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THE LARUE APPLE.



HE Larue Apple, known also as the Red Pound and as the Baxter, is a magnificent, large, red apple, very showy and well adapted to be placed on the market as fancy stock. Did it possess the superior quality of the Spy or the King, no apple that we know of would compare with it for market purposes during the months of December and January. Samples of it have several times been sent in to us and all were remarkable for both size and beauty, quite excelling the most handsome specimens of the King that we have ever seen.

The Larue was first introduced to public notice by Mr. D. Nicol, of Cataragui, Director of our Association for Division No. 3, and the history of it was given by him on page 156 of Vol. 12.

He says that at first he gave it the name of Baxter, after an old gentleman who was peddling these apples in Brockville in 1855 at 5 cents each, and who, in reply to his inquiries, told him that the tree from which they were picked was growing near Mr. LaRue's mills, about 13 miles west of Brockville. Mr. Nicol having a nursery near that town, secured some scions of it and propagated about fifty trees under the name Baxter, and these were first of the kind ever propagated in Canada.

On visiting Mr. Billa LaRue, in whose orchard these apples grew, he was informed by that gentleman that the tree sprang from the seed brought by him from France in the year 1813. Mr. LaRue, therefore, not Mr. Baxter, is properly entitled to give his name to the apple, and, in the opinion of Mr. Nicol, it should henceforth be so called.

Mr. Nicol has twenty trees of this variety in his orchard. They are vigorous growers, without the least sign of tenderness, and yield annually a profitable crop of fruit. Although the Larue is by no means equal to the Spy in quality, he finds that it sells more readily in the Kingston market, and at a higher price, than any other apple that he grows. Indeed, he claims that no variety of the same season, that is also hardy enough to be grown in the latitude of Kingston, can nearly equal it for profit.

In a recent letter Mr. Nichol writes as follows: As regards the Larue apple, it is not well adapted for starvation culture. It is only on good deep soil, kept fairly rich by frequent manuring, that it can be grown to perfection. That much may, of course, be said of all apples, but it is particularly so with this kind. The tree grows large and is a rank feeder; hence, needs more room than most other kinds. With good cultivation the Larue is a profitable apple, but whoever would plant an orchard on poor land to be poorly fed should not include it in his selection, because it would be less profitable than some of the small-fruited kinds.

Well grown fruit of the Larue is generally at its best state in December and January, but when plucked early and stored in a cool place, it keeps well until March, and this year, on the 15th of April, small lots in fair condition were seen in several Kingston shop windows and the market. I used to consider the Larue a fall apple, but now I am inclined to designate it a winter apple.

FRUIT GROWING AT BARRIE.



T is a far more agreeable task to record success either in fruit growing or any other enterprise, than failure; still, in the interest of progress, and improvement, our experience in one is perhaps as useful as in the other.

It need not be a matter of surprise that any individual who may embark in an undertaking, in which he has had no previous experience, should fail to succeed; indeed, it would be more surprising if, in a calling in which there is so much to be learned, and, depending on success for a living, he should escape failure. In my own case, I have had more of the latter than the former; but I think I may truthfully say, that had I known as much before I commenced as I did when I finished, the result would have been very different.

My first error was in the selection of a soil on which to plant; in this, following the recommendation of all writers on the subject, I was particularly desirous of having a soil that did not require draining; I succeeded in that, and succeeded too well, for although the soil was a nice sandy loam, the subsoil of about half of it was pure gravel, and the other half pure sand; consequently, in a dry season, both plants and trees suffered severely. My opinion is that vegetation draws nearly as much of its moisture from the subsoil by capillary attrac-

tion, as from the rains and dews on the surface ; therefore, if the subsoil is not retentive, vegetation must suffer during drought ; and there are very few years in which we have not, at one time or other, a period of dry weather ; then, if trees do not have time to fully recover from such visitations before winter sets in, they are ill-prepared to withstand the effects of severe cold ; and therefore many of them are lost that might, under other conditions, or with a more retentive subsoil, have escaped injury altogether.

In choice of varieties of apples, I was equally unfortunate ; here, again, I followed the recommendations of fruit growers as met with in magazines, reports of horticultural societies, etc. ; but at that time very little was said about the varieties recommended being suitable or otherwise for cold climates ; I therefore selected as my four principal varieties, Rhode Island Greening, Baldwin, Roxburgh Russet and Northern Spy, which all proved failures on my ground, causing great loss and disappointment. These are all winter apples, the very kind that should be avoided by northern growers, because the trees do not ripen their wood early enough to stand severe frosts, and I perhaps might add, they have no time to recover that strength that has been severely taxed by maturing a crop, before winter sets in ; they are, therefore, more tender than fall and summer varieties.

The Wagener was a complete failure with me ; I planted thirty of them one spring and they grew finely through the summer, but the following spring found them all dead ; that variety seemed to succeed with one of my neighbors who had a clay soil, and the Gravenstein succeeded well with another on a stiff, cold, wet soil, while on my light soil I could not get them to live.

Although I failed with a good many varieties, I had some success : the Red Astrachan, Duchess, Alexander, Hastings and Wealthy did well ; Red Astrachan and Hastings were the most vigorous growers, but were only just commencing to bear fairly after nine years' growth ; the Alexanders produced fine specimens of fruit, but few of them, and the Duchess and Wealthy bore such heavy crops, they had to be thinned out, or they would have broken down the trees, commencing to bear at three years from planting.

My first planting consisted of about three hundred trees, and among them were sixteen Wealthy ; as soon as they commenced bearing, and ever since, the produce of those sixteen Wealthys exceeded the total of all that were living of those three hundred ; the Duchess were not planted at the same time, or they would have given a different result.

I had a very similar experience with currants, of which I planted about three hundred bushes, part red and part white ; the red were bought as Red Dutch, and Cherry, but amongst them came, by some mistake, half a dozen of a kind that proved more profitable than either, for in course of time these half a dozen produced nearly as much fruit as the other survivors of the three hundred first planted. The reason was that all, except that half dozen, were so infested with the borer, that those that were not killed outright were sadly crippled, and were

growing smaller every year instead of larger, while the favored few were unmolested and the bushes had grown to a very large size. I feel interested to know the name of this variety that defies the borer; the fruit could not be distinguished from that of the finest of the Red Dutch, but the habit of growth and the color of the bark of the mature wood, and also of the leaves when just opened out, could be noticed as not the same; the bark was smoother and somewhat darker, but the greatest difference was in the habit of growth. [Possibly the Victoria.—ED.] The Red Dutch and Cherry incline to send up shoots straight upwards like a poplar, but the other variety grows with crooks and elbows, frequently tending downwards, often touching the ground and there sending out roots, and thus several of my bushes had from three to six independent roots, which accounts in some measure for their large size. I would never again plant white currants for market, as there is no demand for them.

I realized two or three times as much from every bush of Houghton's Seedling gooseberry as I did from Downing, and double the crop from every row of Philadelphia raspberries as from Mammoth Cluster.

It is not to be expected that, in the latitude of Barrie, grapes can be grown profitably in competition with the more favored parts of the province; still I planted quite a few varieties and succeeded in ripening them oftener than I failed. My favorite variety was Delaware, which I found to be the hardiest, earliest and most productive of any I have tried; perhaps I should except Moore's Early, as being earlier, but it was too shy of bearing to be profitable. It may surprise a good many that I should class Delaware as being more productive than Concord, but it was so with me; I got more pounds of grapes on an average from every vine of that variety, than from Concord of the same age and planted at the same time, and they commanded a better price, and then, though they may not color earlier than the Concord, they ripen earlier—for they are ripe as soon as colored—which the Concord are not.

I found Rogers' Nos. 9 and 15 very good flavored and very fine berries, but more inclined to grow wood than grapes. Salem is very similar to No. 9 in flavor and a better bearer, but too late for Barrie.

The flavors of some varieties differ very much in different seasons; the Delaware was always good, but I have known Rogers' No. 15 to be watery, flavorless and undoubtedly inferior to Concord; and I have known a season when Clinton was my choice of all the varieties for eating, but this only happened once in ten years. I have noticed, also, that the variety that ripens earliest one year is not sure to do so the next, a circumstance which I find it difficult to account for.

I only grew two varieties of plums, viz., Washington and Lombard. I presume the Washingtons will be living and in good health, long after the Lombards planted at the same time are dead and gone, for they are not attacked with the black knot to anything like the same extent; but for all that, I think the Lombards will have repaid their first cost and returned a better interest on the investment both of money and labor, than the Washingtons will do if they live twice as long.

Plums have done better with me than apples, they more than paid their first cost before I sold my farm, which was far from being the case with apples; still I lost quite a number of them through over-bearing in a dry season,—one of the results of a too porous subsoil.

In this latitude grape vines should never be left uncovered in the winter; my practice was to support them by movable frames about two feet or less from the ground, and on the approach of winter these frames were removed and the vines falling to the ground were covered with snow. This plan I consider good, for in addition to easy protection in the winter, the foliage shaded the ground in summer and kept it moist.

In proof of the necessity for winter protection, I have frequently noticed that where any part of a cane was exposed above the snow line, not a single bud would start from the exposed portion; but the wood not being killed, the ends of such canes, which were covered, would start buds and grow fruit just as though the whole cane had been covered.

My rows of trees ran north and south, and my small fruits—such as gooseberries, currants and raspberries—were planted in the same rows between the trees. This arrangement may have robbed the trees somewhat, but I found it very useful for the strawberry plants, for, forming as they did a wind-break every twenty-four feet, they kept the snow from blowing off, and the next summer's crop always showed plainly the benefit of this protection, as compared with ground not so protected; so that I have frequently said that it would have paid me to grow gooseberry bushes, supposing they never bore any fruit.

In conclusion, I am quite satisfied that apples and other fruits can be grown with success in the County of Simcoe, more easily than in a large part of the province further to the south; for there is a broad ridge of land between Barrie and Toronto and extending west and south-west till it reaches Stratford, and how much further I cannot say, that is from two hundred to four hundred feet more above sea level than is Lake Simcoe, and has consequently a more rigorous climate. But I think it advisable in the north to grow summer and fall apples only, as most winter varieties are tender, and then a fall apple becomes almost a winter apple as grown in the north. I have myself kept the Wealthy in good condition until spring, although it is only rated as a fall variety; but I must confess that what I have done in this respect one year, I could not be sure of doing the next, and whether this was owing to the particular season, or to the time of gathering, I am unable to say.

Toronto, 28th March, 1891.

A. HOOD.

GOOSEBERRY MILDEW.—Mr. A. Morton, of Brampton, has experimented with ammoniacal Paris green for gooseberry mildew, and has found it quite effective. He dissolves one-half teaspoonful of Paris green in ammonia mixes in five gallons of water, and sprays it upon the bushes.

THE STARLING.

SIR,—I am sending you by this mail a copy of the *Bath Chronicle* newspaper, dated 18th Dec., 1890, which contains an article on a subject that I think may prove of some interest to the members of your Association—I refer to that on page 6, the subject being a bird called the starling, very common all over Europe. I have no doubt it would prove a valuable aid to farmers and gardeners on this side of the Atlantic, and I would suggest that a few of these useful birds should be imported during the coming spring and turned loose in our gardens and fields. Possibly your Association might feel disposed to take the initiative in such an important matter by undertaking to procure a supply of these useful insect destroyers. You will observe that they differ in every respect from the sparrow, whose aid to horticulturists is of a very doubtful character. I can remember our garden in the suburbs of London being much frequented by it in flocks during the autumn and winter months. Being a hardy bird, I can see no reason why they should not be well adapted to all parts of Canada, and remain with us during the whole season. My observation leads me to suppose that this country is much in need of insectivorous birds, and quite as much in winter, as in summer. I shall be glad to see the subject inquired into by all interested in horticulture.

Yours truly,

E. D. ARNAUD, *Annapolis, N. S.*

Mr. T. McIlwraith, of Hamilton, one of the leading ornithologists in Ontario, replies as follows:

SIR,—In reply to your letter regarding the European Starling, I may say that it is not found in this country except in captivity.

Throughout Europe it is very generally distributed, and breeds in large numbers in England, Ireland, Scotland and Wales. In Norway it is found as far north as Tromsø during the summer, and in Siberia it gets as high as 57° N. lat. At the approach of cold weather the birds travel southward, vast flocks spending the winter along the shores of the Mediterranean sea.

A very decided increase has been observed in the number of these birds lately, they being now common where twenty years ago they were not known at all. Their food consists chiefly of worms, slugs, small molluscs, flies, beetles, ticks and other insects, they are also known to take small fruit occasionally, and have been accused of destroying the eggs and young of other birds, chiefly those of the skylark. The latter habit, if true, is much to be regretted, but it has been so often disputed that it cannot be practised to any great extent. The nest is usually built in a hole in a tree or bank, and very often on a ledge under an overhanging rock near the sea. They are very social in their habits, being found in large flocks at all seasons of the year. In civilized life they rear their young among the interstices of the Gothic architecture of church spires and monuments of the large cities, and often create work for the tradesman by planting their untidy nest in places intended to carry off the rain from the roofs of the houses.

They do not rank high as song birds, but they make such a variety of noises, with so much spirit, and accompanied with so much amusing gesticulation, that they are looked upon with general favor. They have great powers of mimicry, and on this account are often kept as cage birds, when with careful teaching many of them become quite accomplished.

As to whether they could adapt themselves to the climate of Ontario, that is a matter which so far as I am aware has not yet been put to the test, but I think is well worth trying. They would have to go south during winter, but there is plenty of room for them, and they could choose winter quarters to suit themselves as others do.

The whole habits of this bird point to it as a true friend of the farmer and gardener, and if any of those who made such a mistake in introducing the English sparrow to Canada, will try the introduction of the starling it would, I think, be about the best compensation they could make for the evil done by the sparrow. We have an abundance of food for the birds in summer which we can well spare, and if a few are tried and they find out where to go in winter, I have no doubt but they will thrive and make a very desirable addition to the list of our feathered friends.

Cairnbrae, March 4, 1891.

WINTER PEARS FOR MARKET.



THE Anjou pear I regard as the queen of winter pears for the table. It possesses all the virtues of a perfect pear, being rich, vinous and melting, with keeping qualities not excelled by any pear of its season. It is large, of pleasing shape, fragrant, and when fully ripe of a warm straw color. Coming into market when all fall pears are gone, it may be kept from November until March. As a market fruit it is always in ready demand wherever known, and brings the highest price, \$5 to \$6 per bushel for fine selected fruit. The tree is hardy, vigorous, not subject to blight, does not overbear, and hence requires little thinning, while few inferior fruits are seen on the tree.

Anjou does well as a standard or a dwarf. It should be planted in well-prepared, rich, dry ground and kept under the best cultivation, enriching it every year alternately with a moderate dressing of well decomposed stable manure and hardwood ashes. A thin sprinkling of salt during winter is also beneficial. Pruning is very important to keep up the vigor and health of dwarf trees and also to prevent overbearing. Dwarf trees that have been maintained under proper cultivation, and have been properly pruned, may be seen producing excellent crops of fine fruit after a half century of existence. Most of the dwarf pear-orchards throughout Western New York are neglected in most, if not in all, the about requirements, and therefore their lease of life is short and unsatisfactory.

The Winter Nelis is one of the finest winter pears, and a great favorite in eastern markets. The fruit is of medium size, melting, and possesses a rich aromatic flavor. For a dessert pear in respect to size, color and quality it has no superior among winter varieties. Its season is from December to March.

Winter Nelis should be grown on pear stock, or double-worked on dwarf stock. White Doyenne being the best tree for double working. A slender grower, in order to obtain bearing trees within a few years, it should be top-grafted on good-sized vigorous trees. It often overbears, and requires thinning, otherwise the fruits prove inferior in size and quality. Indeed, too much stress cannot be laid upon the necessity of thinning, not only with pears, but with all other kinds of fruit.

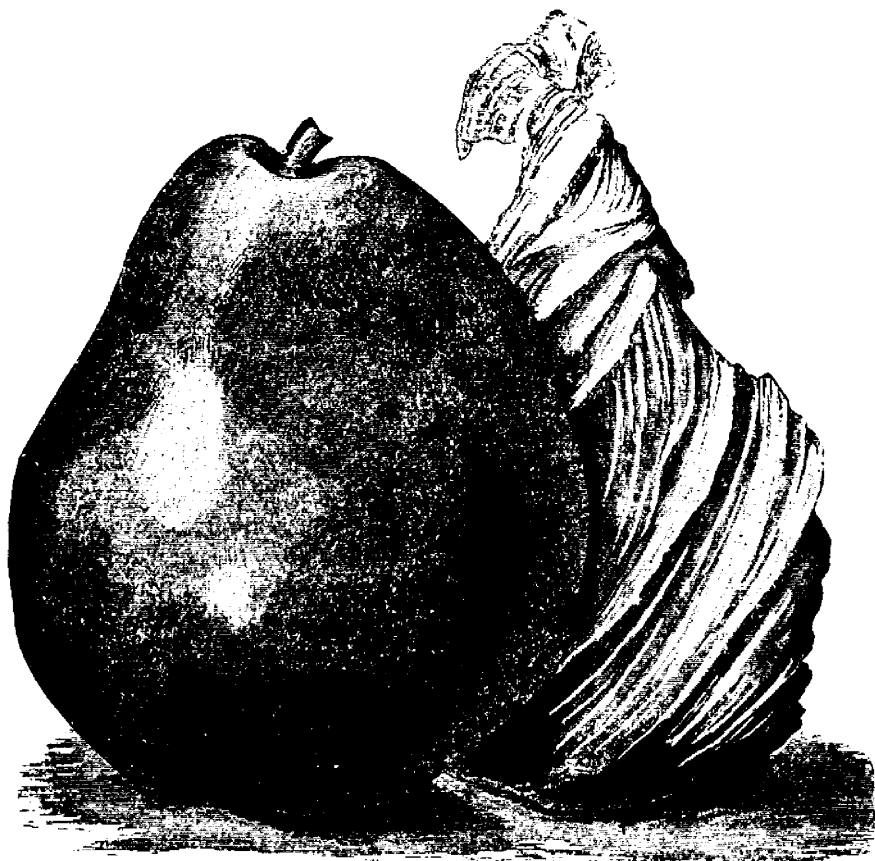


FIG. 34.—ANJOU PEAR, AND SPECIMEN IN TISSUE PAPER FOR SHIPPING.

By all who have tasted the Josephine de Malines when well grown and ripened this will be pronounced one of the very best late-winter pears. The fruit is medium to large, the pink or salmon-stained white flesh, melting and of a delicious rose aroma. This succeeds either as a standard or dwarf. Its season is from January to April. Owing to its moderate, irregular growth, it is little propagated in nurseries, and on this account is not much disseminated.

Lawrence, largely grown in some sections of our State, is held in high esteem by those who prefer sweet pears. The fruit is medium to large, melting and of pleasant flavor. Its season is from December to January. The tree is a moderate grower and very productive.

Clairgeau is the largest and most attractive early winter pear in cultivation, and always commands the highest price. The fruit is very large, pyriform, yellow and red, with its red cheek usually very highly colored, nearly melting, and keeps till January, the tree being a good grower and an abundant bearer. This is a very valuable market pear.

I have thus briefly referred to the best winter market pears that have come under my observation. Others might be added, but none, all requisites considered, equal to those specified. This is applied to winter market pears solely.

The pear for market and the pear for the amateur are two different matters. And yet, while the list might be increased in the latter case, where quality is the main consideration, it would be, nevertheless, difficult to name any finer winter pears for the table than Clairgeau, Anjou, Winter Nelis and Josephine.—GEO. ELLWANGER, In *Popular Gardening*.

NOTE.—Some growers have tried exporting pears to the English market and made it profitable, especially with the Anjou, which is sufficiently firm to endure the long period of transit. Our engraving of the Anjou is taken from the pages of *Popular Gardening*, and well illustrates the method of wrapping pears in tissue paper for distant shipments. We tried exporting Bartlett's last summer, but the result was a total failure, as this variety ripens too rapidly when confined in a close apartment

PETERBORO' FRUIT GROWERS' ASSOCIATION.



THROUGH the instrumentality of Mr. E. B. Edwards, of Peterboro' a local Fruit Growers' Association has been established in that place in affiliation with us. There are over fifty members, all of whom are also members of the Ontario Association. In response to their request, Mr. A. McD. Allan and the writer attended the initial meeting, which was held at Peterboro' on Wednesday, March 25th. Although the number in attendance was not very large, yet all appeared to be very deeply interested in the subjects presented.

Mr. E. B. Edwards began the proceedings by reading a paper from Mr. Wade, of Brighton, on "Storing, sorting and shipping apples." He recommended the following as the best varieties for the English market, viz., Summer and Fall: Duchess, Alexander, Ribston, Wealthy and Snow, when clean; the latter when otherwise should never be shipped to the English market.

Among the winter apples, he recommended Greening, King, Ben Davis and others. In the discussion upon the paper, Mr. Allan said that he believed that the prevalence of the scab partly arises from the delapidated condition of our

orchards: orchards need cultivation and manure, and when brought into a vigorous condition by attention in these respects, it will be much more able to overcome fungi and insects. He noticed that Mr. Wade stated in his paper that he put his name on No. 2 but not on No. 3. Mr. Allan thought the time coming when he will not put his name on No. 2 unless in exceptional seasons like the present. It is only the best that pays, and it only pays to grow the best. To-day first class apples will sell in Toronto, without any trouble, at \$5.00 per barrel; while the poor article is a drug even in this scarce season. Deep plowing must of course be avoided, yet it is necessary to keep the soil in such a condition that it can take in the manure and be open to the action of the sunlight. The whole ground of an orchard should be devoted to the fruit crop, and no second crop be attempted, unless the trees are very young.

The Ben Davis apple appears to be very popular with growers in the vicinity of Peterboro' and was very highly commended by some of them who were present at the meeting.

Mr. Stenson commended it very highly as a shipping apple. His custom was to keep it in a cool cellar until about the 20th of May, at which time it was at its best in quality. He had shipped it at that season into the English market where it brought the very top price, frequently netting him as high as \$3.50 per barrel. Of course this was due to the fact that other apples were out of the market at that season. The Ben Davis, he said, was a very fine bearer and the trees very hardy; and, therefore, if it only possessed the requisite quality of fruit it would surpass any other variety for this section of the country.

Mr. Allan feared that the Ben Davis would not hold its place. There was a time when the Greening was unsaleable in the English market, but of late it has been speedily rising in value because of its excellent quality.

The Ontario was mentioned by some member present as being an excellent bearer, the apple was of first quality and very saleable on account of its fine appearance. Mr. Allan said he believed that this apple would in time take the place of the Spy and the Wagener, the objects of the originator being to secure an apple possessing the high flavor of the Spy, and the early bearing of the Wagener. This has been largely accomplished, for the Ontario is as good a keeper as the Spy which it resembles in flesh and flavor, and it comes into bearing as early as the Wagener; it also possesses the tartness of the latter and even surpasses the former in shipping qualities.

The Russet apples were adversely criticised by several apple growers. Mr. Allan stated that they were no longer in demand as formerly. They were not asked for in the market so long as other varieties of better color could be had. He could not, therefore, advise extensive planting of either the Roxbury or the Golden Russet.

The varieties of pears grown about Peterboro' with success were also brought under discussion. Mr. Stenson has tried the Flemish Beauty with success, and off one tree, 14 years of age, he has harvested nine bushels of fruit. There

was one fault, however, with the Flemish Beauty, it will crack, and in some seasons it is badly cracked and blemished. He believed the Clapp's Favorite was the best pear for the section ; it is very productive, grows to a fine size and is entirely free from blemish.

In his address on "The Commercial Orchard," Mr. Allan gave the following list of apples as well adapted to the climate of Peterboro', viz., 1, Yellow Transparent, 2, Duchess, 3, Indian Rareripec (strong grower, a magnificent apple, somewhat the size and shape of the Spy), 4, Gravenstein, 5, Colvert, 6, Wealthy, 7, King, 8, Peewaukee, 9, Ontario, 10, Golden Russet. He said the only objection to the Wealthy is the danger of spotting. So far it grows comparatively clean, but being of the Fameuse type, there is danger that this fungus may come over it in the future. The Peewaukee is very valuable ; it is a hardy apple and very firm, and consequently suitable for distant shipment. The tree is an enormous bearer and possessed of a strong constitution.

Some samples of the Blenheim Orange of excellent size and appearance were presented upon the fruit table. Mr. Allan was asked his opinion regarding them. In reply he said that if this apple could be grown successfully in this vicinity, he would highly recommend it for orchard planting, for it commanded a very high price in the English market.

Mr. Allan's list of plums for the district of Peterboro included the following : Moore's Arctic, Lombard, Imperial Gage, McLaughlin, Weaver, Yellow Egg, German Prune, and Coe's Golden Drop ; and his list of grapes was Lady, Worden, Concord, Brighton, Delaware, Niagara, Moore's Diamond and Wilder.

Mr. Thomas Beall, of Lindsay, read a paper on "Underdraining the Orchard," which he emphasized as very important to success in apple culture. He advocated drains five feet deep in the fruit garden, the object being to place them down well out of reach of the roots of the trees. He believed that drains at that depth were more economical than if they were only half that depth, for their influence would be effective upon the land twenty-five feet each side.

We expect to receive from this Society at Peterboro' a full report of their meeting with the list of officers, and papers read, for insertion in our next annual report. The same courtesy will be extended to all local Fruit Growers' Associations who are affiliated with the Ontario Association.

TO MAKE CARBONATE OF COPPER.—Since this article is coming into such common use and it is not always easily procured, the following recipe for its preparation, given us by Prof. Saunders, of Ottawa, may be useful :

Dissolve separately in warm water one pound of sulphate of copper, and one and a quarter pounds of washing soda ; mix the two solutions when carbonate of copper will be precipitated ; then pour off water.

NITRATE OF SODA FOR SMALL FRUITS.



HERE is no question at all as to the great advantages to the fruit grower of having commercial fertilizers placed within his reach. Formerly, his plantations were limited by the supply of manure, and his only hope of enlargement was by increasing the number of his stock, thus compelling him to unite his two lines of industry. But now that the elements contained in barnyard manure can be obtained at a low price in the shape of commercial fertilizers, the fruit grower is only limited by the amount of his land and by his capital, for he can easily procure every needed element of fertility.

The three principle elements in barnyard manure are phosphoric acid, potash and nitrogen. These can be separately purchased, the first in the superphosphate or ground apatite rock, which is being quarried so extensively in the county of Renfrew, and sold at about \$18 per ton; the second in muriate of potash, or in wood ashes; and the third in sulphate of ammonia, or in nitrate of soda, the latter of which is now to be had at about \$60 per ton.

Having some inquiries respecting the use of nitrate of soda, we will at present only speak of this substance. It is sometimes called Chili saltpetre, because it is imported in large quantities from Peru, in which country it is found in a crude state incrusting the soil of a desert. Its value in the garden, like that of other compounds of nitrogen, consists in its power to promote leaf growth, and consequently the general health and vigor of plants. Sulphate of ammonia has been largely used to furnish nitrogen, but of late nitrate of soda has been offered at such reasonable prices that it has displaced the former to a large extent. The application of from one to two hundred pounds per acre will give marked results and well repay the outlay.

One caution needs to be observed, and that is to apply nitrate of soda in the early part of the growing season, just when the plant most needs the stimulus, and when it will not be likely to be leached away before being taken up. Its value to the gardener has been so thoroughly proved by Mr. Joseph Harris, author of "Walks and Talks," that we quote the following from his writings:

"The effect of nitrate of soda on strawberries in the dry climate of the United States is very beneficial. It not only doubles or trebles the yield, but the strawberries are larger and handsomer, and consequently command a much higher price in market.

"No ordinary amount of manure will produce so great an effect, for the reason that the plants grow and form their fruit early in the season. The nitrate of soda furnishes the plants with nitric acid before the nitrogen of the manure can be converted into this essential ingredient of plant food.

"A few years ago, we published a statement in regard to the astonishing effect of a large dressing of nitrate of soda on an old strawberry bed. The bed

had been neglected and was full of grass and weeds. At that time we had never used nitrate of soda on strawberries and did not know but that it might injure them. The bed we allude to was so run out and worthless that we did not care whether the nitrate killed the plants or not. We gave the bed two or three heavy dressings, sown broadcast, early in the spring and a few weeks later. Instead of killing the plants, the nitrate made them grow so vigorously that with a little assistance from a sharp hoe and by pulling out the large weeds, the strawberries killed out nearly all the grass, and we had a remarkably fine crop of fruit. Since then we have used nitrate of soda and superphosphate on all our strawberry plantations, and find this dressing far more effective and economical than ordinary manure.

"Nitrate of soda is, at least, equally as good for raspberries as for strawberries. On currants, with clean cultivation, we have for several years raised large crops of fine fruit, with a top dressing of nitrate of soda alone, applied on each side of the rows early in the spring.

"On poorer land, it would be desirable to apply superphosphate and potash in the autumn, and plough or cultivate them in, and the following spring, and in fact every spring, give a dressing of nitrate of soda."

THE HAVERLAND, BUBACH AND WARFIELD STRAWBERRIES.



AMONG the new strawberries *the Haverland* seems to receive general commendation as a cropper. The engraving is a sketch of it as grown at LaSalle, N. Y., and sketched in a recent issue of *Popular Gardening*. According to that journal it is a berry of which both originator and introducer may well be proud, for it is "enormous in foilage, enormous in number of runners and enormous in quantity of fruit." The Horticulturist of the Ohio Experiment Station, also commands the Haverland very highly. He says :

This variety is one of the most promising of recent introduction. It has been before the public but three years, yet it has become fairly established and now ranks high among the standard sorts. In its leading characteristics it resembles the Crescent, being vigorous in its growth and very prolific. It is not quite so early in ripening, but the berries are larger and finer in appearance. Scarcely an unfavorable report has been heard of this variety from any section of the country. It may not be equal to some other sorts for distant shipment, but for near market it is unsurpassed. Fruit growers who have not planted the Haverland need have no fear in doing so, as it seldom happens that a variety fails in a particular locality when it succeeds over a wide area.

The *Bubach* has been favorably mentioned several times in this journal on account of its uniformly large size, and its ability to withstand dry seasons. Prof. Green, of the Ohio Experiment Station, speaks of it as follows :—

This variety is remarkable for its healthy dark green foliage, being distinct from all other varieties in color of leaf and general appearance of plant. The berries are large, somewhat cocks-combed, rather soft and not extra in quality. In productiveness the Bubach ranks a little below Crescent and Haverland, but the berries are larger than of either of the kinds named. Many growers who dispose of their crop in near markets place this variety at the head of the list,

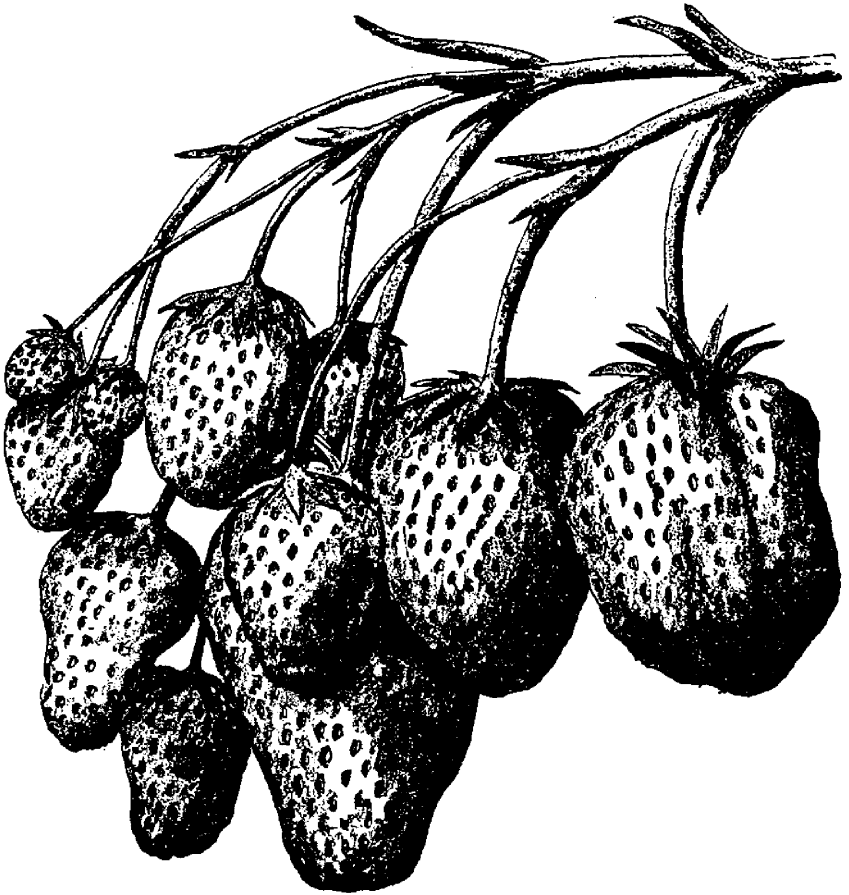


FIG. 35—CLUSTER OF THE HAVERLAND STRAWBERRY.

but experience with it at the Station shows that the berries are not uniformly large, rendering sorting necessary. It must be classed with what are known as "show berries," in which class it takes high rank. As regards its value as a market berry, much depends upon the demands of the particular market for which it is designed. Where extra fine berries command a price according to the grade, the Bubach will prove one of the most profitable, but in less discriminating markets it will fall considerably below Crescent and Haverland.

Plants of this variety were distributed a year ago to members of our Association, from whom we shall soon receive reliable reports of its suitability to our province.

The *Warfield* is another berry which appears to stand testing. Its great merit seems to be its firmness, making it a first-class berry for distant shipment. Those who value the old Wilson will find in this many of the same characteristics, as firmness, quality and rich dark color. Prof. Green says of it:—

The most marked characteristic of this variety is its shipping qualities, ranking the highest of those named in this particular. The plants are vigorous and productive, berries medium in size and of fair quality. Those who grow for near market only will find this variety less satisfactory than the above named, except when it is desirable to hold the berries some time after being picked. It has a place, which it fills very satisfactorily, but for near market it is not the equal of either of the varieties named above.

These three varieties are imperfect in flower, but no perfect flowered kinds equal them in productiveness. Of course planters will set, say, about one row in five of *Jessie*, *Sharpless*, or some other good staminate variety, for the purpose of furnishing them with pollen.

FURTHER POINTS ON SPRAYING WITH COPPER SOLUTIONS.



NOW that the time has arrived for treating our vines and trees with the copper mixtures, a few additional points may be helpful. Their usefulness for grape mildew has been fully proved by the testimony of many vineyardists, who state that they have thereby made a saving of from 50 to 90 per cent., and, for the apple scab, their effectiveness has been fully demonstrated at several Experiment Stations.

Nor is this all; an evident result of this treatment is that bright healthy foliage, without which it is impossible to mature fine fruit, or to produce that vigor in the tree or plant which is necessary for fruitfulness.

We notice considerable variance in the modes of treatment prescribed, for the reason, no doubt, that the work is still in the experimental stage. Mr. Gallo-way, Chief of the Division of Vegetable Pomology of the United States, advises ammoniacal carbonate of copper as the best remedy for both the downy and the powdery mildew. In the case of the former, he advises the first application about the time the berries are well formed, and a repetition every twelve or fifteen days, or oftener in rainy weather, until the berries begin to color; the latter he would treat the same, with this exception, that he would not begin until the first sign of the trouble is visible. For the treatment which he recommends for the apple scab, we refer our readers to his own letter on the apple scab.

To give our readers some idea of the true value of the chemicals required, we quote the following wholesale prices:—

Sulphate of copper (in crystals)	per lb.	6 cts.
Copper carbonate	"	40 "
Aqua ammonia, 26°	"	8 "
Ammonia carbonate	"	11 "

and based upon these values, the vineyardist who is provided with a force pump, can treat his vineyard for one-third cent per vine each application, and with sulphate of copper for one-half of that sum. The Bordeaux mixture will cost about one-half cent per vine for each application.

The ammoniacal solution of carbonate of copper can be prepared in an easier way than that already given, by using pulverized ammonia carbonate instead of liquid ammonia, thus: Mix thoroughly six ounces pulverized ammonia carbonate and one ounce of copper carbonate, keep it in an air-tight vessel, and when ready for use, dissolve in ten gallons of water.

Convenient measures for copper carbonate are also suggested by Mr. Galloway. They are made by the use of a baking powder tin, first weighing the tin, then adding, say, an ounce of the chemical and marking the place. In the same way, two ounce and five ounce measures can be prepared.

TREATMENT OF APPLE SCAB.



APPLE scab can now be prevented so easily and cheaply that there is no longer any excuse for the injury it occasions. We first successfully treated this disease three years ago and since that time our methods of work have been considerably improved. Briefly the treatment we would now recommend is as follows:

When the fruit is about the size of a pea, spray the trees thoroughly with a solution made by dissolving five ounces of carbonate of copper in one and one-half pints of aqua ammonia having a strength of 26°. The copper may be dissolved in an ordinary water pail. When completely dissolved pour the liquid into a barrel, and then fill the latter with water. A barrel of the solution made in this way will cost about thirty-five cents, and it will be sufficient to treat fifteen large trees once. Make a second spraying twelve or fifteen days after the first, and the third two weeks later. If an ordinary season, three sprayings will be sufficient, but if rainy it will be necessary to make one or two more. In applying the solution it is of the highest importance that the leaves and fruit be thoroughly covered, and this is only made possible by using a good strong force pump, provided with a suitable spraying nozzle. Such a machine need not cost over \$12 or \$15, and where one has a larger orchard this amount will be easily saved in a short time.

The carbonate of copper is sold at retail for 40 cts. to 75 cts. a pound. It

can be made at home, however, much cheaper, the usual method of preparing it being as follows:—

Dissolve three pounds of sulphate of copper or bluestone in five or six gallons of hot water. In another vessel dissolve three and one-half pounds of sal soda in six gallons of hot water. When cool pour the soda solution into the copper liquid, stirring constantly the while. Allow the solution to stand twenty-four hours, then siphon or pour off the clear liquid, taking care not to disturb the sediment any more than is necessary. After the clear liquid has been removed, add water and stir up the sediment. Let the liquid stand another day then draw off the clear liquid again. The sediment, which is carbonate of copper, may then be dried and used as already described.

*Department of Agriculture,
Washington, D.C.*

B. T. GALLOWAY.

THE MOUNTAIN BEET APPLE.

SIR,—I note Dr. Hoskins' remarks about the *Mountain Beet Apple* in April number of the HORTICULTURIST. I have had some twelve years' experience with this variety. The tree is quite hardy and bears heavily every alternate year. The fruit is above medium, roundish, slightly oblong, symmetrical; skin rather thick, entirely covered with deep red, but never any bloom, as many dark red apples have. Flesh fine, stained through to the core a strawberry color. It is, as Dr. Hoskins says, a "a great curiosity."

The Mountain Beet is a very pleasant apple to eat, being crisp, spicy and sub-acid; an excellent cooking apple. It is inclined to spot some, but not as badly as Fameuse. With the members of my own family it is a great favorite in the fall. Season, October. A very good apple for home use, in this province, but I would not recommend it for market.

Montreal, P. Q.

R. W. SHEPHERD, JR.

POOR STOCK quickly glut any market, but first class and fancy fruit is always in good demand at high prices. A writer in the *Fruit Grower's Journal* very sensibly writes:

From my long experience as a wholesale dealer I am satisfied that if shippers would keep all the low grade goods at home the price of their good stock would be enough better to more than pay the difference.

There should be a good evaporator in operation in every fruit district where all inferior fruit could be utilized.

BEST SIX GRAPES FOR SOUTHERN ONTARIO.—The following are recommended by W. C. Barry, of Rochester, for that locality, which also corresponds with Southern Ontario: Lady, Niagara, Concord, Worden, Gaertner and Barry.

FRUIT TREE FERTILIZER.

SIR,—Would you kindly give an early answer in the CANADIAN HORTICULTURIST, respecting the recipe for a complete fertilizer as issued in the March number. What could you substitute for the forty bushels of wood ashes, as such an article cannot be obtained in or near Toronto.

W. H. PARKER, *Mimico*,

SIR,—You will kindly allow me to correct the printers errors and to make an additional note in reference to the fruit fertilizer given by you in the February issue. I would recommend the following as an application per acre for fruits :

40 bushels of fresh hardwood ashes, @ 10c.	\$4 00
100 pounds of bone or bone black, @ 1½c.	1 50
100 pounds of nitrate of soda, or }	3 50
75 " of sulphate of ammonia }	
	\$9 00

In place of the wood ashes, potash salts, such as the muriate or sulphate can be used, which will cost from three to four and a half cents per lb. of high quality (52% potash). Use about 150 lbs. of the best potash salt, which, however, will cost about \$6, and will give a little more than half the potash contained in the forty bushels of ashes. In case ashes are not available it would probably pay best to deal directly with a fertilizer manufacturer and buy his potash or fruit fertilizer ready mixed.

I make the change from sulphate of ammonia to nitrate of soda because I find that the price of the nitrate of soda varies with different dealers but very little, from three to three and a half cents a pound; whereas, for some unknown reason, we have had sulphate of ammonia quoted to us from 3¼ to 9 cents a pound.

In buying a potash fertilizer, such as the muriate or sulphate, the buyer should carefully note the amount of potash guaranteed, as it may vary from 50% to 10%. As a bushel of ashes contains from three to four pounds of potash he can readily make his comparison in value.

Ontario Agricultural College, Guelph,

C. C. JAMES.

POWDERY MILDEW OF THE GRAPE.—Prof. Scribner, in his new work on Fungus Diseases, recommends sulphur as the only remedy needed. He says: "Flowers of sulphur dusted on the vines (or in hot climates, simply spread over the ground beneath them), serves effectually to destroy the Powdery Mildew. No other treatment is necessary to protect the vines from this parasite. In regions where this fungus is most injurious, it is the custom of vineyardists to make at least three applications; first, when the young shoots are about four inches long; second, when the vines are in bloom; and third, just before the berries begin to color."

COMMERCIAL FERTILIZERS COMPARED WITH STABLE MANURE.



T a meeting of the Boston Market Gardeners' Association on the 27th of December last, Mr. Geo. W. Bowker read a paper on "Manures for the Vegetable Garden," and in the course of the discussion following he very strongly advocated the liberal use of commercial fertilizers. Mr. Bowker, says the *American Garden*, would not have it understood that he would have market gardeners dispense with stable manure altogether. He would have them use only enough stable manure to keep up the vegetable tilth, and supplement it with concentrated fertilizers. He would advocate that course on the score of economy, for what need is there in carting manure eight or ten miles out of the cities to get only twenty-five pounds of actual plant food to the ton! For, according to Prof. Goessman, that is all the plant food there is in two thousand pounds of stable manure, the remainnig 1,975 pounds being silicates and organic matter that most market gardens contain.

The market gardener near our large cities, working high-priced land, is compelled to use some stable manure, but upon the cheaper interior land a part of the garden can remain in grass, and from time to time this grass land can be turned over, thus furnishing the same kind of organic matter that is contained in stable manure. The additional fertility required can be obtained from fertilizers. To the market gardener who had, for the past fifteen or twenty years, been applying stable manure at the rate of fifteen cords per acre, he would say to him, stop, and instead of stable manure use commercial fertilizer and nothing else for five years at least. That would be true economy, for the application of two thousand pounds of fertilizer, which is about the right ratio for an acre of land, would not cost nearly so much as fifteen cords of manure.

The question of the cost of manure eight miles from Boston was discussed by many speakers, and the price agreed upon by most of them was seven dollars per cord.

Mr. Derby, of Revere, struck the key-note to the situation on his remarks. He said, circumstances alters cases, different soils require different treatment. With him, upon his heavy, clayey soil, fall manuring not only improved the texture of the soil, but permitted it to dry out earlier in the spring.

Mr. Frost, of Belmont, related an interesting experiment with fertilizers on celery. Celery, where fertilizer was used, was far ahead of stable manure, as he experimented both ways. Mr. Frost's experience was doubly interesting, from the fact that he was formerly a skeptic on the use of commercial fertilizers on a market garden. He formerly said that there was nothing equal to stable manure. He further remarked that the market gardens of Arlington and Belmont were now manure sick, so much so that many of our valuable crops could not be grown.

It was out the question to grow sweet melons, cauliflowers, tomatoes, bunch turnips ; and even celery, which was always supposed to do well on old, rich soils, now badly blighted there.

Mr. Stone, of Waterton, spoke of his success in using fertilizers for ten consecutive years and the soil was steadily improving.

Mr. King, of Peabody, used fertilizers on hoed crops for six years, and the last year gave the best crop. The piece is now laid down to grass, and it gives him his best mowing.

PROVINCIAL EXPERIMENT STATIONS.



THE importance of having a Horticultural Experiment Station in southern Ontario, was debated upon at our Winter Meeting at Hamilton and a special committee appointed to prepare a scheme and bring it before the Ontario Government.

The necessity of such a Station is obvious from the fact that the climatic conditions, both at Ottawa and Guelph, are unfavorable for the testing of tender varieties of fruits and it is very important that intending planters should have some more reliable guide with regard to the value of new fruits than the recommendations of interested parties.

A very economical plan would be one patterned after that which succeeds so well in Michigan, where a branch experiment station, fruit under the Agricultural College, has been established in connection with the farm of Mr. T. T. Lyon, President of the Michigan Horticultural Society. A tract of land, adjoining his fruit farm, has been purchased by the government and placed under his care ; and in this way, the public receive the benefit of Mr. Lyon's lifelong experience in testing varieties on his farm, as well as of those fresh experiments carried on upon the new experimental grounds. We read the bulletins prepared by Mr. Lyon, with special interest, because they are prepared by a practical fruit grower, and, therefore, they are in touch with the work of practical men ; a statement which cannot be made regarding all horticultural bulletins issued by experiment stations.

The Committee appointed for the purpose, interviewed the Minister of Agriculture, at his office on the 21st of April, and proposed the purchase of twenty five acres of choice land somewhere in the best fruit growing district of southern Ontario. They estimated the outlay for land, buildings, trees, plants, horses, and implements at about \$10,000; and the annual expenses at about \$3000, which in time would be nearly covered by the sale of produce. The Hon. Mr. Dryden viewed the scheme with favor, only questioning whether the people themselves had become sufficiently aroused to its importance.

The members of our association, scattered everywhere throughout the Province, can aid their officers very greatly in furthering this enterprise, by talking about it with their neighbors, and with their parliamentary representatives ; and thus, by all proper means, proving that there is a real need of such a station.

✱ The Kitchen Garden. ✱

CELERY AND HOW TO GROW IT.



“CELL begun—half done!” Good plants are indispensable to a good beginning. To insure having them just when soil, season and hands are ready, and the weather favorable, they should be grown at home—a task by no means difficult.

To grow the plants, procure good seed from a reliable source. As early in spring as the condition of the ground will permit, prepare a smooth, mellow seed-bed in any convenient spot where the soil is rich and reasonably free from weed seeds. Mineral manures make firm, stiff plants; hence wood ashes and phosphatic fertilizers, applied broadcast and thoroughly raked in, are preferable to even the best compost with its probable weed seed supply.

Mark out drills not more than one-half inch deep, and not less than ten inches apart, and scatter the seed in them evenly, like sowing carrots. *Do not cover*, but walk over each row, putting the heel of one foot just ahead of the toe of the other, thus stepping upon every inch of row with his full weight, and pressing the seed firmly into the soil. The natural moisture of the ground insures prompt germination under this treatment; and the application of a light mulch of litter, practised by some, though perhaps beneficial in a few cases, yet, as a rule, proves superfluous. Allow no weeds to grow, and keep the soil well pulverized between the rows *all the time*, loose soil being a perfect mulch. Repeated light dressings of nitrate of soda are of wonderful help. Thin where too thick, leaving about fifty plants to the rod. If tops grow rank, shear them back once or twice to make stocky plants.

I practise sowing a few rows of celery in my vegetable garden at the same time and in the same manner that I sow my early vegetables; and there, all receive the same treatment. The rows are frequently cultivated with either Ruhlman's wheel hoe or Gregory's finger weeder, and weeded by hand as often as required. Thus I raise a row of celery plants about as cheaply as one of cabbage plants or radishes. The same length of row produces nearly twice as many celery plants as it would cabbage plants, and the former are worth twice as much money.

There are few localities where a limited number of good celery plants would not find ready sale at 50 cents per hundred. This pays exceedingly well, and often more than the production of marketable celery. Hence these minute directions.

Growing the crop from good plants is comparatively easy. If not grown at

home, I would rather buy them of a skilful grower near by, than risk the uncertainties of long transportation by express.

Between July 1st, perhaps even earlier for very early use, and August 1st (later at the south) the plants are set in rows three or four feet apart for dwarf, four or five feet for tall varieties, and six inches apart in the row. A rich piece of land, just cleared from any early garden crop, is usually in fit condition for celery without manure, except perhaps a dressing of wood ashes and phosphates scattered over the rows and mixed thoroughly with the soil before setting plants. If the soil is not rich enough, a deep furrow may be plowed out for each row, half filled with fine compost and this well mixed with the soil in the bottom of furrow. Coarse strawy stuff is not wanted. Re-fill with soil, leaving a slight depression so as to make the surface of the piece somewhat undulating. Stretch a garden line along the row and set the plants, after shortening tops and tap-root and dipping roots in water, in the usual manner, always pressing the soil firmly about the roots. Select for this work a time when the soil is fairly moist—neither wet nor dry. In a dry time set after 4 p.m. and water plants freely after setting.

Now keep the path clean and the surface of the soil open and mellow close up to the plants at all times. The first step toward "blanching" is the "handling." Plow light furrows towards the rows, or draw loose soil up to them with the hoe. Gather all stalks of one plant together, hold them firmly with one hand, and with the other pack enough soil around it to keep the plant permanently in this upright position. More soil is then drawn up with the plow or hoe. For plants to be stored for winter, this "handling" is sufficient; but if intended for fall use, the crop has to undergo the blanching process. With plow and hoe bring the soil between the rows up to the plants, putting the finish on with the spade until only a few inches of the tops are visible. This is done from September to November, or from three to four weeks before the crop is wanted for market or home consumption.

The most popular way of storing for winter is by placing a row close together in narrow trenches, the tops even with surface of ground, and by covering with boards and litter to exclude light, rain and frost. Or the plants may be placed upright upon a layer of moist soil in a dark cellar. Various other methods are practiced in a small way. Never handle while frozen.

The best varieties: The coarseness of the tall kinds has nearly driven them out of general cultivation. The dwarf sorts are good, but I know not one superior to Golden Heart (or Golden Dwarf), with its beautiful rich yellow heart, when blanched. White Plume is a so-called "self-blanching" sort, and, in theory, needs only "handling" without blanching. To bring out its best flavor, however, it requires the laborious "earthing up" or blanching process as much as any other.—T. GREINER, *in American Garden*.

KNAPSACK SPRAYER.

In reply to frequent inquiries respecting a portable sprayer for the garden and vineyard, we have pleasure in referring our readers to the advertising columns, where several excellent pumps are offered. The Field Force Pump Co., of Lockport, have kindly loaned us a cut of their new sprayer, which is on the same principle as the others, but differs in shape. The copper boiler holds about six gallons, and the air chamber above is so arranged that it keeps up the pressure even after the operator has stopped pumping. The nozzle used is the celebrated "Ver-morel."

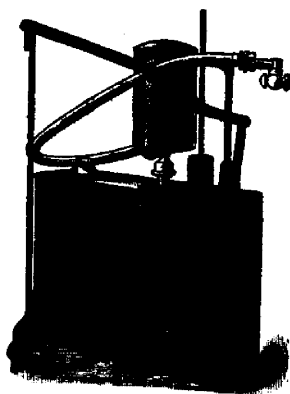


FIG. 36.—NEW KNAPSACK SPRAYER.

HOW TO GROW TOMATOES TO PERFECTION.

Mr. C. L. Allen, writes in the *American Agriculturist* as follows on this subject: Because the generous nature of the tomato yields bountifully with seemingly little care and attention, the general impression prevails that the plant requires but little attention. This is a sad mistake, for there is not a vegetable in the garden that is so gross a feeder, nor one that so readily pays for all the food and care given as the tomato. To grow it to the greatest perfection, the hills should be dug out to the depth of two and a half feet; at the bottom there should be a half bushel of well-rotted manure; above this let the soil be an equal mixture of loam and manure thoroughly mixed. The hills should be at least six feet apart. Let the situation be open, warm, airy. When the fruit begins to set, mulch with clean straw or very small brush. Under these conditions six plants will furnish sufficient tomatoes for a family of twelve persons. Whatever variety may be planted in this manner, the result will show specimens for size, smoothness, and esculent properties, unknown to the variety when grown in the ordinary manner.





The Canadian Horticulturist

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

REMITTANCES by Registered Letter are at our risk. Receipts will be acknowledged upon the address label.

NOTES AND COMMENTS.

SITE UNSUITABLE FOR AN ORCHARD.—A correspondent in the Province of Quebec says he has about twenty acres in sod that has never been ploughed, it is in timber, but the trees, though large, are far apart, and are mostly elms, oaks and walnuts. The soil is first-class, but bare rock lies from 3 to 8 inches below the surface. He asks whether such a site would be fit for planting apple trees in the spring. Obviously to all experienced fruit growers, every condition mentioned appears to be unfavorable. Trees planted in sod will not thrive unless the land is kept thoroughly worked up with the spade, so far as the roots extend; a more expensive operation than ploughing. Far the best way is to have the land thoroughly worked up for a year or two before planting. Then, shade is sure to stunt a young orchard, and nothing will more certainly prevent it from bearing any fruit. The shallowness of the soil is a great hindrance to success, for apple trees in such a position suffer exceedingly from drouth in summer, and are seldom fruitful.

THE SORGHUM INDUSTRY IN CANADA.—It would seem that there is some hope of a really profitable line of industry being developed in raising sorghum in Ontario for the manufacture of molasses. Mr. C. W. Wellington, who hales from the Southern States, and understands the process, has been experimenting at Grimsby for some years with hardy varieties of sorghum, and is so encouraged that he is enlarging his works, and preparing to manufacture into molasses as much cane as the farmers here choose to grow. He showed us a letter from J. M. Rusk, Secretary of Agriculture, Washington, D. C., speaking highly of the quality of his syrup, and saying that he believed American capital could easily be secured for producing such an excellent article.

DISBUDDING THE PEACH.—Mr. O. Thomas, of Chatsworth, Eng., writes in the *Garden*, advocating this practice both for thinning fruit and wood. He thinks that if the tree could speak it would loudly reproach the gardener who allows it to expend its energy and strength in making growth of wood, or of fruit, which must be removed at a later stage. Disbudding, he says, should be done systematically, taking a tree at full bloom and rubbing off all weak looking blossoms and shoots, leaving about half the original number. In four or five days he goes over again, always taking care to have fruit buds left on the top side of the branches. Finally, when the fruit is set, he makes the final thinning, leaving only such as it is intended the tree shall carry to maturity. The same treatment is given the wood growth.

Few Canadian growers can find time for such work as this, for the outlay for going over an orchard of a thousand trees would be too great. Still, the hint may be of service to some.

APPLES FOR THE VICINITY OF MONTREAL.—Mr. R. Brodie, of Montreal, gives the following list as suited to that section, whether for home use or market:

Summer—Yellow Transparent, Red Astracan, Montreal Strawberry, Duchess of Oldenburgh.

Autumn—Peach, St Lawrence, Golden White, Alexander.

Early Winter—Fameuse, Winter St Lawrence, Wealthy, Bethel of Vermont, Utter's Red and Grime's Golden.

Late Winter—Golden and Roxbury Russet, Ben Davis and Belle de Boskoop.

A PAYING APPLE ORCHARD.—Mr. Whittier, of Farmington, Me, has an apple orchard of seventy acres, and five thousand trees, which has had his personal attention for many years. The land being heavy and much of it also rocky hill-sides, he has been unable to work it, but, instead, has followed the plan of mulching heavily with grass, leaves, ferns, etc. He evaporates all No. 2 fruit, and as a result he can afford to make his No. 1 grade worth a fancy price. In 1889, it is stated that he received \$3500 for his No. 1 stock, selling it in the Boston market in the spring at from \$5.00 to \$6.00 per barrel. Such instances show us the possibilities of apple culture.

THE ILLINOIS STATE HORTICULTURAL SOCIETY receives a grant from the Government of \$3000 per annum. It furnishes in return an interesting report of some 400 pages, but we doubt if it covers as much ground in the interests of the fruit industry as the report of the Ontario Fruit Grower's Association whose grant is little more than half that amount.

ERRATA.—On page 6 for Mr. Perry, read Mr. Terry. On page 67, for one hundred bushels of wheat, read fifty bushels of wheat.

❧ Question Drawer. ❧

GIRDLED TREES.

SIR,—The mice girdled some fine Northern Spy trees for me. Could you give me any advice about how to treat them. C. H. J., *Meaford.*

If the *inner* bark has not been closely eaten off, the trees may be saved by a little attention given before the hot sun has dried it up. The wound should be covered with some substance that will prevent evaporation. A good application, once mentioned in this Journal, is made as follows: Mix thoroughly and beat together stiff clay with half its quantity of cow manure. Apply this over the wound quite thickly, and fasten it in place by wrapping with an old cloth and tying with strings. If the inner bark is gone it will be as well to replant, unless the trees are valuable. In this case the only plan is to bridge over the wound with scions, in order to keep communication with the roots. The process is so clearly shown

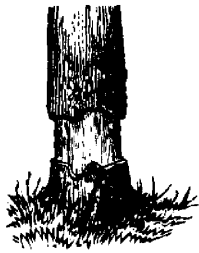


FIG. 37. TREE COMPLETELY GIRDLED BY MICE.



FIG. 38. GIRDLED PORTION BRIDGED OVER WITH SCIONS.

in our illustrations that no farther explanation is necessary. Of course the scions should be young wood of the previous year's growth, and if these are beveled on the side next the tree, and inserted snugly under the bark above and below, success is possible, and the tree may in time wholly outgrow the injury.

LIQUID MANURE.

SIR,—I have a good supply of liquid manure during the season; soap suds and liquid manure percolating through the manure heap. I shall be very glad of some information as to the best mode of applying it to my grape vines, as well as time and quantity.

W. KAY, *Goderich.*

This question is answered pretty fully in the following from *Vick's Monthly*: Every garden ought to have its leach-barrel for the manufacture of liquid manure. Manure in the soil is good, but the application of it in a liquid form produces more satisfactory results. It is more immediate in its results, and none of it is wasted, as a good deal of that which is worked into the soil must be.

It is an easy matter to fit up a leach. Take any old barrel and set it on a

sloping platform. This platform should be about a foot high—high enough to allow slipping a pail under it to catch the liquid in. This platform should be larger than the bottom of the barrel, with cleats nailed on the side to prevent the liquid from running off. The front of it ought to be sloped, like an obtuse-angled letter V, with cleats fastened to it, but not coming quite together at the point. These conduct the manure to the opening left at the point, where it falls into the pail placed for its reception. The bottom of the barrel should be filled with stones, brick or pottery, to keep the manure from packing down solidly and clogging up the holes, which should be made for the escape of the liquid. On top of this drainage fill in with manure from the cow stables, and pound it down well. Add water slowly at first to allow it to get thoroughly soaked through before leaching begins. When you notice that it begins to trickle out at the bottom of the barrel, add it in greater quantities.

That which first runs off will be very strong. It will be about the color of thick coffee. Dilute it until it has an amber look. This will be quite strong enough for safety. Too strong a liquid manure is worse than none at all. When you use it apply close to the roots of the plants. It is too precious to be wasted by putting it where there are no roots to make use of it. Twice a week is often enough to apply it. This is the best of all fertilizers for pot plants.

GROWING DAHLIAS.

SIR,—I would be pleased to have some instructions about growing dahlias.

C. E. H, *Toronto.*

The tubers of the dahlia should be separated, leaving a small piece of stalk with each. In order to have them bloom early in the fall, these should be started in a hotbed, or in boxes or pots in the house, and toward the end of May it will be safe to plant them outside. The soil for the dahlia bed should be made very rich in order to secure the best results. A liberal watering during the dry weather will be of great benefit, and if a little liquid manure could be applied to the roots occasionally it would be of great benefit. Four feet is a good distance apart for planting.

KNOT-PROOF PLUMS.

SIR,—Are there any varieties of plums that are free from the black-knot, or nearly so?

J. McAINSH, *Belton, Ont.*

Reply by Geo. Cline, Winona, Ont.

Plums in my orchard, free from black knot for 18 years, are German Prune, Coe's Golden Drop, Glass, Huling's Superb, Pond's Seedling, Reine Claude, Washington, Victoria, English Samson, Bradshaw, Yellow Gage.

Plums that have not had much knot are Duane's Purple, Yellow Egg, Imperial Gage, Columbia, Munroe, Egg.

The worst for rot are Lombard, Gen. Hand, Golden Gage, McLaughlin.

CHINESE LILY NOT BLOOMING.

SIR,—The Chinese lily I received from the Association last year has not bloomed. I dried off top, rolled the bulb in paper and laid away in a box until the middle of December when I placed it in water with sand and gravel.

J. W., *Toronto.*

Reply by Anton Simmers. Toronto, Ont.

Your experience with the Chinese Sacred Lily, is one that will in some cases be the unsatisfactory result of growing the lily a second season; but we cannot give any actual reason for their so doing. It is often a similar experience with hyacinths, when they are planted a second season for blooming, and really this is more than the grower should expect; but, as stated in a previous experience, we have had fairly good results from the bulbs planted the second year. The only conclusion we can arrive at is, that the second season bulb cannot be relied upon to produce a good bloom, unless in the selection of the very strongest specimens. To the grower who has failed to get bloom from the second year bulbs, I would suggest that he try such again, and then he will be better able to say just what the ultimate result is of such bulbs; and in his second venture let him select only the strongest bulbs for a second crop of bloom.

A BUNDLE OF QUERIES.

SIR,—Is Moore's Ruby as prolific as Fay's currant; also, is it as hardy and of as good quality? Does it grow in clusters? Does the Saunders plum resist curculio and black-knot, and is it a profitable plum to plant for market? What about the Ritson pear? How much per acre may be expected from an orange quince orchard, five years planted?

W. C. WILSON, *Essex Centre.*

Some of our readers please answer. The fact is these varieties are new, and are just being tested. The experience of those growing them is just what we want for publication. We find the Orange quince profitable at Maplehurst, where we have about one acre devoted to them but the amount depends so much upon markets, cultivation, season, etc., that any estimate might be misleading. In our opinion they compare favorably with a crop of dwarf pears.

PLANTING PEARS AND PLUMS.

SIR,—Is it advisable to pack the roots of pear and plum trees with sand when planting in heavy clay, and what is best method of planting in such soil?

WM. STEELE, *Humberston, Ont.*

An admixture of sandy loam to the clay soil in which pear and plum trees are to be planted would be very useful. It should be well dug in and thoroughly mixed with the clay and thus would render the latter more porous. In some cases we have planted trees directly on the surface of heavy clay, in a pile of sandy loam, and their success has been quite remarkable.

CHEAP FERTILIZER.

Will the cheap fertilizer given on page 61 of the CANADIAN HORTICULTURIST be a proper compound for clay loam? Will it result best to mix the sulphate of ammonia and bone meal and sprinkle along the matted rows of strawberries, and afterwards broadcast the ashes; or mix all together and broadcast over the matted rows and paths? Would a larger quantity of ashes per acre result still better?

Reply by Prof. James, Ontario Agricultural College, Guelph.

1st. The mixture is suitable to any land on which fruit is being successfully grown.

2nd. The sulphate of ammonia and bone meal should not be mixed with the ashes for any considerable length of time before applying, as the lime of the ashes, if they are at all fresh, may drive off some of the ammonia. Better mix as you apply, or apply them separately.

3rd. The dose of ashes can be doubled, if procurable; but it would be preferable to apply in a couple of doses rather than all at once. The amount of ashes or of any special fertilizer that can be economically used in any fruit crop, must be determined by experience in connection with each farm.

DURABILITY OF PARIS GREEN.

SIR,—How many years will Paris green remain effective? W. W. R, *Toronto.*

Since this substance is not volatile, we know of no reason why it should lose strength by keeping.

* Open Letters. *

VALUABLE WASH FOR TREES.

SIR.—The following is an exceedingly valuable wash for trees:

Take lime, slack, and prepare as for an ordinary whitewash, in an old barrel or box. Take enough at a time to make a bucket two-thirds full—proper consistency for ordinary whitewashing. Now add one pint of gas-tar, one pound of whale-oil soap; dissolve one pound potash, or one pint of strong lye from wood ashes, or box concentrated lye; then add clay or loam enough to make the bucket full of wash of proper thickness to be applied with a whitewash brush. If the trees have had the earth ridged up around them, take the earth away from around the collar, and apply to the body of the trees from the limbs down to the ground, or down to the roots.

Its advantages are: 1st. It will destroy all scale insects, the bark louse, etc., and will give the trees a bright, clean, healthy appearance. This wash will drive out all borers that may be in the trees, and the moth will not deposit eggs on or about the trees during the season the wash is used. All who grow apple, peach, dwarf pears, quince and ash trees, should not fail to use this wash, as it is not patented and sold at a high price. I have known cases where peach trees become healthy and vigorous with one application of this wash. Again, mice and rabbits will not girdle trees where it is used. Apply in May for borers and general benefit to trees, and the late autumn as a preventive against mice and rabbits. Gas-tar, when applied pure, will kill trees.

F. S. FAIRFIELD, *Orono, Ont.*

FRUIT IN HURON COUNTY.

SIR,—I have twenty-five Fameuse and twenty-five St. Lawrence apple trees, which are thrifty growers and hardy, but the fruit has become worthless on account of the scab. Would you advise me to top-graft them to Baldwins, as this variety is one of our best shipping apples, an early and an abundant bearer; but tender here, unless grafted upon some hardy stock. The following varieties of winter apples succeed best in this county: Northern Spy, Canada Red, Golden Russet, Roxbury Russet, Wagener (bears too heavy for profit), English Russet (shy bearer), Rhode Island Greening (poor grower here), King, Ribston Pippin. Of fall apples the following do well: Twenty-Ounce and Blenheim Orange. These two varieties ship well to the English market, but need to go a little earlier than the winter varieties. For summer market apples, the Duchess of Oldenburg and Maiden's Blush are excellent and will ship to any market in our own province.

The Ontario apple that I received as a premium with the CANADIAN HORTICULTURIST is a very good apple. It is an early and abundant bearer, fruit about medium size, color somewhat resembles the Spy with rather a deeper red on the sunny side, but the flavor is too tart for my taste. It will keep well until April or June, indeed it promises to be one of the best winter apples for shipping purposes. JOHN FOTHERGILL, *Marnock, Ont.*

NOTE.—We would call the attention of our correspondent to the prescribed remedies for apple scab. We would advise him to give them a fair trial before top-grafting his trees, and then should he fail to grow fruit clear enough for market purposes, it will be soon enough to top-graft them with the Baldwin. The latter would, perhaps, be hardier grafted upon these varieties. *Ed.*

ONTARIO FORESTRY REPORT.

SIR,—If you can spare space, I should like to inform your readers that the Forestry Report for the year is now ready, and that I will send copies free of all charge to any who are interested in such matters and will send their addresses to me at 251½ Richmond Street West, Toronto.

It is full time that, in Ontario, people were planting trees, not only for protection from wind along the roads and fences, though that is an excellent work, but in close plantations of ash, hickory, elm, and such hardwoods as will be, in a few years, of great use on the farm, and will also command a high price when sold to the manufacturer.

If we plough and harrow a field—in fact, get it in good order for any ordinary farm crop—and then plant, four feet apart each way, such trees as we want, and make a point afterwards of passing through the lines twice a summer with a cultivator, taking care not to cut the roots, we shall find that these young trees, emulating each other in their endeavor to rise upwards, will grow straight tall sticks, clear of knots, and will furnish good timber for any purpose—timber which, in a few years, will hardly be obtainable here. These trees will thin themselves, or can be thinned by hand, at the option of the owner. Either way I have known answer well.

Yours truly,

R. W. PHIPPS.

Toronto, March 26, 1891.

MOORE'S ARCTIC.

SIR,—In reply to an inquiry made by Mr. J. McAlinsh in the last issue of the HORTICULTURIST, regarding the Moore's Arctic plum, you are open to correction, at least your statements are subject to modification. When you assume that the Moore's Arctic is not curculio proof, you speak evidently without the experience of those few who have tried to grow that plum in these more northern sections. I have met with that plum in several localities hereabout during the past season and can testify of what I have seen. The Moore's Arctic plum is curculio proof in all these northern localities where I have met with it. There is not enough of the miserable thing for the larvæ to feed and exist upon. For this reason, and for no other that I know of, the parent fly with a natural instinct for perpetuating her species, passes it by. The farmers should treat the Moore's Arctic plum with the same degree of contempt.

Mitchell, March 20.

T. H. RACE.

IMPORTANCE OF TIDY PREMISES.

SIR.—Will you kindly insert the following in your valuable paper. In this neighborhood, I have noticed farmers and fruit growers are expecting to sell their farms to Englishmen. Quite a number of such sales have, in fact, been made. As an Englishman myself, I would offer to suggest to any one wishing to dispose of his property, that buyers are influenced a good deal in their choice of a home by the general appearance of the home and surroundings, and will pass by a farm of good soil entirely on account of the slovenliness of the door yard, gates, fences and approach. Englishmen set great store by nice shade and ornamental trees planted along the drive ways, line fences and road side. Some old fashioned flowers, rose bushes, and suitable shrubs, give that home-like look to which English people are accustomed. The outlay is very slight compared with the advantages gained in the increased beauty of the landscape. Trees can be procured to suit all soils from the poorest sand to stiff clay. Tree planting for profit has been so repeatedly dwelt upon in your pages that it is unnecessary for me to discuss this branch of the subject.

I am, yours truly,

HUGH ALLEN, *Winona, Ont.*

TREES AND PLANTS TESTED.

VLADIMIR CHERRY—YELLOW TRANSPARENT APPLE—GOLDEN QUEEN
RASPBERRY.

SIR.—The plants that I have received for trial have all lived and made fair growth. The Vladimir Cherry tree received in 1887, had some fair-sized but very bitter cherries on last summer's, and one black knot. The Yellow Transparent Apple received in 1886, has made good growth and bore some very nice, early apples. They were a great deal better than the Early Harvest, and I think a little better than Tetofsky. The two Golden Queen raspberries received in 1888 have grown and suckered greatly and bore a few nice, yellow berries. The bushes blossomed again in the fall, but there was no second crop.

J. ELLERBY, JUN., *Woodbridge, Ont.*

TO DESTROY WIRE WORMS.

Some correspondence has lately appeared in the HORTICULTURIST respecting the use of salt for destroying the wire worm. This pest is hard to get rid of, and salt is but a partial remedy. Gas lime is a much more effective agent in exterminating it. Two years ago I had a fine crop of potatoes which were rendered unfit for the table by its ravages. After the crop was harvested I applied about twenty wagon loads of gas lime to the acre and plowed it in. Last spring I again planted this field to potatoes and the result was most satisfactory. Very few of the tubers were affected. The dose was heroic and about as strong as can safely be administered. I get the lime for carting it away.

R. McKNIGHT, *Owen Sound.*

BETHEL AND GRIMES GOLDEN APPLES.

SIR.—I find that the Bethel of Vermont is called Shaker Pippin in the Eastern Townships, Winter St. Lawrence in Hunterdon County, and French Nonpareil around Montreal.

There is no apple we like so well for February and March as the Grimes' Golden, my friends pronounce them delicious. The tree is only medium in hardiness, but bears heavily every year; the color may be against them as a market variety, but should sell as well as the Greening. My Fameuse and Wealthy kept twice as long in tight barrels as on shelves in my cellar. Don't you think this is proof against putting apples in ventilated barrels and cases?

I am, yours truly,

R. BRODIE, *Montreal.*

HIGH PRICED PLANTS.

SIR,—Enclosed I send you a new subscription, together with my own and another renewal. In doing so, I have acted on the principle that, having found a good thing, I should show some one else the way to it. Your valuable paper should be in the hands of every one and especially of the farmers of this Province, and would, I am sure, open the eyes of the public to the magnitude of some of the frauds perpetrated by oily-tongued agents. One of this class was offering Cuthbert raspberries, last winter, for the trifling outlay of \$2.50 per—dozen!

A. S. DICKSON, *Seaforth, Ont.*

NEXT MEETING OF MICHIGAN FRUIT GROWERS.

SIR,—The next meeting of this Society will be held in Port Huron, and will be timed so that all in attendance may also take in the annual celebration. All members of the Ontario Fruit Growers' Association are invited informally to meet with us and make it a festive occasion. Ladies are particularly invited.

L. B. RICE, *Port Huron, Mich.*

❖ Our Book Table. ❖

BOOKS.

FUNGUS DISEASES OF THE GRAPE AND OTHER PLANTS AND THEIR TREATMENT. By T. Lamson-Scribner. Published at Little Silver, N. J., by J. T. Lovett & Co. 1890.

A book of 134 pages, neatly bound in cloth and profusely illustrated, which ought to be in the hands of every fruit grower. Mr. Scribner herein treats of such diseases as the mildew, the scabs, rusts, etc., in a popular style, so that every one can understand their nature and apply proper remedies with intelligence; and yet in a sufficiently scientific manner to satisfy the scholar.

The study of these fungi has become positively essential of late to success in fruit culture, and the man who neglects it and the remedies prescribed, will be far behind in the quality of his fruit at harvest time.

THE ILLUSTRATED DICTIONARY OF GARDENING. Edited by Mr. George Nicholson, Curator Royal Botanic Gardens, Kew, Eng. This is the most complete work of the kind ever published, full of both scientific and practical information upon all lines of gardening, for either profit or pleasure. It contains 2370 first-class engravings, together with numerous elegant colored plates. Published in four volumes, in cloth. Price \$20. It may be ordered through this office.

THE DOMINION ILLUSTRATED. Those persons who have not seen the *Dominion Illustrated* since it has been so much enlarged and improved, should secure a sample copy. Both from the literary and artistic point of view, the *Illustrated* is a credit to Canadian journalism. On receipt of 12 cents in stamps the publishers (the Sabiston Litho. & Pub. Co., Montreal) will send to any address a sample copy with full particulars.

LINDENIA—The "Graphic of Orchids," conducted by F. Linden, Lucien Linden, Em. Rodigas, and R. A. Rolfe. February number, 1891. This is the first number of an American edition, which will be published regularly on the first of each month and issued in half-yearly volumes, each of which will form an album of beautiful portraits, in natural colors, of new, rare and popular Orchids. The plates are 14½ inches long by 11 inches broad, and each monthly number will contain four plates with eight pages of text in English, with Latin diagnosis. The specimen before us has been issued in elegant style and the four colored plates are exquisite works of art. This edition will be carried on in exactly the same way as has the French edition during the last six years, in which 264 species or varieties have already been figured. The terms of subscription to this charming work are \$6 for six months, post-free. Published by Lucien Linden, 100 Rue Belliard, Brussels, (Belgium).

CATALOGUES.

SMALL FRUIT PLANTS. Price List. John Little, Granton, Ont.