editor, anyone familiar with the subject will know that this will include trees, shrubs and hardy perennials, cultivated and uncultivated, comprising hundreds of specimens: all correctly labeled, and only five dollars is offered as a prize. In my estimation five dollars is little enough for each division, let alone the whole three.

Every year there is a large sum of money offered in prizes for collections of tropical plants. Now I find no fault with tropical plants, they are useful and educative: but how much more important is it to cultivate a taste for hardy plants suitable to our own climate, and what better place to show these plants and cultivate that taste than at the Industrial Exhibition?

From the interest shown by the public at Farmer's Institute and Horticultural meetings, it would seem as if they wished to become better acquainted with such stock. Nurserymen will tell us that they cannot sell such plants, but from my experience it would seem that they are mistaken, if the numerous questions that are asked of me regarding where such stock can be got, how to care for it, etc., count for anything.

I hope that the attention of the directors of the Industrial Exhibition may be drawn to the above subject, and that it may meet with their approval, and that they will see fit to make the desired changes. Fostering a love for such plants means beautifying our homes and our province, linking therewith health, wealth and contentment.

Niagara Falls South. RODERICK CAMERON.

The Lime Washes.

SIR,—In the April number of the Canadian Horticulturist Mr. Jeremiah S. Clark, of Bayview, P. E. I., wished to know if there was any difference between the lime, sulphur and salt mixture recommended by Mr. Geo. E. Fisher and the lime and salt mixture recommended by myself. The reply stated that the wash recommended by me was simply to retard bloom. I write to correct this, as for more than two years I have advocated its use for the eradication of oyster shell bark louse, and as recently as in the February number of the Horticulturist, which was referred to by Mr. Clark. This wash has given great satisfaction when used as directed, and I believe it to be the best known remedy for the oyster shell bark louse.

Its effects on the San Jose Scale have not been satisfactory, however. In December, 1900, with the assistance of Mr. Geo. E. Fisher, some experiments were tried at Niagara, but it apparently had no injurious effect on the San Jose scale. The mixture used at that time was made with lime, salt, milk and water. The lime, salt and sulphur mixture as now recommended by Mr. Fisher has evidently given good satisfaction.

Yours truly,

W. T. MALCOLM,
Horticulturist.

The Canadian Fruit at the Glasgow Exhibition, from an English Fruitman's Point of View.

SIR, — I have perused in your admirable issue of January with very great interest, the report of Mr. R. Hamilton, and I am sure you will join with me and my English confreres in wishing that our Canadian cousins will get at the real truth about the fruit exhibits, so that in their trade with this country, they may not be led astray.

I have the honor to be associated with the only paper, I think, which takes up the fruit question altogether from its commercial standpoint in this country, and moreover we are not of that number who would exclude the importations of fruit, etc., in order that our home growers may keep the field. We rather welcome all good fruit that comes, especially that from Canada, and advise our home growers to go in for newer methods of cultivation. For years we have been advising them to restrict the number of varieties, especially of apples, and grow only 6 to 8 varieties suited to the market requirements. On reading the report of your correspondent I was inclined to hold forth upon the grit and go of Canada, and I did so to my chief, and I think I cannot do better than give you just what we said.

I personally was unable to go to Glasgow during the time the Exhibition was on. Your correspondent speaks of the praise of the public. He must remember that the general public know little of fruit culture as we see it and they probably did

"Blow in his lug a bit." My chief says: "My object in going there (to Glasgow) was to look at this Canadian Fruit Exhibit. I was not greatly impressed, in fact it struck me as rather a slow show, although a fine exhibit in many respects. There was some excellent bottled stuff from Canada and in matters agricultural a fine display was made, but speaking generally of the apple show, a few sorts of apples were good but there were such a thundering lot of sorts that one was bewildered. If they could have reduced the very large number of sorts to about 6 or 7 and have covered a table 5 or 6 feet square with them they would in my opinion have made some impression. I thought you would like to know this." Regarding your notes as to packages, I quite agree with Hamilton that the barrel is doomed, and we understand that a package, which we strongly recommend Canadian senders to adopt is gradually being adopted with best fruit, i. e., a small case containing about 40 pounds of fruit. The Australian and Tasmanian shippers especially have taken our advantage to heart and have adopted our form of package generally."

Such, Mr. Editor, is the outcome of the Glasgow Exhibit as seen by practical fruit-growing eyes, and by one who is strenuously advocating all things that can tend to bring good cheap fruit to the millions in the old country, and by one who at the same time as strenuously strives to get these things done to the advantage of the grower and fruit salesmen.

W. F. EMITAGE.

OUR AFFILIATED SOCIETIES.

Kincardine.—Mr. Welsh, the President, occupied the chair in his usual manner. After his introductory remarks the H. S. students, or a number of them, gave two of their excellent selections, a drill and chorus, "Coon, Coon, Coon." As our readers know, the meetings and entertainment were held under the auspices of the Ontario Fruit Growers' Association conjointly with the Kincardine Horticultural Society, and the best speakers of course were procured. The first to appear upon the platform was Mrs. Torrance of Chateauguay, Quebec. She gave an excellent address on "Every day plants of our homes and gardens." She started out by giving some practical suggestions in beautifying our school grounds and streets. She very sensibly recommended the planting of nut trees along with our beautiful maples. For the sake of effect and to imitate nature she said we should not plant trees in rows and one just opposite another in our lawns and parks, etc. She admired the barberry of which there were fifty-two varieties. She then explained the cultivation of such shrubs and plants as the spirea, hydrangea, catalpas, etc. Her remarks on the perennials were full of interest from first to last. The home, she said, was the foundation of the nation. We should beautify it. Men and women should assist each other in making the

home the happiest place on earth. "There is no place like home, be it ever so humble." The speaker dwelt upon the necessity of harmony in colors, the same as in dress. A score or more of plants were named in decorating the yards and lawns. Biennials also were discussed, among them being the pea and veronica. The chairman requested anyone in the audience to ask the speaker some question, and failing in this he gave his experience in growing walnut trees on his farm, which was interesting.

At this stage of the meeting sixteen young women (H. S. students) dressed in white, made their appearance on the platform and rendered in grand style the old southern melody, Peck-a-low. The mandolin accompaniment was very fine, the operator being behind the curtain.

The chairman then introduced the next speaker, Mr. E. B. Stevenson, M. A. of Jordan Station, Ont. His subject, "Strawberry culture and the promising new varieties," was taken up after a smart little talk about "Bulb growing." He had had a talk with the young folk in the afternoon in the same place and was warmed up. His remarks were not only timely but appreciated by his large audience. He reckoned the Kincardine Horticultural Society was booming, when such large crowds would come to hear talks about Horticulture. He

dilated upon the benefit of being a member of the Society.

His talk on strawberry culture was very interesting. Men have made from \$200 to \$1000 from one acre. The eyes of the small boys opened and their mouths watered as he told about the large strawberries—as large as snow apples—that had to be sliced to be eaten. In fact he said they were too large to go into the boys' mouths. If the speaker had a plot of ground he would have it half in strawberries. The H. S. Zobo band gave a selection in fine style which was applauded.

The Society may feel grateful for having such first-class officers. There are 116 good members and "there's more to follow."

Mitchell.—On the 17th of March we held our second annual Horticultural Society meeting in the Town Hall. Like its predecessor of the year before it proved a large, select and enthusiastic gathering. The hall was crowded to the doors, and when Mrs. Torrance rose to speak she said that she had never before seen so many prominent, and would-be prominent citizens on the platform. This alluded first to the fact that all the clergymen and other prominent citizens occupied seats on the platform, and secondly to the fact that the front of the platform was crowded with boys who had been driven from their seats on the floor of the hall by the immense crowd. The musical program was very choice, and the floral display furnished by Mr. C. E. Skinner of our local greenhouse, supplemented by some of the society members, was exceedingly pretty and inspiring.

Dr. Smith, the society president, first introduced the Secretary, who told in a few words what the society had done so far, and was likely to do for the current year. Besides the plant distribution last spring, \$50 worth of bulbs—tulips and hyacinths—has been distributed among the seventy-four members last fall, and in addition to the ordinary plant distribution this spring, one thousand gladioli, purchased from Mr. Groff of Simcoe, will be distributed among the members. This will still leave the government grant, about \$50, to be invested in bulbs for the fall.

Dr. Smith being called away, Mr. W. Elliot, B. A., vice-president, took the chair, and called upon Mrs. Torrance as the first speaker. She gave an instructive talk on shrubbing for the lawn, the best shrubs for the lawn, the system and methods of planting, and care after planting. The second speaker was Rev. R. S. Howard of Trinity Church, who gave a very inspiring address on the pleasures and influences of floral culture in and about the home. The third speaker was Mr. R. B. Stevenson, who talked first on verandah decoration, and then on the preparation of soil for pottery plants. So instructive was Mr. Stevenson that some of the audience asked him to talk for a few minutes on strawberry culture for the family table. It was nearly eleven o'clock when Mr. Stevenson sat down and the meeting was dismissed with the national anthem, led by Rev. A. McAuly of Knox Church, who, as well as Rev. Mr. Howard, Rev. Mr. Kenner and Rev. Mr. Whiting, is an enthusiastic member of the society.

OUR BOOK TABLE.

***SYLVAN ONTARIO.**—It is well that Educationists are considering Nature study as a means of developing habits of observation and discrimination, for there is abundant evidence that such training is needed. We do not expect city-bred people to be familiar with the various trees and shrubs adorning our rural landscape, yet we are fully persuaded that our country-bred are as little able to name correctly the different species of the trees mayhap growing on their own farms, to say nothing of the shrubs.

The appearance of this work at this time is very opportune. It is very creditable both to the enterprise and scholarship of the author. The very modest price places it within the reach of everyone. It should be used in the public schools of city, town and country. It should be in every family where the boys and girls can learn to know the distinctive features of each tree and shrub, thus forming an intimacy with nature that will be a source of purest pleasure through all of life.

Sylvan Ontario, a guide to our native trees and shrubs. By W. H. Muldrew, B. A., Dr. Paed., principal of the Gravenhurst High School. Illustrated with 131 leaf drawings. Toronto, Wm. Briggs, cloth limp 51 cents, cloth boards 75 cents, leather limp \$1.50.

The text opens with an exhaustive and simple explanation of the terms used in describing leaves in all of their varied forms and peculiarities. This is followed by a leaf index which enables the reader, now become familiar with the descriptive terms, to ascertain the botanical name and the number under which the plant is more fully described in succeeding pages. By the use of the leaf-index and the drawings, in which will be found a typical delineation of every form of leaf, it is a very simple and easy matter to become thoroughly acquainted with the botanical and the common names of all of our arborescent plants. The descriptions given are necessarily short, yet give valuable information concerning each of the two hundred and ten Ontario trees and shrubs.

307 Givens St, Toronto.

D. W. BEADLE.

COUNTRY LIFE IN AMERICA for April, if possible surpasses all previous numbers in general excellence. The illustrations are superb, and the reading matter elegant. Nothing equal to this journal has ever before appeared, and the price is reasonable, only \$3 a year. The publishers are Doubleday, Page & Co., 34 Union Square East, New York City.