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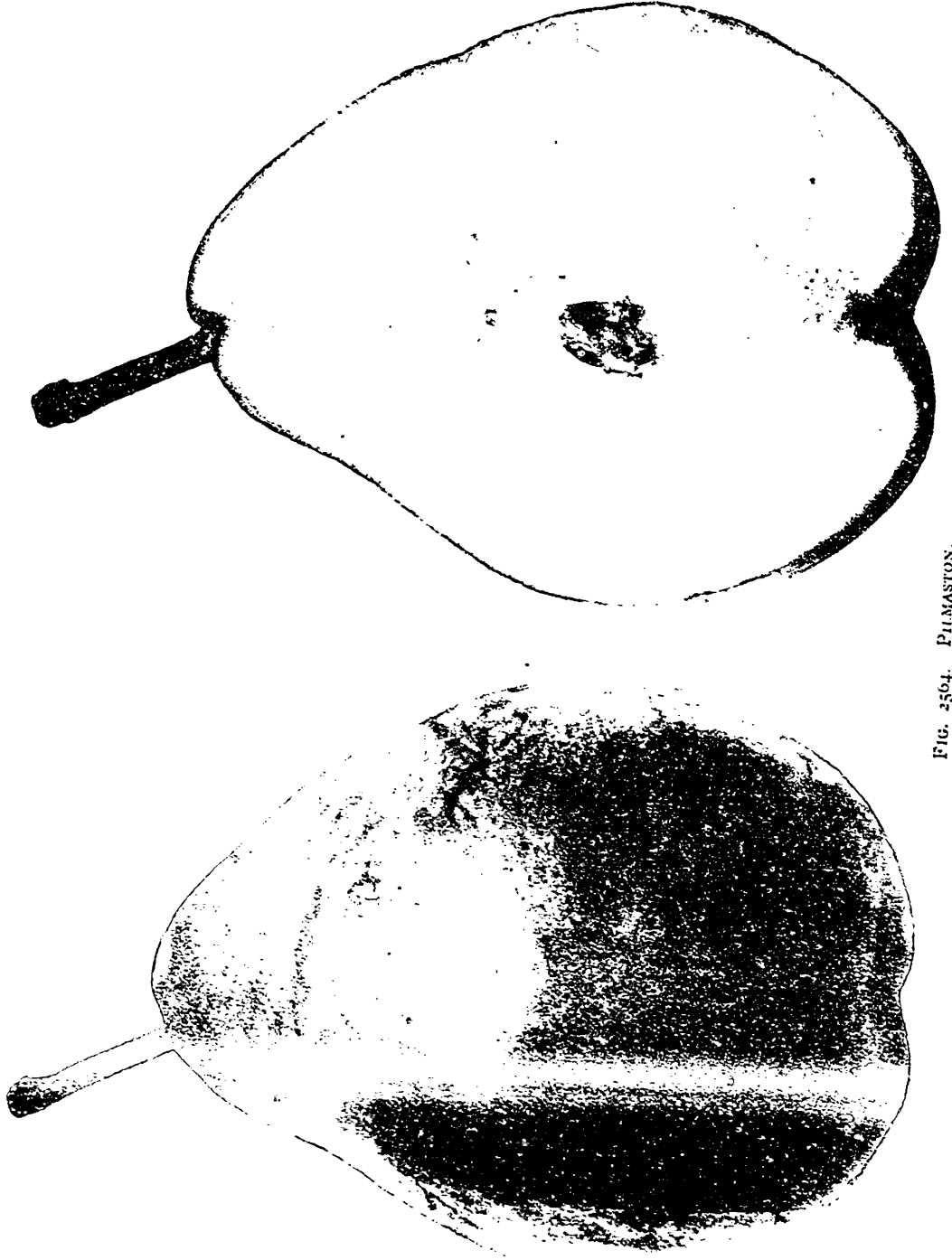


FIG. 2564. PUMASTON.

THE CANADIAN HORTICULTURIST

APRIL, 1903

VOLUME XXVI



NUMBER 4

PITMASTON

(PITMASTON DUCHESSE D'ANGOULEME)

THIS is a pear which has succeeded so well in our own orchard at Grimsby that we are anxious to see it tested in all parts of Ontario where dwarf pears will flourish.

ORIGIN: Raised by the late Mr. Williams, of Pitmaston, near Worcester, England, from crossing Duchesse d'Angouleme with Glout Morceau, and originally known as Pitmaston Duchesse d'Angouleme.

TREE: Vigorous, productive, and suited to pyramidal training.

FRUIT: Very large and handsome, sometimes $4\frac{1}{4}$ inches long by $2\frac{3}{4}$ inches wide; skin, smooth, fine; color, pale lemon, thickly covered with patches of delicate cinnamon colored russet; stem, one inch long, stout, and inserted either level or in a small narrow basin; calyx large and open, set in a wide cavity.

FLESH: Tender, melting, and very juicy; flavor, very rich, vinous, perfumed.

QUALITY: Very good.

VALUE: First-class for distant shipment.

SEASON: October and November.

REPORTS OF PITMASTON.

DR. ROBERT HOGG, Vice-President of the Royal Horticultural Society, London, England: "A very handsome pear of the finest quality; in use from October till the end of November. Fruit too large to be grown as a standard."

MR. R. D. BLACKMORE, of Teddington, England: "It is good, but not of the first quality; much better than Glout Morceau or Duchess, but worthless on a wall."

THE DWARF PEAR ORCHARD.

Mr. Wm. Armstrong, Barric, Ont., writes as follows:

SIR.—I am thinking about planting some dwarf pears, such as Bartlett, Duchesse and Clapp's Favorite. What about the Dumisey? Also about some Jagan plums, Red June or Burbank.

I have good strong clay soil, and rich. What would your choice be out of the above pears, and what would you advise me to plant. All for home markets.

In planting an orchard of dwarf pears for the home markets, one should seek to cover the season so as to keep up successive shipments.

The very earliest pear is the Doyenne d'Ete, a small but delicious dessert variety, the Seckel of its season, which is about the last of July.

The Chambers follows very closely, and is, in our opinion, most promising for profit. Some years ago we planted two trees in our experimental plot, and these have proved regular and abundant bearers. The fruit is of medium size, yellow, with a pretty shading of red, and the flesh sweet, tender, and of fair quality. So far we do not know that it has a place in Canadian pear orchards, for no one seems to be acquainted with it. It is of American origin, having been brought from Maryland to Kentucky by Judge Chambers, where it was counted very profitable as a market variety.

Then about the middle of August comes Giffard, a French pear of most agreeable flavor and white melting flesh. On our deep rich sandy loam at Maplehurst this pear grows much above medium size, and its markings of red on yellow ground make it a very attractive pear in the market basket. Mr. M. Pettit, of Winona, makes it one of his principal commercial varieties.

Clapp's Favorite follows toward the end of August. A large, beautiful pear, yellow, with rich markings of fawn and crimson, and excellent in quality, if gathered before it becomes mealy. It should not be omitted in planting for the home market.

Of the well known favorite, the Bartlett, we need scarcely speak. It comes next in order, covering the season from the end of August to the middle of September, and it is recognized as our leading market variety;

but it is a standard tree and does not succeed so well as a dwarf.

Louise follows in the end of September, a beautiful pear when grown in rich soil. It is large, pale green, with a brownish red cheek, and of very good quality. This and the Duchess, which is an October pear of very large size, greenish yellow in color, and of excellent quality, about complete the usual list of profitable dwarf pears for our Canadian markets.

Of late, however, our attention has been called to two exceptionally fine varieties of dwarf pears in our experimental plot at Grimsby, viz., Hoosic, a large beautiful yellow pear, of rich, aromatic flavor, and very good quality, ripening in October; and PITMASTON, which we show in our frontispiece, and which is described in report of our fruit stations for 1902. It is an English pear, raised in Pitmaston, England, where it was called Pitmaston Duchess d'Angouleme, a name certainly clumsy enough to bring it ill favor, no matter how great its excellence. Its great size surprised us last autumn, and it appeared to us freer from knots and to grow more regular in form than the Duchess. The tree, too, is productive, and a fine vigorous grower. It is perhaps too soon yet for us to recommend this variety as superior to the Duchess for the dwarf pear orchard, but we are greatly pleased with it so far, and believe it would be one of our best export varieties. Possibly for our home markets its green color may count against it. It is later than the Duchess, keeping well into November.

Editorial Notes and Comments

HOW TO MAKE FRUIT GROWING PAY.

ANOTHER successful house meeting of the Grimsby Horticultural Society was held on Saturday evening, February 28th, at the house of Mr. J. M. Metcalfe, and was well attended by both ladies and gentlemen.

Both village and country people were attracted, not only by the social character of the gathering, but also because the fruit growers were anxious to hear what a practical man like Mr. E. D. Smith, of Winona, M. P. for Wentworth, had to say on how to make their business pay; and because the village people were anxious to hear a paper on Roses by the Honorary President, Mrs. E. J. Palmer. Besides these subjects, excellent music on violin, 'cello and piano was contributed by the Misses Metcalfe and Mrs. J. M. Metcalfe.

These monthly meetings are so interesting that they are likely to be a regular feature in the future work of the society.

CHOICE OF VARIETIES.

IN his opening remarks Mr. Smith emphasized the great importance of kinds of fruit for profit. The time has passed when all apples bring the same price, or when it matters little about the season of a peach. We have new varieties of peaches to cover the season, and some of the newest varieties pay so much better than the old, that in some cases the latter are but an encumbrance of the ground. The Yellow St. John, for example, has not only filled a gap just in advance of the Early Crawford, but it is so good a variety that it is to-day one of the most profitable kinds to grow for Canadian markets.

The beginner, therefore, in buying an or-

chard, should study the varieties in it, and if any are undesirable he should bear in mind that they must either be rooted out or top grafted, and this expense must be considered.

PROPER SOIL AND LOCATION.

IN buying a fruit farm an important consideration is the soil conditions in relation to the fruits to be grown. The most signal blunders are often made in this way, resulting in failure and disappointment. Mr. Smith pointed this out most clearly, and thought a few hundred dollars additional to secure right soil should not be considered when making a purchase.

Location was important with respect to markets. Mr. Smith's practice is to sell all fruit f. o. b., and in this he spoke in line with the advice given in these pages. He condemned the custom of shipping everything to the commission merchant, who often takes the kernel and returns the husks.

The secret of success in fruit growing is to *grow a choice article* and then sell it for its value, and the fruit grower should do this himself and have something to say about the price. There is no trouble selling a really choice article in any market by direct sale.

FERTILE SOIL AND MOISTURE.

THESSE are two essentials to success in fruit growing, and Mr. Smith pointed out how important the latter is in a dry season, such as often prevails with us. Cultivation for the retention of moisture was a good practice, and in no section had growers more faithfully observed it than in the Niagara District. But through their faith in cultivation as a panacea, the growers were forget-

ting that *humus* was needed also in the soil to help retain moisture. The easiest and cheapest way to furnish humus was by plowing under green crops in the spring, such as rye or clover. Cover crops served three purposes: (1) The supply of nitrogenous matter, (2) the winter protection of tree roots, and (3) the addition of fertility.

What cover crop would you advise? was asked.

Mr. Smith favored crimson clover for the Niagara District, sown in July. The hairy vetch seed takes easier and covers the ground well, but is rather expensive. Peas are good, only that they die in the fall, and consequently lack in the winter protection. Cow peas are excellent also for adding fertility, but they also die in the fall.

Cover crops should be plowed under as early in the spring as possible, else they rob the soil of its moisture.

Is it costly to adopt this practice?

On the other hand, it is economical. It really only leaves ten weeks for cultivation, say from the first of May until the middle of July, for at the latter date the ground is seeded down until the following spring.

PRUNING PEACHES AND PLUMS.

PRACTICALLY the same advice was given on this subject as we have so often advocated in these pages. Mr. Smith advocated close and careful pruning; he would treat a tree on the same principle as a grape vine, aiming at leaving only as much bearing wood as the tree should carry; in this way also, thinning of the fruit itself would be unnecessary.

He would not plant too closely. He thought 18 or 20 feet apart not too far, because in such case the tree would extend over more area and yield more fruit. As an illustration, he instanced a Quackenbos plum tree at Mr. W. M. Orr's place at Fruitland, which was given plenty of area and had

reached a fine size. More than once this one tree had yielded thirty baskets of fruit.

THINNING FRUIT.

MR. E. D. Smith fully endorsed the advice so often given in this journal about thinning fruit, especially in the case of over-loaded trees of peaches. For example, in an orchard of eighty Triumph trees, four years old, he had a very thrifty growth. The trees were over-loaded with fruit, but he left them hanging until after the "June drop," which thinned them considerably. Still there were about one thousand peaches on each tree. Now, 80-three-layer (or two-inch) peaches would fill a twelve-quart basket, and five baskets of fruit was a full crop for a four-year-old peach tree. He therefore, for the sake of experiment, selected two trees as nearly alike as possible, leaving one unthinned, and reducing the number of peaches on the other from 1,000 to about 400. Off this tree he sold four baskets No. 1 peaches at 60 cents each, and one basket of No. 2 at 40 cents, making the total proceeds from the thinned tree \$2.80.

From the unthinned tree he took seven baskets of fruit, but it was useless stuff that did not sell for enough to pay cost of handling and baskets. Besides, the limbs were broken down and split by the over crop, and the tree itself so stunted that it was at least three years in recovering itself.

What did the thinning cost you?

The expense was no more than it would be to pick them later when more mature. They must be picked anyway. I estimated that it would cost about one cent a basket, or five cents a tree to do the work; but, by judicious pruning a great deal of this work of thinning would be avoided.

When would you spray, if you could only spray once?

Just before the buds open, was the response, with Bordeaux, or possibly with the

lime and sulphur spray. To prevent curl leaf and cherry aphid use whale oil soap.

you must have good rich soil, and then it will give excellent returns.

GOOD SHIPPING VARIETIES BEST TO PLANT.

THE great Northwest, as a future market for Ontario fruit, has often been discussed in these columns. The great difficulty lies in the soft nature of our peaches and plums, and not in the packing. Winnipeg papers praise California packing and abuse Ontario, not understanding that fruit grown in a dry climate will carry very much farther than the same grown in a wet climate.

Mr. Smith's advice was that we plant with a special view to this great market, selecting only such varieties as will carry. Of the hundreds of kinds, of course only a few will suit our purpose, but these few are the ones to select. For example, in peaches we have Elberta and Smock. Both of these will carry, but the latter is rather too late and comes in when the demand for peaches is about over.

In plums, the Purple Egg, Reine Claude and Satsuma are good shippers. So is Damsen, and there is quite a good demand for this little plum both in Ontario and in Manitoba.

Grapes carry very well, but the tougher skinned ones carry best.

Name some varieties of grapes which you would recommend for distant markets.

On deep rich soil, Agawam and Vergennes; on light land, Rogers 4; on heavy land, Lindley, Rogers 43 and Rogers 44.

"I think," said Mr. Smith, "there should be a lot of special work done in experimenting with varieties especially adapted for distant shipments," and we took note of this as a hint to our Ontario fruit stations.

What about Concord and Niagara?

For ordinary land no grape will give surer returns than the Concord; but for Niagara

BLACK KNOT AND CHERRY BIRDS.

SIR,—In this section of country, on account of the black knot, the growing of cherries is almost a thing of the past, and what few cherry trees are growing are so infested with birds that it is nigh impossible to get any cherries off them. One man grows a few and protects them from the birds with a wire netting. I grew the Belle Magnifique some years ago, and it was nearly exempt from the ravages of the birds. I attributed this to its lateness of ripening and being of an acid taste. Now, I want to know what varieties of cherries are exempt, or perhaps I would be more correct in saying less liable to be attacked by birds; and are cherries which ripen late, say the end of July, or the beginning of August, less liable (on account of other bird food being more plentiful), than the early ripening ones.

Wellburn.

JOHN MCAINSH.

Where black knot is not destroyed it will spread rapidly and completely clear out the plums and sour cherries from an infested district. We have found, however, that it is very easy of control, for it spreads from spores from the growing knots, of which there are two sorts—a winter and a summer spore. By keeping a close watch upon our trees and cutting off and burning all knots, or by painting with kerosene those knots which cannot be removed without great injury to the tree, we have cleared out the knot from our orchard, and now very seldom meet with it. As for cherry birds, we are not troubled much with them except among a few varieties. The most subject, we think, is Early Purple, for unless we are on hand very early in the morning the cherry bird takes the whole crop. This is the first cherry to ripen, and its flesh is sweet and tender. Several other soft-fleshed cherries, with tender skin, such as Black Tartarian, Elton and Black Eagle, are favorite cherries with the birds; but the firm-fleshed varieties, such as Napoleon, Yellow Spanish, Elkhorn, Windsor, and the Pic and Morello cherries, are not much troubled with them.

POINTERS ON STRAWBERRY CULTIVATION.

A short time ago we received a letter from a subscriber in Toronto as follows:

SIR,—Could you give me any information (or put me in the way of getting it), relative to the cultivation of the strawberry and other small fruits for the market. Some article or work, if not expensive, that would tell how a man should start so as to make a success.

It does seem as if everything had been said already on this subject, but we are glad our subscribers ask questions, for this is the only way we can know what to write about. Now, instead of giving our own methods, suppose we tell our readers some of the methods adopted by others, for we recently listened to Mr. W. F. Kydd, of Simcoe, addressing the farmers at Grafton on "How to Grow Strawberries," and to Mr. F. G. Tice, of Oswego, N. Y., addressing the fruit growers at Rochester upon the same topic.

SOIL.

Our own experience in light sand has been a failure, because it dries out just as the berries need moisture for their maturity. Tice claimed he had exactly the ideal soil to grow big crops at Oswego, N. Y. It was formerly a wet, cold soil, but now thoroughly underdrained so that there was no standing water. This soil gives moisture in fruiting season when it is most needed.

PLANTING.

Tice would mark out his ground with a hand drawn marker, consisting of a board of 3-8 inch stuff, 12 feet long, with little sleigh runners $2\frac{1}{2}$ feet apart, with which the land is marked two ways, leaving it in checks of squares. The plants are set at the intersections, and the first cultivation may be done two ways, thus reducing the hoeing as much as possible. Then after the runners became numerous, he trains them to make narrow rows in one direction and cultivates only one way.

His plan for setting seemed a good one.

A man carries basket of plants with cover on his back, and with a spade opens the ground; a boy takes out a plant and throws it in, and the man packs the earth about the plant with his foot. This is a far quicker method than is usually given in the books.

CULTIVATION.

Terry says in his book: "There is just one secret about taking care of a strawberry patch easily, and that is, never let any weeds see daylight. It is cheaper to hoe three times than once, and pleasanter too."

Tice advised very shallow cultivation—stirring the ground not more than one inch in depth. Then use a wide hoe with a narrow blade for hand work. The first runners are the strongest and make the best plants, so they should be encouraged until, about the first of September, you have a row about six or seven inches wide. It is foolish to have it wider, for it is on the outside plants that the greater part of the fruit is borne.

After fruiting season Tice sows barley between the rows; this keeps down the weeds, and as winter approaches it affords a protection to the plants. In the fall, mulching is an essential. Terry uses wheat straw; but if mice are abundant advises cut straw one inch deep.

SORTING.

Tice employs women to sort out the fancy berries, leaving no small green or imperfect berries in the first-class grade. In this way he has gained a high reputation for his No. 1 berries. Every basket of this grade is wrapped in thin white paper, through which the beautiful fruit shows its color. This pays, both for beauty of appearance and because the fruit keeps longer and retains its color better. Marshall and Brandywine, thus protected, keep their bright fresh look, and so does even the Clyde, the Ben Davis of strawberries.

FRUIT AND FLOWER EXHIBITS AT FAIRS.

AT the meeting in Toronto of the Canadian Association of Fall Fairs and Exhibitions, Mr. T. H. Race, of Mitchell, criticised the present methods of exhibiting fruit adopted by our fall fairs. The great object of a fair was, in his opinion, the education of the public along certain lines. This object was largely defeated in the case of fruit when signs were put up of "Hands off," and a bar built alongside preventing people from coming near the exhibit. In some cases wire netting was added, still further defeating the object in view in making the exhibit. To learn the most from the fruit exhibit, the people should be allowed to come near and even to handle the fruit.

"*They would steal it,*" said one. "*They would eat it all up,*" said another.

"No, they would not," said Mr. Race, and he instanced the case of the London fair, where the fruit was set out on tables not too wide, without protection, and after a trial of four years no complaint was made and no fruit was stolen. People should be allowed to examine the fruit if they wanted to. It was shown for people to see and study its characteristics, and after it was judged why should they not be allowed to do so.

EXPERT JUDGES IN FRUIT ARE NEEDED.

There are many testimonials to the excellent satisfaction given by the expert judges who had been sent out by the superintendent, Mr. G. C. Creelman, during the past year, to judge horses, cattle and sheep and swine, and a resolution was passed asking that expert judges in fruit and poultry be also sent out.

How do you select expert judges? asked some one.

Such men are few and hard to find, said Mr. Creelman, but we ask the various associations to name their best men, and from these we make our selections. Each judge

is instructed to attempt nothing outside of his specialty.

What is the cost to the Fair boards? asked another.

Five dollars a day for each judge, was the reply. The total cost, including traveling expenses, is about \$10 a day, of which the department pays one half.

All seemed to agree that this arrangement was most liberal and satisfactory, and that one expert judge, who was not acquainted with the exhibitors, was worth far more than three judges, as ordinarily chosen.

THE JUDGE SHOULD BE AN EDUCATOR.

Mr. Race would not have the people excluded while the judging of fruit was in progress. They should be present to see the scoring of the varieties, and the judge should be prepared to give his reasons for every award, a course which would be both educative and in most cases satisfactory. Prizes ought not to be awarded to a collection simply for its number. Every scrub apple added, in his opinion, lessened the value of the collection, and detracted from instead of adding to its value. A collection for home use should be selected to cover the season, as well as embrace kinds of best quality.

ATTRACTIONS.

Mr. F. W. Hudson, of the Department of Agriculture, Ottawa, in the course of a most excellent and comprehensive address, pointed out the importance of the selection of a secretary, who should be constituted managing director and be paid to give certain office hours to the work; and of having the directors each represent a section whether of fruit, poultry, horses, etc.

Among the attractions he would have school children's exhibits of collections, seeds and plants; Caledonian games; horseback riding; and many other features, barring always the horse race, which injured a fair more than it helped. Mr. Race would have

the horticultural societies take a special interest in the horticultural exhibit, and make it as decorative as possible. In no way could they do this better than by encouraging the school children's exhibits. Plants and seeds might be distributed in spring time to the schools and special prizes offered for the best exhibits made in autumn. Nothing would interest the community more than the children's competition.

Mr. H. B. Cowan, of Ottawa, strongly supported this latter department of work, instancing the recent model fair in Carleton county, at which the school children's collections of weeds, insects, seeds, flowers, etc., formed the most interesting feature of the whole fair.

The Model Kitchen was another most interesting feature of the Carleton county fair, with a competent woman to give a lecture and a cooking demonstration. Another was the athletic contest, which was made the occasion of competition for the county league championship.

OWEN'S PROCESS.

IT is strange how many nostrums are being offered to our farmers and fruit growers in order to get their money. Mr. G. W. R. Rennie, gardener for the Asylum for the Insane, London, encloses to us a circular in which the above process is said to be a discovery of immense practical value in protecting fruit trees against insects and fungi. What the process is remains a deep mystery, nor does the circular say for which of the many fungus diseases it is effective, nor how it can reach the insects. Owen's process, the circular reads, consists of administering into the growing tree certain ingredients which the inventor has proved to be effective for the purpose above mentioned. Under the head of "How it Operates," we read as follows:

Water within the tree, containing acid,

carbon-dioxide, etc., dissolves and takes up in solution the ingredients discovered by the inventor (when applied according to his process), by means of the natural process in tree and plant life known as osmosis in conjunction with the processes commonly known as root pressure and leaf transpiration, and these ingredients are, by the circulatory system of the wood cells, etc., absorbed, and, by filtration, carried in solution throughout the entire tree and into the foliage thereof, into which it is easily traced." And under the head of "What it Does," we read that it prevents damage by, and destroys, the insect pests and fungous growths injurious to the tree. It protects the trees and fruit against damage by borers, codling moths, caterpillars, San Jose scale, black knot, leafcurl, yellows, scab, and other insect, parasite and fungous enemies to trees."

Mr. Rennie wants to know if this "process" is either reasonable or practicable. A simple word of two letters, viz., *No*, is perhaps reply enough. The plan reminds us of the old one of boring a hole in the tree and filling it with sulphur to cure black knot; or the old remedy among our boy companions of stooping down and spitting under a stone to cure side ache.

NEW YORK STATE FRUIT GROWERS.

WHILE our Ontario Association has the largest membership of any horticultural society in the world, owing largely to its monthly journal, which is a bond of union between the various smaller organizations and a means of communication between the individual members, the Western New York Horticultural Society has the largest meetings. They are always held in Rochester, the fruit centre of the state, and toward the end of January, when fruit growers have the most leisure. The first president was Mr. Patrick Barry, founder of the Ellwanger & Barry nurseries,



FIG. 2565. MR. BARRY.

and since his decease Mr. W. C. Barry has ably filled the honored position.

THE FRUIT EXHIBIT.

A basement was devoted to the fruit display, which was creditable in some points, but scarcely equalled our own at Walkerton. The leading pear exhibit was as usual by Messrs. Ellwanger & Barry, and their Anjou pear was really the only one that showed up as being very desirable as a market variety. It is truly a magnificent pear, and we have found it one of the best for export, but not very productive as a dwarf; besides it drops early.

EXPORT PEARS.

"The Duchess is my favorite pear," said Mr. McNeil, our chief inspector, who was looking over the exhibit with us. "I have an orchard of five hundred trees, and I intend to set five hundred more of the same variety in the spring." We remarked that it was an excellent export pear, but often sold very low in our home markets. "I know it," said Mr. McNeil, "but I intend to

plant nothing more for home markets. I want to plant for export only, and for that it is first-class." We mentioned Pitmaston as promising, especially for long shipment, for as grown at Maplehurst it is very large and desirable in appearance, and it is firm enough to hold up in ordinary storage. "That is at present the first consideration with us in Ontario," said Mr. McNeill, "and until we get proper storage from start to finish we must make shipping quality the first consideration in planting. We can never unite with this the highest quality for dessert, because delicacy of texture and juiciness go with high flavor. So it is useless trying to get varieties to combine high quality and firmness. We should rather aim at a better system of cold storage, so that we can ship our tender, delicious Crawford peaches and similar high class fruits to distant markets. As it is, they are spoiled before they reach the steamer by hot packing houses and hot cars."

"There is a pear," said Mr. John Charlton, of Rochester, "the Barry, which will carry any distance, but the trouble is it will never ripen after it is picked." We thought it too bad it should carry so good a name as that of Mr. Barry, and wondered if it was given it to help its sale.

YORK IMPERIAL APPLE.

The question was asked at Rochester, How many have tested the York Imperial? Out of all the 500 fruit growers, no one replied except Prof. Beach, of Geneva, who reported having it at the station grounds, and that he was disappointed in it. It was small and not highly colored, and he doubted whether it was adapted to New York State.

BETTER PRICES FOR HIGH GRADE FRUIT.

The subject of packing and grading was treated in an excellent address by Mr. McNeill, of Ottawa. He made a good point

when he stated that the present need was rather the growing of more high grade fruit than the packing of it. This would not come about until the grower saw a greater difference in price between the grades. It was a shame to see fine King apples sold for the same price as Ben Davis, and a shame to see such poor samples of all kinds exported. Fruit growers will not grow high grade fruit for mere sentiment; but, when men see that high grade fruit pays in dollars and cents, and that poor stuff does not pay—and that day is at hand—then they can no longer afford to grow poor samples, nor to mix them in the same packages with high grade stock.

THE APPLE ROT OF 1902.

Mr. H. J. Eustace, of Geneva, N. Y., reported an apple scab and the white fungus that accompanied it on apples last year, and which caused the rot of so large a portion of the crop in New York State and in Ontario.

The scab appeared in August and September, unusually late, owing to the wet autumn; and the white fungus was quite distinct from it, and could not have found an entrance through the skin had not the scab first made an opening. This white fungus has been known for fifty or sixty years as attacking dead wood and rotten fruit, but never was so injurious to fruit as in 1902, and is not likely to be so troublesome again unless in a peculiar season like the one just passed. The remedy, of course, is spraying, for this prevents the scab, and without the scab the white fungus would be harmless.

COLD CHECKS SCAB.

Mr. Eustace further reported on experiments with scab in cold storage. He had put away apples inoculated with scab fungus in a temperature of 32F. and others in a temperature of 70 degrees. The latter soon developed scab at the point of infection.

while the former did not show it all the time they were kept in the cold, but when brought to a high temperature the fungus appeared in the course of time. Scabby apples, therefore, can be kept without depreciation below 45 F.; but for the best results the storage should be dry and well ventilated. Mr. Eustace believed that the spores of scab might be spread to trees from apples on the ground, and these therefore should be plowed under or otherwise disposed of; though, of course, a thorough covering of Bordeaux would secure the trees from infection.

Some growers reported good results from spraying with lime and sulphur, both for scale and fungi, and one stated that he had treated his apple orchard with a fine spray of pure kerosene in the month of February, without the least injury, and he believed it had destroyed both scale and scab.

GRAPE LEAF HOPPER.

This insect, commonly called thrip, is a near relative of the rose leaf hopper, and very difficult to destroy. Prof. Slingerland, of Ithaca, N.Y., had tried blankets of tangle foot, against which the hoppers were driven and caught fast, but this plan, though fairly successful, was too costly. He had tried spraying with kerosene, but grape foliage was too tender, and would not take more than 5 or 6 per cent of kerosene, so this was a failure, but he hoped for some success with whale oil soap, 1 lb. to 10 gallons, applied about the 1st of July. It would kill every one it hit, and a return spraying to kill those which fell to the ground might make the work pretty thorough.

YELLOW SICKNESS OF THE RASPBERRY.

This evil has appeared in Mr. Metcalfe's plantation at Grimsby and in other places in Ontario, and we have failed thus far to meet anyone who can explain it. Prof. Stewart,

of Geneva, had met with it along the Hudson, where the Marlboro was so badly affected with it and with cane blight that this variety was being discarded. The yellows attacked both growing and fruiting canes, and rendered the fruit insipid. But so far both cause and remedy is unknown.

RASPBERRY CANE BLIGHT.

"This," said Prof. Stewart, "appears just as the fruit is ripening, and is a very destructive fungus, in some cases reducing the bark and finally kills the canes. Spraying with Bordeaux had not proved of any use, and so far the only advice he could give was to secure healthy plants and to cut out the old canes as soon as the fruit is gathered."

THE APPLE TREE TENT CATERPILLAR.

MR. D. C. CROSBY, of Berwick, N. S., writes: "I enclose you a nest of caterpillar eggs, which, if illustrated and explained, might help us to fight the pest. This nest came off a plum tree, but I find them on apple trees also."

The nest contains the eggs of the Apple Tree Tent Caterpillar, and when the letter reached us the warmth of the room had deceived the tiny little worms into the belief that spring had come, and they began to come out of their egg state and crawl about the letter. These eggs were deposited in July upon the smaller twigs of the fruit trees, in ring-like clusters of, in all, perhaps, two or three hundred. We give the following description of them, with cuts, from Dr. Saunder's excellent work, entitled "Insects Injurious to Fruits," a work that should be in the hand of every fruit grower: The



FIG. 2566.

eggs are conical, and about one-twentieth of an inch long, firmly cemented together, and

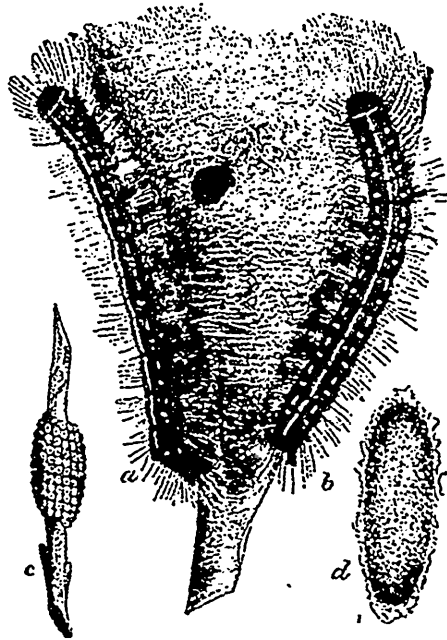


FIG. 2567.

coated with a tough varnish, impervious to rain, the clusters presenting the appearance shown in Fig. 2566. In Fig. 2567, at c. a similar cluster is shown with the gummy covering removed, showing the manner in which the eggs are arranged. The young caterpillars are fully matured in the egg before winter comes, and they remain in this enclosure in a torpid state throughout the cold weather, hatching during the first warm days of spring. They usually appear during the last week in April or early in May, much depending on the prevailing temperature. Their first meal is made of portions of the gummy material with which the egg masses are covered, and with the strength thus gained they proceed at once to work. At this time the buds are bursting, thus providing these young larvae with an abundance of tender food. * * * These larvae are tent makers, and soon after birth they begin to construct for themselves a shelter by extending a sheet of web across the nearest fork of the twig upon which they



FIG. 2568. MALE AND FEMALE MOTH.

were hatched. As they increase in size they construct additional layers of silk over those previously made, attaching them to the neighboring twigs, and leaving between the layers space enough for the caterpillars to pass. * * * In five or six weeks they become full grown, and then measure about an inch and three-quarters in length, and present the appearance shown in Fig. 2567, a and b.

We do not need to continue this extract, as every orchardist must be only too familiar with the way in which these worms strip the foliage off the orchard trees in the month of June.

The practised eye of the fruit grower will readily detect the egg clusters in March or April, when pruning, and a great part of the nests readily destroyed, while a thorough treatment with Paris green will destroy them in summer if not too long delayed. There is another variety known as the Forest Tree Tent Caterpillar, that invades our orchards from forests that border upon our orchards; and with such a breeding place their invasion becomes so serious that their destruction is by no means an easy thing.

BLACK KNOT.

MR. D. C. CROSBY, of Berwick, N. S., writes that many plum trees in the Annapolis Valley, Nova Scotia, are being cut down, being so badly infested with black knot, and for this reason very few new plum orchards are being planted.

Surely there is no need to give up the cultivation of the plum on account of the prevalence of black knot. Neglected, it spreads rapidly, and soon destroys the plum and sour cherry trees; but it is one of the easiest to

control of our numerous fungous enemies. All affected parts should be cut out in the fall and burned, and if the knot is found upon a large limb or trunk where the whole cannot be destroyed, it should be cut out and the wound washed with kerosene. Young knots appearing in summer may also be painted with kerosene, colored with red oxide of iron to mark the parts under treatment and give greater consistency to the oil. In Ontario we have a black knot act, compelling the destruction of this fungus, which is more effective, and our Nova Scotia friends should try it, as we have done with such success.

LIME AND SULPHUR SPRAY.

BARRING the inconvenience of preparation, the lime and sulphur spray seems to be the one of our most promising remedies for fungi and scale insects of all kinds. How far it may act in the prevention of apple scab we do not know, but certainly we have considerable testimony to its general usefulness. If only some one particular spray, applied before the busy season, would answer all purposes, no doubt fruit growers would not grumble much at the trouble of its preparation.

Please give me the formula, said a gentleman, who has a fruit farm near Toronto, and I will try it as early as I can in the spring. I have a large new boiler for heating water for my business, and the boiling would be no trouble. I will give it a good trial and give you the result of my experience.

In reply we gave him the following formula:

Sulphur, $\frac{1}{2}$ lb.

Lime, 1 pound.

Water, 40 gallons.

The sulphur is first put on with a smaller quantity of water, and brought to a boiling point: then the lime is thrown in, adding more water if necessary to prevent burning. When the lime is slacked more water is

added and the whole boiled for two or three hours. Then add hot water to make the proper proportion and apply while hot. At no time will the mixture work as well as when perfectly fresh.

COST OF APPLICATION.

At Mr. McCordle's place, near St. Catharines, as described on page 500 of our journal for 1902, we found Mr. Fisher preparing this mixture in a dozen kerosene oil barrels, using the steam generated by a threshing machine engine to boil the contents. The cost he estimated at only about $1\frac{1}{4}$ cents per gallon, or about $\frac{1}{8}$ the cost of whale oil soap.

GOOD RESULTS.

Prof. Beach, of Geneva, N.Y., gives some evidence in favor of an early spraying with this lime and sulphur wash. He stated at the recent meeting of New York State fruit growers that at the Geneva station last spring 31 large Baldwin apple trees were treated with this spray just when the leaf buds showed the first sign of green, and no further spraying was given them. A few trees of the same variety near them were left untreated, while the 31 treated trees gave a yield of 275 barrels of apples remarkably free from scab. This seemed to prove that one such treatment before the opening of the leaves was more effective than the same treatment at any later period. He thought that this one application should always be given if every other were omitted.

SUCCESS WITH BORDEAUX.

Ordinarily Prof. Beach advised, however, four sprayings with Bordeaux, as follows:

First—Just before leaf buds open.

Second—Before blossoms open.

Third—As blossoms fall.

Fourth—Ten to fourteen days later.

But, as Mr. Race said at Stony Creek, what is the use of prescribing for the

farmer more work than he can possibly get done? This spraying is the most troublesome and perplexing work our orchardists have to undertake, and if it were only possible to do with one application. Mr. Race seemed to think they might spray three times, but we think very few will do it and do it thoroughly. Prof. Beach thought the first two sprayings on his list might be combined into one, unless leaf eating insects were numerous, in which case, of course, Paris green or else white arsenic would need to be added.

In case the above sprayings with Bordeaux were to be given, he did not think there was need of the winter treatment. But Mr. Professor, if you can only give us a spring treatment, like that lime and sulphur with which you had such good results, and make it a little easier of application, and tell us that it will be the first and last needed for the whole season you will merit our most sincere gratitude. Every up-to-date fruit grower will take the time to cover every inch of wood, and carry out your instructions to the letter. This is something they will never do as a rule while you make the business so difficult.

Mr. Denny, of New York State, sprayed four times with Bordeaux, giving the last application about the end of June. He had chiefly Baldwins, Greenings and Spy. As a result he had 2800 barrels of perfectly clean apples out of total crop of 1,950. In his opinion it was the early spraying that did the most good.

SHIPPING TOMATOES—BEST STAGE OF MATURITY—PROPER TEMPERATURE IN STORAGE.

SIR,—I have been shipping tomatoes from Florida to the northern markets during the months of March and April, for the past two seasons, but have not been very successful in the venture. You give 34 de. rees as a good temperature at which to carry them, but do not state whether this was for green, half ripe or fully colored fruit.

Elmira Height, N.Y. S. B. C 1911. A I.

We have referred this question to Mr. A. W. Peart, Freeman, who also has been experimenting in forwarding tomatoes to England, and he says:

"In the past three years, during the latter part of September, I have shipped to Glasgow a few boxes of Honor Bright tomatoes. They are medium in size, late, very firm, smooth, of excellent quality, and very productive. They are the most likely export tomato with which I am acquainted. There are four clearly defined stages of maturity, viz., green, waxy white, yellow and red. For export I pick them when yellow, choosing medium size specimens, not too small nor too large, cut them from the vine with scissors, leaving about half an inch of stem adhering. Each tomato is wrapped in tissue paper and packed in excelsior, the same as pears. I use the quarter barrel box, holding about two twelve-quart baskets put up in this way. The first year they sold at 6 shillings a box, the second at 4 shillings, and the third at the same price. At the latter figure I would net about 34 cents per box, or 17 cents per 12-quart basket. According to the advice received from our consignee in Glasgow, the last lot—shipped in cold storage—reached there in practically the same condition as they left here, that is, unripe. In a few days, however, they would ripen nicely if placed in a dry warm room. All things considered, I have confidence that a fairly profitable export trade may yet be developed in tomatoes."

LABOR ON THE FRUIT FARM.

JUST at the present time there is an unusual scarcity of farm help both in Canada and in the United States, owing in part, no doubt, to the excellent opportunities in the Northwest to become land owners. At a meeting of the Niagara District fruit growers at St. Catharines on Saturday, the 21st of February, a motion by W. H. Hunting was passed which requested the

government to do all in their power to encourage the emigration to this country of a desirable class of men.

Considering the great army of unemployed men in Great Britain, and the number of young men of all classes desirous of learning fruit farming, and willing to take instruction as part pay for their work, we have no doubt that by the time the fruit season arrives there will be an abundance of such help as is required to handle the crop.

MARRIED MEN BEST.

As a rule married men are best on the fruit farm, and every fruit farmer needs a cottage for a workingman's family. It may be a nuisance at times to have a lot of children in the neighborhood, but in the fruit season a mother and her boys and girls are a blessing to the fruit grower, for she is the natural foreman of her gang, and responds heartily to liberal dealings.

GROWING APRICOTS.

SIR,—I note in the January number of the Canadian Horticulturist, Mr. Harrison Weir's letter as to the growing of apricots in Canada, and your explanation, which entirely agreed with my own experience at Niagara-on-the-Lake.

Some years ago I planted in a strong clay soil, well under-drained, different varieties, which made good growth, and are now large and healthy trees. They bloom profusely, but so early that frost is sure to affect them more or less, while the "curculio" and rot leave few to mature.

I doubt if apricots will ever be grown with profit in our climate.

Yours truly,

CHARLES HUNTER.

Niagara-on-the-Lake.

TILLAGE FOR THE ORCHARD—III

SPRING AND SUMMER TILLAGE TO CONSERVE MOISTURE.

BY

PROF. J. B. REYNOLDS,

O. A. C., GUELPH.

A NOTED farmer of Ohio, speaking to a gathering of Ontario farmers a few years ago, said: "If I have a sufficient supply of moisture in the soil to begin with, I can make sure of a good crop without summer rains."

There are, for us, three important questions here implied: How much moisture is required for a "sufficient supply," have we that quantity to begin with in the spring, and how may we make sure of a crop without depending upon summer rains?

1. *How much precipitation makes a sufficient moisture supply?*

The answer to this question depends very largely upon the character of the soil, its power to retain moisture, its drainage properties, and the depth to which the subsoil allows the water to penetrate. It depends, also, in part, upon the character of the crop, whether deep or shallow-rooted. But supposing that a well-drained soil is to be saturated to a depth of four feet, it will require, ordinarily, a precipitation for the fall and winter of about twelve inches to accomplish this. Anything more than that amount

must be removed by drainage, or penetrate to a greater depth, or if it cannot penetrate, must run off the surface.

2. *Have we in Ontario this sufficient quantity of moisture with which to carry to completion the season's crop?*

Below are diagrams showing the average monthly precipitation for points in Ontario. Montreal, without much error, may be taken to represent the extreme east of Ontario; Ottawa, the middle east; Toronto the middle, and Port Arthur the west. Halifax, N. S., and Prince Albert, Sask., are also shown for the sake of comparison. In these diagrams two items are worthy of consideration: The total annual precipitation at each locality, and the distribution of the precipitation over the year. These items may be represented in figures as follows:

	Inches.	Oct to Mar.	Apr. to Sep.
Port Arthur	23.70	30%	70
Toronto	31.08	51	49
Ottawa	33.93	46	54
Montreal	40.49	51.5	48.5
Halifax	57.21	57	43
Prince Albert	15.06	32	68

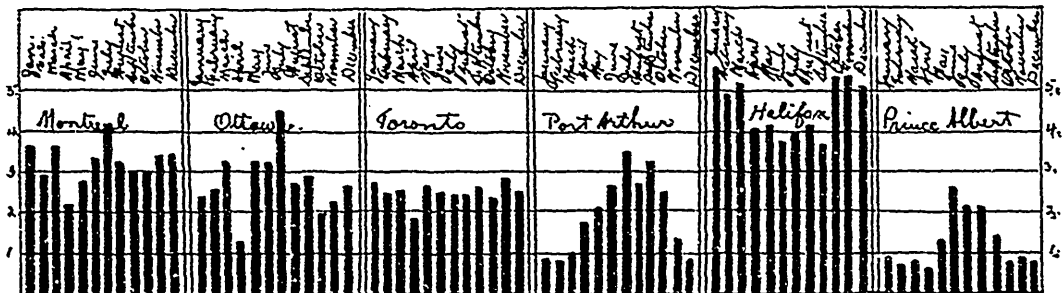


FIG. 2569. DIAGRAM SHOWING NORMAL PRECIPITATION IN INCHES, AT POINTS IN CANADA.

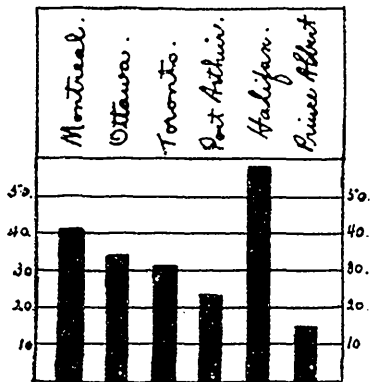


FIG. 2570. DIAGRAM SHOWING NORMAL ANNUAL PRECIPITATION IN INCHES, AT POINTS IN CANADA.

At points in Old Ontario, about 50 per cent. of the total annual precipitation occurred during the inactive season—October to March. At Toronto, 15.82 inches fall during this period, sufficient to supply the 12 inches mentioned above as necessary to saturate to a depth of four feet, and to allow nearly 4 inches for drainage, seepage, and run-off. For Old Ontario, therefore, the point is established that there is a sufficient supply of moisture to begin with. For Port Arthur, as representing the west of New Ontario, the 7.13 inches that fall during the inactive season will saturate the ground only to about a depth of 30 inches. At Halifax there is enough for the purpose mentioned, and over 20 inches to spare. At Prince Albert the precipitation from October to March, 4.85 inches, would saturate the ground only to a depth of about 20 inches, which is quite insufficient. Prince Albert is within the arid, or semi-arid belt of the Canadian Northwest.

In respect of winter precipitation, the conditions that prevail in Old Ontario are by far the most desirable of those above described. To have just enough, and not enough in excess to produce destructive surface washing or to water-log the land, is the most desirable condition. But while we have enough,

we have none to waste. We cannot afford to be prodigal of our resources in this respect. The heavens may yield their showers, and the land may be as iron—impervious. Unless the surface soil and the subsoil are sufficiently pervious to allow the water to enter, the ground will remain without moisture. It is the business of every farmer and fruit grower, as was shown in the previous article of this series, to prepare the land in the autumn so that it will absorb the maximum amount of water.

3. *How to make sure of a crop without depending upon summer rains.*

If we can thus make sure of a crop, it is a good thing, for the summer rains are uncertain both in quantity and effect. It is a safe position, therefore, to take, that the more nearly we approach this independence the better it will be. And as for the summer rains, we must contrive to make the most of them when they are effective, and, when they are too light to be favorably effective to prevent them from doing harm.

There are four methods by which moisture may escape from the soil:

Seepage and underdrainage.

Surface drainage.

Evaporation into the atmosphere.

Transpiration from the leaves of plants.

In the summer the first two modes operate but rarely, and only in cases of excessive rainfall. But the other two, evaporation and transpiration, are very active. It is the business, therefore, of cultivation to reduce both these modes of loss to the lowest possible quantity. The opportunities for doing this, as represented by the different methods of orchard cultivation now in vogue, will now be considered.

First, it is well known, better known than practised, that a loose covering or mulch upon the soil will check evaporation to a remarkable degree. It is equally well known that land bearing a crop of any kind, grain, grass, roots, or weeds, is usually much drier

than bare land. The moisture has been extracted from the soil by the crop. These are admitted facts, not requiring illustration or proof. What is their bearing upon the methods of cultivation for orchards?

Clean cultivation, as a means of conserving moisture in soils of orchards, is without question the most effectual. This method so clearly and fully meets the requirements above referred to, maintaining a surface mulch upon the soil to check evaporation, and destroying weeds to prevent loss by transpiration, that the matter need not be argued further. Any fruit grower who allows an extra crop to grow in his orchard is, unless there is moisture enough for the proper development of both fruit and the other crop, sacrificing the interests of his orchard. Where a sodded orchard, for instance, is found to be generally more satisfactory than the cultivated orchard, that locality must possess an abundance of rainfall for both purposes. This abundance does not generally prevail in Ontario, and it should be seriously considered, at all fruit sections in Ontario, if clean cultivation is not the most profitable method.

For the year round, and for all purposes relating to moisture, clean cultivation for the summer, and a cover crop sown in the early fall and plowed down in the spring, together

make the best method for orchard tillage. The advantages of the combined methods are:

(1) By clean cultivation in the summer the loss of soil moisture, through evaporation and transpiration, may be checked; the moisture present in the soil being thereby saved for developing and maturing the fruit.

(2) Summer cultivation may cease, and the cover crop be sown, earlier or later, according to the season. If it is a wet, cold season, like that of 1902, cultivation should cease and the cover crop should be sown earlier than usual in order to dry out the land, and thus serve a double purpose: to mature the new wood on the trees, and to ripen and color the fruit.

(3) The cover crop, as was mentioned in the previous article of this series, is a protection to the tree roots in the winter, and checks surface washing.

(4) The cover crop, especially if it is a crop that winters over, dries out the land somewhat in the spring and thus allows earlier cultivation. This finally results in the saving of soil moisture.

(5) The cover crop, when plowed down and incorporated with the soil, enriches the soil and improves its texture, and thus eventually increases its power to absorb and to retain moisture.

NUTRITIVE VALUE OF NUTS

IT has been asserted in the scientific journals of Europe, within the past two or three years, on the authority of chemists and dietary experts, that the nutritive properties of nuts entitle them to a much higher price than they now occupy as an article of food. They even assert that if all other means of nutriment were cut off man could

support life on the nut crop of the world. This statement has also been made in some of the best school text-books of Europe, and it appears in a school book recently published in this country. The rising generation seems likely, therefore, to have a higher opinion of the utility of nuts than their fathers entertained.—*Sun*.



FIG. 2571. HON. JOHN DRYDEN.

MEN WHO HAVE SUCCEEDED—VIII

HON. JOHN DRYDEN.

THIRTEEN YEARS MINISTER OF AGRICULTURE—THE
FARMER'S FRIEND—PATRON OF ADVANCED HORTICUL-
TURE—FOUNDER OF THE ONTARIO FRUIT STATIONS
AND FRUIT INSTITUTES—A USEFUL CAREER.

HON. JOHN DRYDEN will soon have completed his thirteenth year as Minister of Agriculture for the Province of Ontario. Before being appointed to that office in 1890 he had served his country well, he had done his full share in shaping the agricultural history of his country and had made a magnificent contribution to the welfare of Canada. Though for these forty years past he has been prominent as a breeder and importer of pure bred stock, he has shown such a sympathy with all other lines of our varied agriculture that he has gradually come to be recognized as the most successful Minister of Agriculture that Canada and her provinces have known.

He has taken a deep interest in the fruit growing interests of Ontario, and the Provincial Association and the local horticultural societies have, through all the years of his ministry, found in him a warm friend. The best friends are those who warn as well as advise, those who reprimand as well as praise, those who restrain as well as help. Mr. Dryden has helped our work and at the same time has been honest enough to point out our weaknesses and correct our mistakes. His advice has always been wholesome and frank. His advice has not been mere theory either, for though he does not claim to be a specialist in fruit growing, he is away in advance of the average farmer, having upon his farm at Brooklin, near Whitby, one of the finest apple orchards of Central Ontario, an orchard where the best methods are adopted, conducted on scientific principles, one that is productive.

Of this orchard he is quite proud.

What are the special horticultural works that have been originated and developed under Mr. Dryden's care?

The Horticultural Department, as a separate and distinct branch, was begun some years ago at the Agricultural College by the minister's appointment of Prof. Hutt. Visitors to the college, hundreds of students, and thousands of readers know how this work has grown and spread until now it is one of the strong and influential branches of that important institution. It is no longer necessary for our young men to go to Cornell and other American colleges to get a special training in horticulture. Only last year one of the recent graduates of the college received a voluntary offer to go to Utah to take charge of the State horticultural work. Before Mr. Dryden's regime such a man would not have been available. Mention might be made of many who have settled down in this Province and who are rapidly moving to the front in horticulture.

An extensive system of experimental stations is another of the minister's gifts. We asked for one station and he has given us a dozen; not, it is true, of the nature asked for, but, in his opinion, and in the opinion of many, more serviceable than one elaborate station restricted to one section.

Under Mr. Dryden the fruit growers demonstration school was started, the spraying instructors were sent out. The schoolmaster was sent abroad armed with that new weapon of mystery and ridicule, the spray pump. The work was begun in discouragement.

ment and indifference, but gradually it won the approval even of its stubborn opponents who looked with political frowns upon such an innovation. The simple way was successful, and we are apt to overlook the fact that the minister's sprayers had so much to do with teaching our people how to do it.

Then came something more mysterious still, and not half the mystery has yet been solved—the mystery of the San Jose scale. The story of its coming was an Arabian Nights Tale; its presence here the mere dream of some entomological enthusiast. Surely no hard headed farmer would listen to such a tale! But Hon. John Dryden is ready to listen and to investigate, and before the fruit men of the Niagara peninsula were awake to the situation the axeman was abroad cutting down and burning trees by the power of an Ontario statute. We all know how opposition and questioning arose here and there, fruitmen would not be convinced of the need of such heroic measures. Public opinion, of course, rules in the making and unmaking of laws, so the strong arm of the law was relaxed, and while the fruit growers were disputing among themselves as to the nature of the new insect it was spreading quietly and insidiously, and soon cast its withering blight over a large area. Many who had doubted and protested now had proof of the wisdom of the minister's activity, and felt that had the vigorous treatment been pushed early the dreaded scale would have been stamped out, or at least confined to a small area. We all know how the minister has for the past three years been assisting the fruit growers in the purchase of material for spraying, and how under his direction the superintendent, Mr. Geo. E. Fisher, has carried out the most extensive and most successful series of experiments in the eastern half of the continent. To this must of course be added the provision for protecting the tree planter by the compulsory fumigation of all nursery stock.

These four items are enough to show how interested Hon. John Dryden has been in horticultural work. Other items might be given. Some of them are just being started, such as Fruit Institutes and expert fruit judges for our fall fairs.

More than once the writer of this paper has heard this statement from a man of scientific training: "The remarkable thing about Mr. Dryden is that a man who received no special training should appreciate so fully the scientific situation and be seized of the importance of somewhat obtruse lines of investigation." Mr. Dryden combines a thorough practical knowledge of Canadian agriculture, a keen appreciation of the value of scientific discoveries, good administrative abilities, a desire to employ only first-class men, and a broad dignified hopeful outlook of the farmers calling.

A word or two now as to the man and his life. His father, James Dryden, came from Sunderland, England, in 1820, being at the time a mere boy in his mother's charge. When coming of age he bought a farm of 200 acres in Ontario county. On this farm John Dryden was born in 1840, and here he has won his reputation as a lover and breeder of fine stock, cattle, horses and sheep. The son added to the farm so that it grew to 420 acres, and the vigorous trees soon suggested the appropriate name, "Maple Shade." Here he has lived his married life, a life of ideal home happiness, and here he and Mrs. Dryden have seen grow up their family of five daughters and one son. The name Dryden will be continued, for, though there is only one son, he has inherited his father's love for live stock, and after a short course at the Agricultural College is managing the farm under his father's direction.

Who could estimate the wealth added to Canada by the importations such as those made by Mr. Dryden. Again and again he has gone to England and to Scotland and

brought home of the best. In 1865 the father purchased a two-year-old Shorthorn from Hon. John Simpson. In 1887 the son bought the entire herd of Edward Cruickshank, of Lethenby. Between these lies a history too long to be told in these pages. The story of the Shorthorn bull, Barmpton Hero, would come in there, and every Shorthorn man of Canada, in fact of the United States, knows what Barmpton Hero was.

The agricultural society, the public school, the township council, the village church, all felt the influence of John Dryden, and he in

turn was moulded by them. At last he was chosen in 1879 to represent the constituency in the Legislature, and he has occupied a seat there every year since with the exception of one session.

There may not be much romance in the life of the Hon. Minister of Agriculture, but he has served his country well, he has been honored by his fellow men, he has lived an honorable, straightforward life, and even his political opponents can point to him as an example and an inspiration for the young men of Ontario.—(*Contributed.*)

THE FRUIT GROWERS OF PRINCE EDWARD ISLAND IN ANNUAL CONVENTION.

THE GARDEN PROVINCE HAS A GOOD YEAR AND ITS ASSOCIATION IS FIRMLY FIXED IN THE PEOPLE'S AFFECTIONS—
A GREAT GATHERING OF LOCAL AND DOMINION HORTICULTURISTS—FATHER BURKE RE-ELECTED PRESIDENT.

IN the life of Horticultural organizations this appears to be also a growing time. We have just come through our mid-winter meetings, and it will suffice to say that we are proud of them. Certainly, never in the history of our association, has the Fruit Growers' Convention been such an unqualified success. Indeed, as Professor Robertson said, it is hard to recall a convention, in the bigger and more populous provinces, which could compare with ours as to the attendance, the programme, the methods of organization, and the spirit of unanimity which pervaded everything.

The association has received a great impetus from the action of the Federal Government through Prof. Robertson, in sending instructors in all the operations of horticulture here—men who have not only kept up demonstration stations, but, as I ventured to suggest at Cobourg, have gotten into the individual orchards and converted many people who did not know what was

the matter with their neglected and fast failing plantations, into active, intelligent and enthusiastic growers of fruit.

The country meetings during the year, some of them addressed by such giants as Professors Robertson and Fletcher, have been much more extended and better sustained than usual, and that stage of reliable up-to-date horticulture fully entered upon.

The exhibitions, too, have sought the co-operation of the association, and, both working together in perfect harmony, have, by the marvellous shows of fruit, worked wonders in the public mind. Commercial men, awakened to the money possibilities of island fruit, are now on the alert. A grand company, with millions behind it, has taken up quarters among us; and jamming, canning, evaporating as well as the purchase of fruit in its raw state for shipment, will, we are assured, be carried on to such an extent as the supply may permit.

Prince Edward Island is 1,000 miles at

least nearer to the British market than Ontario. Its fruit matures later, too. Slow-maturing apples are not only the best, but afford opportunities for commercial orcharding which cannot be well offset. Take, for example, the Gravenstein. Our friends in Nova Scotia thought that they had a safe monopoly of this luscious fruit. The demand for it was practically limitless in its season, but it was difficult to get it to Britain in the moment of its maturity in N. S. without great loss under the existing shipping conditions. For this reason the sister province has lost millions of dollars on her badly landed Gravensteins alone. The Gravenstein we grow is a superb apple, equal in every way, if not superior, to that of N. S., with this advantage that it ripens just one month later and is, therefore, ready for shipment across under much more favorable conditions of season. Those we have sent over have realized top prices, and we are ready to stay by the Gravenstein here to the end. These facts change old conceptions, too. Gravenstein and Nova Scotia are no longer synonymous terms.

But to the convention and fruit show. The sessions opened on the 10th with a big attendance, despite stormy weather and interrupted communication. This enthusiasm continued through all the meetings to the close. "This annual meeting of the fruit growers of P. E. Island is one of the best, if not the very best, I have attended anywhere," said the distinguished Commissioner of Agriculture for Canada, Prof. Robertson. We certainly appreciate the compliment.

The reports showed a balance on the right side of the ledger after all demands were satisfied; narrated the work done in the different departments, criticised the show lists and recommended the encouragement of commercial fruit alone. In his exhaustive address the president discussed the vital matters up to which horticulture has come in Prince Edward Island, instanced the diffi-

culties that menaced it at present, and made many useful suggestions. He warmly recommended the establishment of high councils from the various associations which would meet at Ottawa and crystallise into salutary enactments the work of these conventions. There is certainly a gap now between the provincial organization and the enacting body which could be bridged over in this way effectively. As well as treating seed sellers in the way dishonest packers are treated under the Mark's Act, the Island Association demands the inclusion of fraudulent nursery stock and levels penalties at dishonest top grafters. The president's address was received and adopted unanimously and all its recommendations legislated on.

These are some of the papers read by local horticulturists: "Difficulties of Fruit Growing in P. E. I.," by F. C. Bovyer; "The Apples I Grow at Inkerman," by John Robertson; "Cherry Growing," by D. J. Stewart; "Cranberry Culture," by C. R. Dickey; "The First Island Peaches," by Dr. Murchison; "Our Best Commercial Sorts," by Senator Ferguson; "My Experience With Plums," by Edward Bayfield; "Our Model Orchards," by Prof. Macmillan; "Inspection in P. E. I.," by D. F. I. Burke; and "Strawberry Problems," by Franklyn Bovyer.

The visiting scientists, however, added much to our island meetings. We had Prof. Robertson, a host in himself; Prof. Zavitz, whom one enthusiastic admirer called "the man with the hard name," although his lessons are easy and splendidly put to his audiences, that on "Clover Growing" being particularly opportune; Prof. Macoun, modest as ever, yet accurate and well posted on everything, and Mr. Harold Jones, of Maitland, Ontario. The others expected could not brave the dangers of winter communication. Prof. Robertson, whom nothing deters from fulfilling an engagement, crossed in the open boats at the Capes

in zero weather. He was sorry he did not take the Roman at his word and "lend him his ears." Jack Frost is no respecter of persons.

As most readers of the Horticulturist have heard in one form or another the Commissioner's great address on "Education for the Improvement of Agriculture and Horticulture," I shall say nothing further here than to record the common opinion that it is unmistakably the best of his many good addresses and more likely to make itself felt on the life of the country.

The fruit show in connection with these meetings was beyond all expectations, successful. Room could with difficulty be found for all the specimens. The lists were restricted for good reasons to the following:

1. Best county collection of not less than 10, or more than 20 varieties.
2. " Ten varieties of commercial apples.
3. " Five varieties of winter apples.
4. " Plate Baldwins.
5. " Plate Banks.
6. " Plate Blenheim.
7. " Plate Ben Davis.
8. " Plate Fallawater.
9. " Plate Golden Russet.
10. " Plate Gravenstein.
11. " Plate Kings.
12. " Plate Mann.
13. " Plate Nonpareil.
14. " Plate Ontario.
15. " Plate Ribston.
16. " Plate R. I. Greening.
17. " Plate Red Russet.
18. " Plate Spy.
19. " Plate Stark.
20. " Plate Wagener.
21. " New and promising Commercial Apple.
22. " New and promising Dessert Apple.
23. " Plate Pears.
24. " Plate Cranberries.

25. Best Barrel of Apples.
26. " Box of Apples.
27. " Packer of Apples in barrels.
28. " Packer of Apples in boxes.
29. " Collection of Bottled Fruits.
30. " Collection of native tree seeds for windbreaks.

But many other varieties were in evidence. The diploma of the Association was a pretty work of art, with the scriptural text, "Be of good courage and bring to us of the fruits of the land," a particularly opportune injunction. The Ontarions remarked admiringly on the color and flavor of our fruit. "The best flavored apples in America are island apples," averred Prof. Robertson. Chief McKinnon, of the Inspector's Department, declares that the "Innerkip box" for apples, made and packed by the veteran orchardist of the province, John Robertson, of Inkerman, is easily the best package on the British market. These assurances encourage us when they are superadded to the knowledge which is everyone's now, that we can grow good fruit; that we pack it honestly; that the great market of Britain is nearer to us than our sister provinces, and that we have golden prosperity ahead of us.

For 1903 the officiality of the F. G. A. is about as last year. The president, your humble correspondent, would gladly have retired in some one else's favor, but could not refuse an honor so heartily conferred in the good of the cause. The constitution has undergone slight change. The secretary is now secretary-treasurer and the servant of the board of directors. Of the old body Messrs. Irving and Wells are replaced by Messrs. F. L. Haszard and A. J. McFadyen. The vice-president is still that good friend of horticulture, John Johnson, of Long River. We look for great things for our association and what it stands for in these years.

Alberton

A. E. BURKE.

NEED OF A RAILWAY COMMISSION

IT was a strong delegation that waited on the Dominion Government on Wednesday, the 11th of February, to ask for a railway commission, which should have power to regulate and control railway rates. The case of the fruit growers was ably presented by Mr. W. H. Bunting, the President of our Association, who pointed out that the railway companies had looked upon fruit as a luxury and not one of the necessities, and had put up the rates upon this class of goods to the very highest notch.

For example, said Mr. Bunting: "On 2,500 baskets of Niagara-grown peaches, shipped to points east of Toronto mainly Montreal, the carrying charges by express were over 50 per cent. of the price received by the grower. The transportation companies received 13½ cents per basket for carrying, while the growers netted 8½ cents per basket. When you reflect that the growers have all the risk of seasons, all the expenditure for help, and all the waiting for the crop to grow, I think you will agree with me that the proportion received by the carrier, as compared with that received by the producer, is altogether unfair."

FRUIT DISCRIMINATED AGAINST.

Mr. H. W. Dawson, of Toronto, speaking of the unfair rates on fruit compared with other products, said:

"Fruit is discriminated against to the extent of 200 to 500 per cent., as compared with other commodities. Why is this? The railways say it is because the fruit receives better care in the carrying; but I have followed shipment after shipment and have never yet found apples receive more care or attention than other classes of fruit. As an illustration, I might mention one case. There was shipped from Grimsby on the 30th November three carloads of apples. At the

time of the shipment the shipper asked that cars be provided for shipping to Boston. The railway refused cars to Boston, but tendered cars to St. John. The understanding was that the fruit was to be put on board a steamer announced to sail from St. John on the 14th of December. The ship did not sail on the 14th of December; she did not sail until the 14th of January, and all that time the apples lay at point of trans-shipment exposed to the severe weather. The shipper was not notified of the delay, and had no opportunity of protecting his fruit: in fact, the first intimation he had of the delay was when a cable was received from England on the 6th of January asking what had become of the apples. On that one shipment over \$1,000 was lost. The fruit was frozen and did not even realize the amount of the freight."

In illustration of the discrimination between fruit and other products, Mr. Dawson compared the case of flour and apples. "You can," said he, "get a rate of 13½ cents per cwt. on flour to the seaboard, while the rates on apples is 23½ cents. These are the rates for export in both cases."

Mr. D. J. McKinnon emphasized Mr. Dawson's statements and called attention to the fact that the freight rate on flour to the seaboard represents six per cent. of the value of the goods, the rate on apples 23½ per cent., the rate on mixed fruit 44 per cent., and the rate on grapes from Ontario to the seaboard was 55 per cent. of the value of the product carried. "We are," continued Mr. McKinnon, "under a great handicap in sending fruit to the far east and the far west. The rates on such shipments are really more than the traffic will bear. Were these rates reasonable, we could produce fruit enough to supply every consumer in our own country at a reasonable price. We should be

placed in a position to do this, because fruit to-day is not a luxury, but really a necessity."

THE GENERAL STATEMENT.

The whole matter was summed up and finally presented in the following form, which was written out and left with the Premier, and we hope it will be the means of bringing us some relief from the present injustice in freight charges, which is crippling our industry and preventing the proper development of the fruit industry:

"The request for a systematic readjustment of the railway freight rates now charged in this country is based upon these general statements:

"1. Rates on short hauls within Canadian

territory are in many cases so high as to be practically prohibitory.

"2. Rates on long hauls also within Canadian territory do not in many cases bear fair proportion either to the cost or value of the service rendered.

"3. Rates on local Canadian traffic are in many cases much higher than rates under similar conditions on local traffic in the United States.

"4. On traffic originating in the United States and carried over Canadian lines to the seaboard, the rates are in numerous instances not only relatively but actually lower than the rate imposed on Canadian produce carried over the same lines but for a shorter distance."

GRAFTING APPLE ON THORN

BY

A. K. GOODMAN,

SECRETARY CANADA HORTICULTURAL SOCIETY.

I HAVE made several attempts at grafting apple and pear scions on the common thorn with marked success. Following the directions given in the Canadian Horticulturist as to the preparation of the grafting wax, I adopted this method. Scions with two buds were taken in the spring just before the trees burst into leaf; the thorn was then cut off with a saw to within a foot of the ground; a slit was made in the top and held open by a wedge, the scion cut in a reverse manner and inserted so that the space between the inner bark and wood of each exactly met and formed an unobstructed avenue for the circulation of the sap of the stock through the scion; the junction was then covered with the grafting wax and covered with rough canvas and tied until the wound was healed. The photograph shows the graft of an apple (Northern Spy) on thorn, four scions, with its growth of

three feet and over at the end of the first season, before pruning. The pear grafts made an equally vigorous growth, while the second season the results were quite as good.

GRAFTING WAX is made by melting together 2 lbs. resin, $\frac{1}{4}$ lb. beeswax and $\frac{3}{4}$ lb. of tallow.

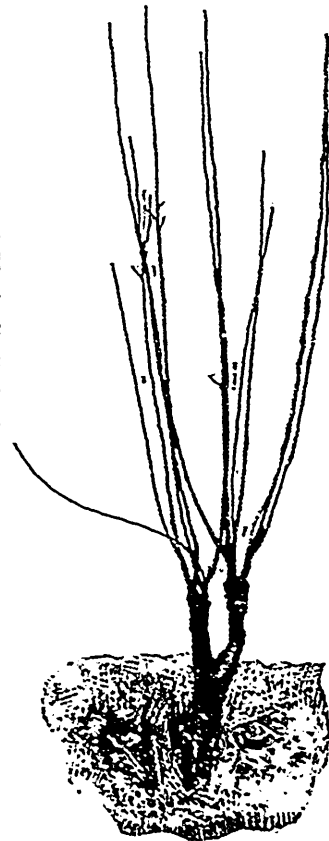
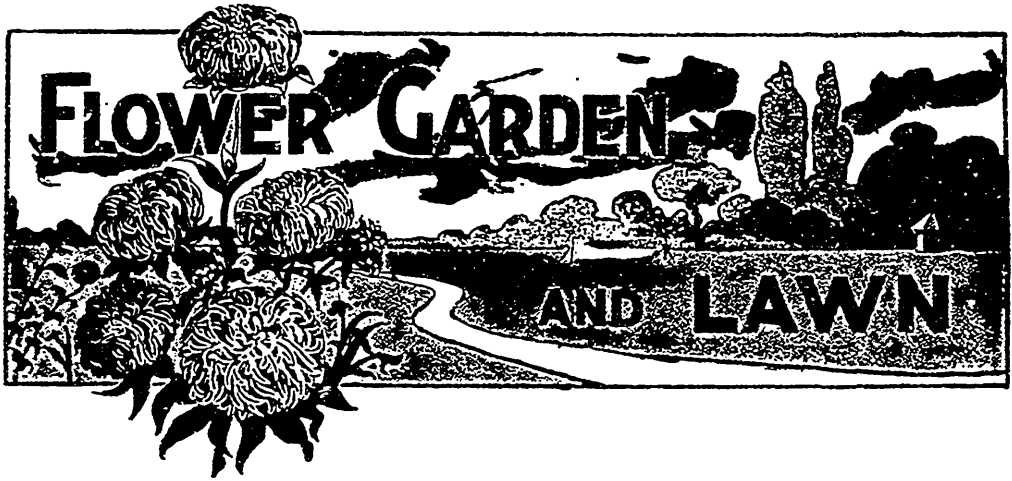


FIG. 2572. APPLE GRAFT ON THORN.



APRIL NOTES FOR LAWN, FLOWER, VEGETABLE AND FRUIT GARDEN.

WORK ON LAWN—PRUNING SHRUBS—HARDY ROSES
—ROSE THRIP—FLOWER GARDEN—SEED SAVING—
VEGETABLES—ASPARAGUS—THE FRUIT GARDEN.

BY

WM. HUNT,

SUPT. GREENHOUSES, O. A. C., GUELPH.

LAWN PRUNING.—The first real spring work on the lawn will be such pruning of flowering shrubs and roses as may be considered necessary. with one or two exceptions all the pruning required by the smaller growing lawn shrubs, such as spiraea, deutzia, weigelia, fersythia, etc., will consist of merely thinning out the most prominent branches so as to produce a natural, and at the same time a symmetrical looking shrub. Do not clip or shear off the young tips of growth, as is often done in the spring as well as later on in the summer. This young growth is the flowering wood of the present season, as a rule, and should not be trimmed off. One exception to this style of pruning, however, is that of pruning the

different varieties of lawn or hardy hydrangeas. With these latter the pruning should be severe, if it was not done late last autumn or in early winter. (I prefer the latter time for pruning hardy hydrangeas.) If not already done, prune the young shoots of these plants back to within three or four inches of the base of the young growth, leaving only three or four buds. By pruning severely in this way, and by cutting out altogether the small weak shoots on the plant, larger panicles of bloom will be the reward for this severe pruning. As the hydrangea paniculata grandiflora is one of the plants for distribution to members this spring, I might add that these plants, if the young growth is unpruned when received, would be very much benefitted by having the strongest

shoots cut back to within three or four inches of the old growth as before described, as well as by having the small weakly shoots entirely removed.

HARDY ROSES.—At the present date, March 11th, with exceptionally mild weather prevailing, it looks as if rose pruning would have to be done very early this spring. However, as a rule, the first week or ten days in April is early enough, especially in the northern sections of Ontario. Roses should be pruned just as soon as the buds show the slightest sign of growth. Prune bush roses severely. New shoots of these starting from near the surface of the ground should be cut back so that they are from fifteen to eighteen inches in height. Young shoots from old wood that is perhaps already nearly eighteen inches or more in height, should be cut back to within a few inches of the old wood. Thin out altogether the weak spindled growth as in the case of the hydrangeas. Bush roses are benefitted by severe pruning if the young wood only is pruned.

CLIMBING ROSES should not be pruned so severely. Thin out the very small weakly growth and cut the strong canes back to five or six feet in length. The length of these canes must very largely depend on the position they occupy. If on a trellis long canes can be left, if grown on stakes the canes should be pruned back more. About a pound of bone meal or a small quantity of hen or cow manure forked in around rose bushes or flowering shrubs at this season will help them considerably. The soil should not be forked over, however, until it has become fairly dry.

ROSE THRIP.—Do not forget that these little white pests, that devour and despoil the foliage of the roses later on in the summer, should be attended to early in the season. Give your rose bushes a sprinkling of strong tobacco water or tobacco dust as soon as the first leaves are developed. Don't leave it

until you see the thrip; it is often too late then. A very dry cigar powdered up fine makes a good tobacco powder for roses. Or pull a cigar to pieces, place it in a jar or dish, and pour about a quart of boiling water on it. Allow the solution to cool, when it can be sprinkled on the roses. This solution can often be obtained easily, when raw leaf tobacco or stems cannot be had to make the above solution. Sprinkle the bushes every week or ten days until the buds commence to open with the tobacco solution.

Any bare spots on the lawn should have a little fresh fine earth raked in on them and some lawn grass seed sown as early as possible. Roll the lawn as early as possible. Do not let it get too dry and hard before putting the roller on. Get your lawn mower sharpened early before the busy season commences.

All winter covering used for plant protection, as well as all dead foliage, etc., should be removed and burned as soon as the weather permits of this being done.

SEED SOWING.—Almost all varieties of flower seeds can be sown outside now, as soon as the soil is dry and in proper condition. Portulacca, nasturtium, balsam, cobea scandens and possibly poppies, would however be better if not sown until late in April or early in May. Sow all garden seeds when the soil is fairly dry, and not when it is wet and sticky. Sow sweet peas as early as possible, a little frost will not hurt them.

VEGETABLE GARDEN

ASPARAGUS.—Fork over the asparagus bed as soon as the frost is out, and the soil at all dry enough. Give the bed a good coat of salt afterwards. A bushel of salt to about every rod of ground will not be too much. Asparagus plants like salt, and it keeps down weeds as well as being a fertilizer. For a city or cottage garden asparagus is best grown in beds, but for the farm garden in long rows. Every farmer should have plenty of asparagus, if only for home

use. It is the earliest, most wholesome and easiest grown of vegetables. It takes three or four years to get good asparagus fit for use from seed, but when once obtained it will last several years and give an abundant supply in April and May of good wholesome food. A good mulching of manure in the fall, and cultivation in the summer is all it needs when once established. A couple of rows about a hundred feet in length would provide sufficient of this vegetable for a large family. The seed should be sown as early as possible in spring in drills about one and a half inches in depth and about three or four feet apart. Conover's Colossal asparagus is about the best and hardiest variety. Two-year-old plants will give quicker results than seedlings.

PEAS, PARSLEY, ONIONS, PARSNIPS, LETTUCE, SALSIFY AND LEEKS should be sown as soon as the ground can be worked. Peas should be sown in drills and covered with about two inches of soil. Dwarf varieties, such as Gradus, Horsford's Market Garden, and Stratagem, are good varieties to sow. Sow these two feet apart between the rows. Parsnips should be sown in drills about an inch deep and eighteen inches between the drills. Onions, lettuce, parsley and leeks in drills about fifteen inches apart, covering the seed with about half an inch of soil. The drills for salsify should be eighteen inches apart, and the seed covered with about an inch of soil. Prizetaker and Danver's Yellow Onion are about the two best varieties of onions. The White Portugal is the best white onion. Sow these in drills one foot apart and cover the seed with about half an inch of soil. Onions like good rich soil. The Nonpariel, Gardener's Favorite and Early Ohio are three good varieties of lettuce. Sow in drills nearly an inch in depth and fifteen inches between the drills.

Leeks should be transplanted into well-manured shallow trenches when the plants are five or six inches in height. Put the plants six or eight inches apart, give them plenty of water in the summer, and mould the plants up toward fall. Potatoes can be planted late in April or early in May. Beans, beets, radishes and carrots should be sown early in May.

FRUIT GARDEN

STRAWBERRY PLANTS should have their winter mulch removed at once, if not already done. Fork between the rows and pick out all weeds as soon as the weather permits. About 1 lb. of nitrate of soda to every square rod of the strawberry patch, applied early in May, will prove a good fertilizer for an old patch. Sprinkle the nitrate of soda between the rows and not on the plants, as it might damage the foliage.

Prune all gooseberry and currant bushes at once, if not already done. It is rather late for pruning apple, pear and plum trees, but all dead wood and suckers can still be removed.

The dead wood should be cleaned out from the raspberry canes. Stake and tie up the strongest canes left. Top them back to from four to five feet in height. Cuthbert and Golden Queen raspberries are the two best varieties for home use. Fork between the rows before the ground gets hard and dry. A mulching of fairly short manure in May will help the crop of raspberries. Put the mulch on after the weed crop has started and been hoed down once or twice. By doing this before the mulch is put on very few weeds will appear until autumn.

Civic Improvement

A DEPARTMENT DEVOTED TO THE INTERESTS OF THE HORTICULTURAL SOCIETIES OF ONTARIO, AND OF ALL OTHER BODIES INTERESTED IN THE IMPROVEMENT OF THE SURROUNDINGS OF OUR CANADIAN TOWN AND COUNTRY HOMES.

WORK OF THE HAMILTON CITY IMPROVEMENT SOCIETY

BY A MEMBER.

THE PIONEER SOCIETY—THE BOYS AND GIRLS
INTERESTED—CHRONIC KICKERS CO OPERATION
OF PRESS AND CLERGY—HOW TO PROCEED.

THE formation of a Canadian League for the object above specified comes not a moment too soon, the need of it being a crying one, not only in our cities and towns, but in our villages as well. Mr. Hayden, of Cobourg, who was elected president, desires great praise for the hard work he must have put in to bring such a representative gathering together as assembled in the Toronto Board of Trade Council Chamber on the 14th of February last. A great deal of the discussion which took place was of a very useless nature, but it perhaps cleared the atmosphere and enabled Mr. Alexander, of Hamilton, to put before the meeting a resolution of all the impending difficulties and settle the meeting down to transact the business for which they had been called together. To this gentleman are all horticulturists indebted in the past for valuable advice given, and he has also proved himself one of the most forward members of the Hamilton City Improvement Society, the first of its kind in the Dominion of Canada. This society was formed in June, 1899, for the purpose of promoting improvement, cleanliness, and beautifying of the city, and to assist and stimulate the authorities in enforcing the laws relating thereto. From its inception the society has made a point of "helping," not "abusing," the authorities, and in this way has made friends of the aldermen and all the officials of the City Hall. Requests from the society to any of the departments receives careful attention, and no demands for a large outlay of money has ever been made; but notwithstanding this fact many little changes have taken place tending toward the comfort and convenience of the public. People in Hamilton are now beginning to realise the good objects the Improvement Society has in view, and the thorough unselfishness of these objects. They are beginning to see that interest in this direction makes better citizens of people, raises the moral tone of the community, especially amongst our boys and girls, and the older hard headed fellows are coming to the conclusion that a forward movement of this kind must enhance the



FIG 2573. AN ATTRACTIVE FOOTPATH IN A PARK.

value of real estate, a most important factor in this money-making age. At the start the Hamilton society had the usual kicker, or better, perhaps, the "chronic kicker" rapping it over the knuckles, dubbing its members faddists, etc., but that is now a thing of the past, and it is supported by rich and poor alike. A glance over the names of the executive committee convinces one it is the most representative one in the city, composed of busy, active men, having the interest of the advancement of Hamilton in every way very much at heart. The foregoing remarks may be well considered by societies just forming, and it would be well for them all to go easy at the start, not attempting too many reforms, not being intrusive, and not forming too high ideals. The press in Hamilton has been of great assistance to the workers. Always have they found it ready and willing to aid in every possible way. Make confidants of the editors, and you are always sure

of good returns. The clergy have also materially assisted city improvement, not only in committee, but in active work during the flower competitions. At the same time our churches and schools could have set a much better example than they have done in making their surroundings more pleasant to the passerby. However, better things are hoped for in the future, through this medium. To make improvement societies a success you must have the enthusiast; he must be at your meetings, and he must be on your committees, and in selecting the latter get as many of the busy men of your community on them as possible. They are the ones who usually have the most time at their disposal for the public good. A good secretary is an indispensable attachment. Don't get a machine. He must be a man of some initiative, and when you get such a one don't put too much on his shoulders. Interest as many as you can to assist him.



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 20th.

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, subscriptions 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.

THE PLANTS will be sent out during this month. Renewals for 1903 should therefore be sent in at once, with choice of plant, whether hydrangea, sweet syringa or spiraea. Englose \$1.00 to the secretary, Mr. G. C. Creelman, Parliament Buildings, Toronto.

VOLUMES FOR BINDING should be sent in to Mr. G. C. Creelman, accompanied by cash, 40 cents, for which they will be beautifully bound in cloth, green and gold, and returned free of postage. We have also a fine stamp for the sides and back. For gilt edge leaves, 10 cents extra.

LECTURE COURSE FOR OUR HORTICULTURAL SOCIETIES.

FOR THE ENCOURAGEMENT of all our affiliated horticultural societies, Mr. G. C.

Creelman, our efficient secretary has arranged the following schedule of lectures on horticultural topics. If any societies are omitted it is because they have failed to accept the offered lecture, which costs them practically nothing. Where possible, it will serve to popularise the evening lecture and at the same time make the lecturer's visit doubly useful, if a mass meeting of the schools can be held at 3 p.m. of the same day, to hear an address especially adapted to students. No doubt, wherever a Civic Improvement League is affiliated, a lecture might be secured for them also.

Division No. 1.

Delegate—T. H. Race, Mitchell, Ont.

Subjects:

1. The Rose, its Cultivation and Influence Upon the Home.

2. Nature Study in the Garden.	DATE.	SOCIETY.
3. The Influence of Floriculture on Child Life.	March 30.....	Toronto Junction.
4. The Social and Moral Influence of the Home Surroundings.	" 31.....	Grimsby.
5. Bulb Culture and its Attractions.	April 1.....	St. Catharines.
6. The Work of the Horticultural Societies.	" 2.....	Niagara Falls.
	" 3.....	Hagersville.
	" 6.....	Tilsonburg.
	" 7.....	Simcoe.
	" 8.....	Port Dover.
	" 9.....	Aylmer.
		Division No. 3.
		Delegate—T. H. Race, Mitchell.
DATE.	SOCIETY.	
March 31.....	Bowmanville.	
April 1.....	Millbrook.	
" 2.....	Lindsay.	
" 3.....	Peterboro.	
" 4.....	Stirling.	
" 6.....	Picton.	
" 7.....	Napanee.	
" 8.....	Cardinal.	
" 9.....	Woodstock.	
		Division No. 2.
		Delegate—Wm. Hunt, O. A. C., Guelph.
		Subjects:
1. The Propagation and Care of Window Plants.		
2. Hardy Border Perennials.		
3. Planning and Planting the Home Grounds.		
	DATE.	SOCIETY.
	March 16.....	Seaforth.
	" 17.....	Kincardine.
	" 18.....	Mount Forest.
	" 19.....	Walkerton.
	" 20.....	Owen Sound.
	" 21.....	Elora.
	" 23.....	Elmira.
	" 24.....	Waterloo.
	" 25.....	Hespeler.
	" 26.....	Brantford.
	" 27.....	Paris.
	" 30.....	Cayuga.

SPRAY CALENDAR—PART No. 1

DIRECTIONS FOR TREATMENT OF INSECT PESTS AND PLANT DISEASES.

BY

PROF. WM. LOCHHEAD,

OF O. A. C., GUELPH.

1. BORDEAUX MIXTURE—(For Fungous Diseases). Copper sulphate (bluestone), 4 pounds; lime (fresh), 4 pounds; water, 40 gallons. In making this mixture, observe the following precautions and directions: 1. Use nothing but fresh quick-lime. The lime should be slowly slacked by the gradual addition of water. For convenience stock solutions of milk of lime and bluestone should be prepared and kept in different barrels in readiness for spraying operations. In barrel No. 1, 25 pounds of fresh lime are gradually slaked, and barrel made up to 25 gallons of water; in barrel No. 2, 25 lbs. of copper sulphate, or bluestone, are dissolved in 25 gallons of water. For rapid dissolv

ing use warm water. These are the stock solutions. Each gallon of milk of lime contains one pound of lime, and each gallon of bluestone contains one pound of bluestone. When we wish to make up a barrel of Bordeaux mixture we take out 4 gallons of milk of lime and 4 gallons of bluestone solution, and either dilute each in separate barrels in 20 gallons of water before mixing in the barrel attached to the spray-pump, or else pour each separately into the barrel in which are already 32 gallons of water. The first method is the preferable one. 2. Never mix the concentrated stock solutions together. If the milk of lime and bluestone are mixed in the concentrated form, just as they are taken from the stock solution, a precipitate of a flakey nature will soon settle out, and either fall to the bottom or clog the nozzle. 3. Test the Bordeaux to find out whether sufficient milk of lime has been added. This is most easily done by means of the ferrocyanide test. A saturated solution of this substance can be purchased at any druggist's for a few cents. In testing, place some of the Bordeaux, which has been thoroughly stirred, into a saucer, and add a few drops of the ferrocyanide. If sufficient lime has been used, no discoloration will appear, but if insufficient, a deep bark brown color will be produced. 4. Always strain the milk of lime to prevent gritty particles from clogging the nozzles. 5. Use a fine nozzle; do not soak or drench the tree. 6. The stock solutions will keep, but the Bordeaux mixture becomes useless after standing for a day or two.

2. THE COMBINATION BORDEAUX AND PARIS GREEN MIXTURE—(For Fungous Diseases and Leaf-Eating Insects). This mixture is prepared like the Bordeaux, but 4 ounces of Paris green are added and thoroughly stirred before spraying. Copper sulphate (bluestone), 4 lbs.; quick lime (fresh), 4 lbs.; Paris green, 4 oz.; water (1 barrel), 40 gallons. In small quantities it may be

made as follows: Bluestone, 4 level tablespoonfuls; quick lime, 4 level tablespoonfuls; Paris green, 1 level tablespoonful; water, 1 pail (2 gallons).

3. COPPER SULPHATE—(Bluestone or Blue Vitrol). For destroying mustard or charlock or Herrick in grain fields. Copper sulphate, 9 lbs.; water (1 barrel), 45 gallons. This quantity is sufficient for an acre.

4. AMMONIACAL COPPER CARBONATE SOLUTION.—Copper carbonate, 1 oz.; strong ammonia sufficient to dissolve the copper carbonate, usually more than $\frac{1}{2}$ pint; water, 10 gallons. This solution is not much used, and is recommended only in cases where the fruit is so far advanced that it would be disfigured by using the Bordeaux mixture.

5. POTASSIUM SULPHIDE—(Liver of Sulphur). Used to control gooseberry mildew. Dissolve 4 oz. in 8 gallons of water.

6. PARIS GREEN MIXTURE—(Liquid). For leaf-eating insects. Paris green, 1 lb.; water, 150 gallons; lime, 2 lbs. freshly slacked; or, Paris green, 1 teaspoonful (level); water, 1 pail (2 gallons); quick lime, 1 teaspoonful (level). Paris green mixture—dry: Paris green, 1 lb.; flour or dust, 100 lbs.

7. POISON BAIT—(For Cutworms, Wireworms and Grasshoppers in gardens and cornfields). Wheat bran, 50 lbs.; molasses (any kind), 2 quarts; Paris green (good grade), 1 lb.; water, enough to make a thick mash. Handfuls of the bait are scattered about the garden at the base of the plants and among the corn rows in the evening.

8. HELLEBORE—White hellebore (fresh), 1 oz.; water, 2 gallons.

9. PYRETHRUM, or Insect Powder—Pyrethrum powder (fresh), 1 oz.; water, 3 gallons. Or, Pyrethrum powder, 1 oz.; flour (cheap), 5 oz. Mix thoroughly, allow to stand over night in a closed box, then dust on plants through cheese cloth. Recommended for green cabbage worm.

10. KEROSENE EMULSION—(For Bark lice

and Plant lice). Hard soap, $\frac{1}{2}$ lb., or soft soap, 1 quart; boiling water (soft), 1 gallon; coal oil, 2 gallons. After dissolving the soap in the water, add the coal oil and stir well for 5 to 10 minutes. When properly mixed it will adhere to glass without oiliness. A syringe or pump will aid much in this work. In using, dilute with from 9 to 15 parts of water. Kerosene emulsion may be prepared with sour milk (1 gallon, and coal oil (2 gallons), no soap being required. This will not keep long.

11. TOBACCO DECOCTION—Refuse tobacco, 2 lbs.; water, 5 gallons. Boil the mixture for 30 minutes or more, until a dark brown tea-colored solution is obtained. Keep it covered until cool. It may then be used undiluted for spraying infected plants.

12. WHALE OIL SOAP—For Plant Lice: 1 lb. in 7 gallons hot water. For San Jose Scale in winter: 2 lbs. in 1 gallon hot water applied as the buds are swelling.

13. SOAP SOLUTION—For plant lice on house plants a 5c. cake of soap in 4 gallons water.

14. CRUDE PETROLEUM—(For San Jose Scale in early spring). A 20 per cent mechanical emulsion applied by a combination emulsion pump to invested trees just before the buds start. (To be done by an experienced person.)

14 (a). CRUDE PETROLEUM—WHALE OIL SOAP EMULSION... Recommended for San Jose Scale and other hibernating insects. Crude petroleum, 2 gallons; whale oil soap, 5 lbs. dissolved in $1\frac{1}{2}$ gallons of boiling water. Churn thoroughly for 5 minutes or more, and add water to make 10 gallons.

15. WASH FOR BORERS—First, add soft soap to a saturated solution of washing soda to make a thick paint, then add 1 pint crude carbolic acid, and $\frac{1}{2}$ lb. Paris green to 10 gallons of wash. To be applied to the trunks of apple and maple shade trees in early June.

16. LIME WASH—(For Oyster-shell Bark Lice, etc). Slake $1\frac{1}{2}$ lbs. fresh lime in 1 gallon of water. Strain the wash before spraying. To be applied during winter to trees infested with oyster-shell bark lice.

17. FORMALIN—(a) For Potato Scab: 8 oz. or $\frac{1}{2}$ pint in 15 gallons water. Soak seed potatoes in this solution for two hours. (b) For Smut in Oats and Wheat: 8 oz. or $\frac{1}{2}$ pint in 5 gallons water. Sprinkle thoroughly the seed with this solution.

18. CARBON BISULPHIDE—(For Weevils in Peas and Grain). 1 lb. or 1 pint for every 100 bushels of grain, or 1,000 cubic feet of space. Liquid placed in shallow dishes on top of grain or peas.

Using Traceless Harness.

Innovations on old established ways of doing things necessarily proceed slowly. If we did not know this to be true it would be difficult to see why the hitching of teams to their loads without whiffletrees or traces by the Baker Traceless Harness advertised in our columns should not spring quickly into general use. This traceless harness has many things to commend it. We might instance a freer movement on the part of the team, saving in weight, simplicity in harness and hitching, short turning, getting closer to the load, comfort in hot weather, etc. It is particularly adapted to the plow, harrow, cultivator, scraper, log drawing, in fact all kinds of low-down work. The uninitiated might have misgivings of side draft, or added weight upon back or neck. The reverse is the case. It affords a straight square draft from the shoulder, without twisting. The great point of merit, however, lies in the doing away with the nuisance of swinging traces and whiffletrees, which

are so frequently the cause of annoyance, and giving free access behind and on both sides of each horse when hitched to load. To the fruit culturist its advantages are first apparent. Here it has been most widely adopted, and has a special use in the protection afforded trees shrubs and vines. But the advantages for many other farm purposes are almost as great. Any one interested should write the manufacturer at the address given in the advertisement for his circular, which sets forth the advantages in detail.

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