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PRUNUS SIMONII.

FOR CANADIAN HORTICULTURE.

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SIMON'S PLUM.



THE peach crop, of late years, has proved itself to be so uncertain, even in the most favored portions of Ontario, that fruit growers have become much discouraged with peach culture. Many of us, who planted thousands of peach trees some ten or fifteen years ago, have now only hun' reds; for the yellows have destroyed them wholesale, and the winters have been so destructive of the fruit buds that there was no encouragement to replant.

This month we show our readers a colored plate of a fruit which promises to be a real acquisition to fruit growers, who, like us in Ontario, live on the Northern border of the peach belt, because it may take the place of the peach, at least in part. Though commonly called a plum, the fruit, especially when cooked, resembles that of the peach; and the tree itself, both in flower and foliage,

more properly belongs to the peach than to the plum family.

It is named "Simon's Plum" after Eugene Simon, French minister at Peking, who found it growing in North-eastern China, and forwarded it to his brother-in-law, Simon Louis, of Metz.

Prof. Budd says he first saw it bearing in the valley of the Moselle, in Eastern France; and being favorably impressed with it, he introduced it into Iowa for testing. He has found it to be as hardy as the Chicasaw plum, and recommends it for extended trial. Mr. A. M. Smith, of St. Catharines, fruited it last summer, and was much pleased with the quality of the fruit, which he considers well represented in our frontispiece. In our experimental grounds, we also have a half dozen trees which we believe will be an ornament, even if the fruit should not prove equal to expectations. If we can secure good stock, we hope to make arrangements for placing it on our list for distribution in the spring of 1890.

SOME CANADIAN HORTICULTURISTS.—VIII.

W. H. MILLS, HAMILTON, ONT.

A SKETCH WRITTEN BY HIS DAUGHTER.

THE subject of the present sketch holds a prominent position among Canadian Horticulturists who have made valuable contributions to the science of fruit production and culture in our province; his writings on these and kindred subjects have appeared from time to time through the press, in the United States and Canada, marked by ability and clearness of perception.

The portrait, accompanying this sketch in our present number, is a correct likeness of William Hamilton Mills, who was born in the village of Hamilton, now known as the "Ambitious City," on the fourth day of August, 1822, of Scotch and German parentage, toilers and tillers of the soil, among the hardy pioneers grappling with all the hardships of the earliest settlers, preparing the fields for golden grain and blooming rose. Among scenes like these on his father's farm, his younger days were passed. Hill and dale, field and forest, contributed to his love of nature.

Securing a limited book education under difficulties then prevailing,—happily now removed through an efficient school system—he, however, fitted himself for the study of law under the tuition of Dr. Kay, and having passed preliminary examinations, was by the Benchers of the Law Society of Upper Canada, admitted a member thereof at the age of nineteen, subsequently pursuing studies

in the law office of Mr. Richard Beasley. Having finished his clerkship under this gentleman he took out certificates and practised for several years, but the old love for the beauties and mysteries of nature remained with him, he abandoned the practice of law and turned his attention to the more congenial study of fruits and flowers, in which he has been engaged for many years in a quiet and unobtrusive way,

To enable himself more effectually to pursue experimentally these studies he purchased three acres of suitable soil, within easy walk of his residence, to which he gave the name of "Pomona," covering this with various fruits and vines, the output of which we hope to be able to lay before our readers in time. In this way he was led to take an active part in establishing our present Fruit Growers' Association, drafting the necessary papers under the Act 31, Vic. chap. 29, in 1868, and in conjunction with his old horticultural friends a meeting was convened at the Court House, Hamilton, on the 15th day of May, 1868. At the request of those present he took his seat as President, *pro tem*, until the general annual election, when again he was elected the first President under the above act, delivering his first address 22nd Sept., 1868, in which he reviewed the labors of the old association, and set forth the duties and responsibilities



FIG. 50.—W. H. MILLS, HAMILTON, ONT.

of the new organization, followed by other annual addresses and articles on various subjects, many of which are matters of record in the proceedings of this association. "Ex-officio" he took his seat in the then flourishing Council of Agriculture and Arts, and was by this council appointed delegate to the Convention of American Pomologists sitting at Philadelphia, where he became a life member of the American Pomological Society, and soon after was admitted a member of the American Association for the Advancement of Science. In one of his annual addresses he dealt with the important subject of "Forest Denu-

ation," since which time the subject has become one of more than ordinary interest, engaging the attention of all civilized nations as of paramount importance, not only to agriculturists and fruit growers, but as touching the health, happiness, and progress of the race; these he clearly saw were correlated forces. This and similar subjects still engage his attention.

In the field of Hybridization some of his productions bear his name. Ever occupied in the study of plant life, being a close student of Evolution, his guiding "Motto" has been "To the solid ground of Nature trusts the man who builds forever."

THE FRUIT PROSPECTS.

ONTARIO fruit growers were congratulating themselves during the month for May, on the magnificent prospects of an abundant yield of many kinds of fruit. When "Old Probs" said on the 28th of May that there would be a frost in some parts of Ontario we thought the parts affected would no doubt be north of Lake Ontario, and we in the Niagara district would escape in safety. But Jack Frost took quite a new departure, and treated us with the greatest severity. A fruit grower at Fonthill who has twelve acres in fruit, upon which he wholly depended for his living, took the writer through his grounds a few days ago. His fine vineyard, of which he had been justly proud, was now a source of bitter disappointment; the frost had not left a single green leaf, much less a single bunch of grapes. All his

strawberries were cut off. "Indeed" he said, "I have not a thing left me to pay for my labor this year in caring for my fruit farm."

"Surely your apples are safe," said I.

No, "he replied," they too are completely gone."

"But there are a good many still hanging, and the they look all right."

"Well" he said, "they will not hang long," and with that he cut open some of them and disclosed the dark core, a full proof of the destructive work of the frost. Cherries and pears were also totally destroyed, and even his raspberries, though looking to be all safe, yet, upon cutting open the still unopened buds, the black germ showed but too plainly the sad tale of death.

Over a large part of the Niagara peninsula, nearly as unfavorable

reports are made, except from a few favored localities, such as those sheltered by the Niagara escarpment. One of these is the neighbourhood of Grimsby, where in a narrow strip of land between the "mountain" and the lake, we are able to report an almost entire immunity from the frost. The young tips of the grape vines were touched, but not the fruit bunches, potatoes were very little hurt, and even corn escaped being cut down, except in some few places. Some cherries are dropping, but not enough to prevent our having a good crop. Pears are very scant, having set poorly. Apples bid fair to be a good average as will be seen from Mr. Pettit's report below. One singular thing about the apple crop is that the Greenings have changed their bearing from the even to the odd year, and thus have wisely parted company with the Baldwins, which are scarcely bearing at all this year. Another is that the King apple trees are this year loaded as heavily as that prodigious bearer the Greening, which is not at all consistent with its previous record of scanty crops.

In Western New York, according to the latest reports, plums, pears, peaches and grapes are almost totally destroyed, cherries are much damaged, except the Biggareaus, and even the apple crop has suffered very seriously.

Altogether from the reports published below, and from the accounts received from other sources, it would appear that those who are fortunate enough to have a crop of fruit this year, will do unusually well, for the supply must be far below the average.

The outlook in Great Britain is also quite poor for the British fruit grower. Both "*The Garden*" and "*The Gardeners' Chronicle*" report that the apples have set very poorly, and that the prospect now is for a very light crop. We will be cautious about shipping heavily to Britain after last year's experience, yet means of transportation are becoming so easy that any advance of price in the foreign market soon affects our home markets.

Our readers will be interested in the following reports from prominent growers in Ontario:—

Oxford County.

SIR,—Your card inquiring as to fruit prospects, to hand Saturday evening. Apples, pears, plums, and grapes are practically destroyed by the late severe frost. There are yet a few apples hanging to the branches but I think there is but little doubt that these will fall shortly. There will be no cherries here. The black knot has destroyed nearly all the trees in the district, and the frost took the very little fruit on the few branches not totally destroyed by the knot. In strawberries, Crescents, and a few other hardy varieties, will be a fair crop. Sharpless, and other large varieties will not produce more than from one-third to a one-half crop. In currants, blacks will not be more than a half or $\frac{2}{3}$. White Grape is perhaps a little better, Red Dutch will produce nearly a full crop, the other red varieties from one-half to a two-third crop. Gooseberries will be nearly or quite a full crop. In Raspberries, Cuthberts and Greggs promise an enormous crop. Some of the earlier varieties were somewhat injured by the frost already referred to of the 29th of May. In flowers, roses, (which up to the 23th promised an abundant crop) will now produce but a very small first crop of bloom.—FRED MITCHELL, *Inverkip*.

Lincoln County.

SIR,—In reference to the prospects of the fruit crop in this section of Ontario, opinions differ widely, just in proportion to the extent of damage caused by the late frost. Well may one give expression to his feelings of despair when he looks over a fine patch of strawberries, that told him a few days before to lay by a good stock of baskets and crates, and now to find them almost worthless; or to see a fine vineyard, nicely cultivated and trained to the trellises, with the foliage destroyed and the berries drying up and falling off. Happily, however, this unfortunate state of affairs is not general, some escaping; those near the moun-

tain and lake have suffered very little indeed, but in some sections the opinion is freely expressed that even the apples, cherries, and plums are entirely destroyed. One cannot help hoping that when the flash of disappointment has passed away, the prospects will look brighter. In this immediate locality, strawberries will be a good crop and of fine quality. Other small fruits promise well; pears will be a fair crop as well as peaches and plums; grapes, where not injured by frost, will be a fine crop; apples will not turn out nearly so well as last year, although the quality may in a measure make up the general average. The codling moth, I think, has not done as much damage as in other years, perhaps on account of the cool and wet weather. The Greening is promising again to be more productive than other varieties. I am glad to see that variety, so much despised a few years ago on account of its color, maintaining its old reputation for quality and productiveness, being superior to many of the red varieties,—fine feathers they say make fine birds, but that will not apply in all cases to fruits. On the whole I think we may fairly sum up the prospects by saying there need be no cause for alarm, there will be on the whole a fair average crop, and perhaps the large commission houses may wisely dispense with their dumping grounds for this season, as no great over-supply need be apprehended.—A. H. FERRIS, *Grimshy*.

Halton County.

SIR,—The frost of the 26th ult. did a good deal of harm here, but the frost of the 29th played havoc. The strawberry crop is about half destroyed. Apples and grapes almost entirely. The latter were ruined at once, but the apples showed no palpable injury until last week, when almost the whole of the blossoms fell off.—Ribstons and Blenheim Orange seemed to have suffered the most, and they gave a splendid promise this spring. As far as I can see Greenings and Russets seems to have fared best, but the blossom of the latter was light. Raspberries, black caps and blackberries are all now opening their blossoms, and all show some injury, although not severe. Gooseberries and cherries suffered a little, especially cherries. The Downing gooseberry seems all right, but Crown Bob, Whitesmith, and Industry, have all shed a lot of their fruit since the frost. Of strawberries, Wilsons are very badly hurt. All through this section, Crescents and Manchests are, have escaped fairly well, whilst James Vick is hardly touched. I find also Daniel Boons, Lacon, Seneca Queen and Atlantic have got off pretty well, and Bidwell also keeps ahead of Wilson with regard to damage received.—Monmouth and Jessie with me are totally destroyed, not one berry where there would have been a hundred. On the 29th I kept fires burning all night round my strawberry ground, but do what I would I could not keep frost off entirely. I managed, however, to prevent the thermometer going below thirty degrees, Fahr., whilst on other parts of my farm the thermometer went as low as twenty-four and a-half degrees, Fahr. That was at 3.45 in the morning. Of course these temperatures were taken with the thermometers laid on the ground. I

also took each observation with duplicate thermometers, so I am sure they were accurate.—GEORGE BUNBURY, *Suffolk Lodge, Oakville*.

Simcoe County.

SIR,—The late frosts have done a great deal of damage to fruit here. In the early part of May the prospect for a large crop of fruit was never better. But a great change has been made by the exceedingly cold weather in the latter part of the month. Grapes are ruined for this year, and strawberries are badly damaged. Most all of the early blossoms turned black, and in some places gooseberries were frozen and dropped off the bushes. Snow fell here on the 23th, accompanied with cold wind, resembling a day in March rather than May. And at night the wind fell and we had a severe white frost, which, in some places, formed ice more than one-eighth of an inch thick. The previous warm weather had forced vegetation at a rapid rate, so that everything was very tender. But the wet weather that followed no doubt did much to repair the damage done by the frost. Apples and plums escaped pretty well, being too far advanced to be injured very much; but tomatoes, cucumbers, melons, corn, beans, early potatoes, etc., were almost entirely destroyed. However, many of those things can be replanted, and the strawberries continue to produce fresh bloom, so that, with favorable weather, we may yet have a fair crop. But grapes are a hopeless case for this year, and they had never showed in my experience such an abundance of blossom as they did this spring. I am sorry I did not try the experiment of lighting fires among the grapevines to keep off the frost, as I saw it stated in the HORTICULTURIST some time ago that that is the plan adopted in France. The idea is that by keeping up a constant smoke all night by means of small fires here and there through the vineyard, the smoke will keep off the frost. I believe the Concord vines, with a very little protection, would have come through all right. I would like to hear if anyone tried the smoke remedy, and whether or not they succeeded in saving the crop by it.—G. C. CASTON, *Craighurst*.

Victoria County.

SIR,—I enclose you the following report on fruit prospects for summer of 1889:

Apples.—All trees blossoming early and that had not borne too heavily in 1887 will, this year, yield a very large crop. The frost of the 29th May injured, to some extent, varieties not having their fruit set at that time.

Blackberries.—Canes look remarkably well, and show plenty of bloom; a large yield may therefore be expected. Unfortunately the cultivation of blackberries is on a very limited scale here.

Currants.—White and red will yield a large crop, black but moderately.

Gooseberries.—As usual there will be a large crop of all varieties. The English varieties, Whitesmith, Crown Bob and Industry, are mildewed, but not so badly as in former seasons. The Industry suffers most. The new variety,

Golden Prolific, is as badly mildewed as Industry.

Pears will be the largest crop ever grown here. The fruit on many of the trees must be thinned to preserve the trees. All pear trees bore a superabundance of bloom, but a few trees unfavorably situated, so that the young fruit did not set during the hot weather, lost much—in some cases all—of the fruit by the frost of 23rd May.

Plums will be an average crop, notwithstanding a heavy loss by the late frost.

Raspberries of all varieties are looking well, and promise a large yield.

Strawberries are doing much better than could have been expected, when the injuries from the white grub and the drouth of last year are considered. There will be less than an average crop in this district.—THOS BEALL, *Lindsay, June 10, 1889.*

Stormont County.

SIR,—The apple crop promises to be fair, but likely under our average. Still, there will likely be more realised of our moderate crop than from last year's unusually large one, as we are likely to have less work and better prices. The tent caterpillars were unusually numerous and in many cases were left unmolested, our careless neighbors bringing us in for much damage from their shiftlessness. It should be as compulsory to destroy the caterpillars as to cut the thistles. We would like advice from some of our friends as to the most approved method of destroying the pests. Some burn them off with a coal-oil torch, I don't know with what success. Our plan was to wind binding twine round a thin pole, besmear it with pine tar and wind it round in the nest. Nests on small detached limbs are cut off with long handled pruner.

Raspberries, currants and gooseberries promise well. Strawberries also have a good show of fruit, but the unusually wet fall prevented the beds being kept clean, and heavy rains during the last ten days have given the weeds a great start on us.—JOHN CROIL, *Aultsville.*

City of Ottawa and Vicinity.

SIR,—I have much pleasure in reporting that the prospects for fruit here are good. Currants and gooseberries will be a heavy crop, also plums and apples. The raspberry canes were somewhat injured by the winter, as the snowfall was light. On some grounds the strawberry will be a complete failure, owing to the same cause. Where plants have been saved prospects of a crop are fairly good. Much here depends on our winter weather. The dark season of 1888-9 was comparatively mild, with a light snowfall.

The currant worm—saw fly—has been plentiful and persistent, attacking gooseberries and currants with unusual avidity and persistency. It has been practically almost impossible to keep hellebore on the leaves, owing to the heavy and constant rains. Had it not been for the use of Paris green no bush could have lived, as it is, some branches have suffered. The Tent caterpillar has also been exceedingly severe on apple and plum trees; it is feared these pests will do great damage where the trees are not carefully watched, and in some

instances this is almost impossible where farmers have other fish to fry at the same time. Cut worms have been numerous and have done much damage to all sorts of garden stuff in its green and succulent state, destroying melon patches and other plants of a like nature.

The Amelanchier looks well and is loaded with fruit. Lucretia Dewberry is almost killed out with winter frost. Grapes are looking well, but they now require heat; though they made an early start the late persistent showers have kept them back. Still they came through the winter well, where covered with earth, and are making a good growth. P. E. BUOKE, *Ottawa, June 5, 1889.*

Huron County.

May 29, p. m.—On the night of 27th we had a gale of wind, with heavy rain; next day, 28th, we had a very cold, strong wind all day, with snow in the morning, and during the following night a heavy frost, ice on pails of water three-sixteenths of an inch thick. The leaves on trees seemed full of ice. I expect most of our fruits are destroyed; if so, a loss of many million dollars to the country. The clothes on the line were frozen stiff. I covered all of my grapevine shoots saved from last week's frost, but they were all blackened in the morning. If the weather had kept favorable, I expected hundreds of weight of grapes, but now will not get a cluster, except from a vine or two against the house. Gooseberries are laying on the ground by hundreds; the same with currants. Raspberries are hanging down their heads. As for strawberries, I can't say yet how they are; they were in full bloom. Seedling oaks and Catalpas cut severely, and my young Catalpa tree blackened on the tender shoots.

May 30, a. m.—I have just been examining the various fruits; I can't see much damage done to apples or pears, but cherries, a lot of them, are brown. The same with plums. The gooseberries and currants don't seem to be hurt very much. Strawberries don't show much hurt, nor raspberries, but it is rather soon to make any decision. I see the leaves of Virginia creeper are killed, a plant I thought to be hardy. I expect most of the tomatoes planted out are spoiled, also beans that may be up.

This morning we have a cold driving, rain. How changeable the weather is! On the 18th the mercury was 94 in the shade, and ten days after several degrees below freezing. We had May weather in March, and now March weather in May. P. m.—Have made further examination, and find that the gooseberries and currants are badly frozen that were exposed, but those under the leaves and branches escaped.—WALTER HICK, *Goderich.*

Wentworth County.

SIR,—There could not have been a better prospect for an abundant crop of all kinds of fruit than we had in Div. No. 7 this spring.

Everything came through the winter in excellent condition, and at the end of May was about two weeks in advance of ordinary seasons, but on the night of the 28th the bright prospects were dispelled by a heavy frost,

which almost entirely destroyed grapes, strawberries, etc., and in some places cherries, pears, plums and even apples were destroyed. Reports have been so much exaggerated that it is difficult to arrive at just the amount of damage that has been done. There is no doubt, however, but that the fruit crop will be very light, particularly grapes and strawberries, although that portion on the south shore of Lake Ontario, between the lake and mountain, has suffered very little from frost, and the prospect is good for peaches, grapes and all other fruits.—M. PERRY, *Winona, June 8, 1889.*

City of London.

SIR,—I have made much enquiry in this neighborhood about the damage the frost has done, and find strawberries about half cut off, grapes badly injured, currants and gooseberries perhaps a third destroyed, apples and pears not hurt; apples well set and at present promise a good crop. The rest of the stuff, such as potatoes, beans, tomatoes, etc., we shall not miss, as the season is very early.—JOHN M. DEXTON, *June 4, 1889.*

Kent County.

SIR,—The fruit prospects here are good. They were extra good but for the late frost, which destroyed most of the currants and first crop of grapes (though many yet look for second crop of grapes). The strawberries were hurt a little. All the other fruits are looking well. Apples appear very favorable for a great crop.—F. W. WILSON.

Norfolk County.

SIR,—Previous to the morning of the 29th of May the fruit prospect for this section was the best, by far, that I ever remember. In some apple orchards it is now difficult to find a sound specimen of fruit; but in other orchards there may be half a crop. Peaches destroyed.

In some localities there will be a small crop of pears, plums and cherries. Grapes are all killed. About one-eighth of the strawberries are left. Black caps are killed, but red raspberries are but slightly injured. Currants and gooseberries are very badly frozen.—J. K. McMICHAEL, *Waterford, June 5, 1889.*

Prince Edward County.

SIR,—Prospects of the coming fruit crop are not altogether promising now. We never had a larger show of bloom than this year, but very much has failed to set.

Apples are very thin in the trees, and the spots are already developing upon such varieties as are liable to that disease. Duchess look well, but only in some places. Ben Davis looks well on one side of our orchard while on the opposite side a perfect failure. The Golden Russet looks more promising than any other variety on our place, and they will not be one half of a crop.

Pears are doing fairly well; and if it was

not for the spot we would expect an abundant crop of Flemish Beauty. The Dempsey looks better than ever before at this season of the year; not being subject to spot, we look for a good crop.

Cherries cannot amount to much with us this year. The Old Kentish and the Early Richmond are the only two varieties that are fruiting to amount to anything this year.

Grapes are doing well, having come through the winter in good order and just now commencing to blossom. The season seems favorable for small fruits.—P. C. DEMPSEY.

Norfolk County.

SIR,—The fruit prospects in this section of the country previous to the morning of the 29th of May was on the whole the best we ever have had. The frost, however, has changed the outlook to one of the poorest.

The apples are mostly frozen with the exception of those that were protected by thick foliage.

Pears, plums and cherries are even worse than the apples.

Peaches, grapes and the earlier varieties of black raspberries nearly all destroyed. Red raspberries not very much injured. Currants and goose berries about half destroyed.

Strawberries nearly all frozen but there will be a small crop from blossoms after the first.—J. K. McMICHAEL, *Waterford.*

York County.

SIR,—Your card of 14th at hand. I have not been through the country a great deal so as to enable me to give you what I would call an accurate account of the fruit prospects, at the same time from what I can learn, I find that in this district fruit is likely to be a short crop. Strawberries were in many cases greatly injured by the frost, and the apple crop will not be more than half a crop if it goes to that. Pears in a great many sections look pretty well, but there will be no plums to amount to anything, and few cherries. I think raspberries were not injured by the frost but in this district, except in this immediate vicinity there are very few grown. Summing the matter up, I think, as a whole, there will be a very poor fruit crop in this agricultural district.—W. E. WELLINGTON, *Toronto, June 17th, 1889.*

Huron County.

MY DEAR SIR,—In reply to your post card, I can only say that grapes are almost altogether cut off; peaches are badly killed; plums along lake front nearly a half crop, pears a fair crop, and apples a very small crop, not a quarter crop. Cherries were badly cut and the first blossom of strawberries also. Currants and gooseberries are a fair crop. This is along lake fronts only. Inland I find that there will be very little fruit of any kind. I fear the prospect is not at all a bright one for apple shippers in this Province. The curculio is worse this year than it has been for some years, so that, Mr. Roy to the contrary, we must have recourse once more to Paris green.—A. McD. ALLAN, *Goderich, Ont.*

Lambton County.

Apples.—Prospect of fair crops and possibly a very good yield to the hardier kinds.

Pears.—Ditto.

Plums.—No blossoms.

Peaches.—Few blossoms injured by frost.

Grapes.—Badly injured by frost in May.

Gooseberries, currants and strawberries partially injured by frost, but yet promise a fair crop.

Raspberries promise a good crop. Plants healthy appearance near here.—J. A. MCKENZIE, *Sarnia, June 18th, 1889.*

Perth County.

SUN.—From the first to the middle of May the prospects of an abundant crop of fruit was never better in this country; at the time of writing, June 15th, the promise was never poorer. So far as apples are concerned the outlook is a gloomy one indeed. During the past few days I have visited and examined a number of the best orchards in the county and venture the statement that there will not be a barrel of perfect apples in the half-dozen or more orchards visited. Such a condition of affairs, as indicated prevails throughout the county. I have no recollection of a spring frost so sweeping in its disastrous effect to the apple crop as that of three weeks ago.

With the exception of a few old native trees the destruction of the pear crop is just as complete as that of the apple. I have one pear tree thirty-five years old that seems to have resisted the effects of the frost and is maturing its heavy crop of fruit; but all the other trees of various varieties though covered with blossoms, are not going to mature a specimen. Grapes are totally gone, and it is doubtful indeed, if the wood of last year's growth will recover the shock. I am forcing mine out again from the bottom so as to have an entire new vine.

Currants and gooseberries suffered much, though on well protected bushes there will be

a fair crop. The currant worm got at his work earlier than usual this season and had some bushes more or less stripped of their foliage before his presence was observed. In such cases the frost did its damage completely, but where the foliage was heavy the young fruit was protected and saved. Plums, there will be none. There was not in fact an average show of blossom in this section, and what there was is killed. Cherry trees made great promise in the blossom but the meagre percentage of blossoms that withstood the frost will mature a poorly developed fruit at best.

Strawberries will be an average crop though late. All the earlier blossoms were killed, but the abundant rains produced a growth that we would, under ordinary conditions, not likely have had, and the result will be a fine average late season fruit.

In raspberries there is promise of an abundant yield; never better.—T. H. RACE, *Mitchell, June 15th, 1889.*

Dundas County.

THE worm has not been as lively this spring as in former seasons. I have only put a little slug shot on my gooseberries twice, and there is not a worm to be seen. My blackberries, the Taylor, Blackcaps, Tyler, Gregg and Mammoth Cluster, are just loaded with berries. The red raspberries, Guthbert, Brandywine and Philadelphia are all bearing heavy crops. The Golden Queen "White" even exceeds my most sanguine expectations, being loaded very heavily. Cabbage and all other vegetables are first-class, although we had so much wet weather. Potatoes, very early. I have had some Henderson's Early Puritan in blow for two weeks and Early Rose about nine days in blow. Peas: Bliss, American, Monte, first crop ready to pick on Sunday of this week. All crops looking well, and fruit of every description good crop, and so far as we can judge now, free from spot.—LEVI F. SELLECK, *Morrisburg.*

THE LARUE OR BAXTER APPLE.

SIR:—I do not know whether Mr. Nichol or your printer has made a mistake—probably the latter, as a *z* may easily be mistaken for an *n* when written, but a mistake has been made in the *JUNE HORTICULTURIST* in the name of the apple Mr. Nichol writes about. It should not be Larne, but Larue. It may interest your readers to know that Billa Larue, from whom it took its name, received a grant of a number of lots of land in the township of Escott as early as 1802, and planted not only apple, but walnut and chestnut trees. Some of the apple trees planted by him yet remain on the property, now in the hands of a family named Snell, also descended from the first settlers. Larue's apples became famous all through this part of the country. Last year I was spending my holidays in that neighborhood, and became interested in some rifle pits and other relics of the early wars on the Larue property. Some time afterwards I happened to speak of the matter to my father, now over eighty, when he immediately asked me about the apple trees, as he remembered hearing of and eating Larue's apples when a boy. I could relate some of the legends respecting Larue and his alleged wealth, and of the appearance of his ghost, or those of his numerous wives, who lie buried beside him under the shadow of some of the old apple trees on the old farm; but as yours is a horticultural rather than an historical journal, I will forbear. But let the correct name be applied to the apple, so that the memory of its introducer may be properly handed down.—J. J. BELL, *Brockville, June, 1889.*

Words from the Cold North.

SIR:—Is there not some mistake in that valuable paper of Mr. Nichol's as printed in the *JUNE HORTICULTURIST* on the "Baxter" apple?

I notice he calls it the "Larne." I am inclined to think the mistake is in the reading of the manuscript, and it is one that could be very easily made. I have known the apple for several years under the name of "LARUE OR BAXTER," but never knew it to be called Larne before. Kindly see letter in *HORTICULTURIST* for March, 1884, page 59.

This apple was first brought to my notice on the tables of one of the agricultural exhibitions in Kings. It is very large, attractive in appearance, keeps till February, and is fair in quality—as Mr. Nichol says, preferable in this respect to either Alexander or Ben Davis. But in our section it must rank along the "almost hardy enough" varieties. As yet I have not succeeded in growing it successfully, neither do I know of any one growing it in this section. Our

FRUIT PROSPECTS

this year are very poor for everything but small fruits. Plums, apples, and even crabs are a complete failure. Small fruits will be in abundance.

Can any of your readers give me any information *re* the

CRIMSON PIPPIN APPLE.

I have two trees that are very promising. I have had them now for four years, and as yet they have withstood our cold winters remarkably well. They were given me by one of my horticultu-

ral friends—and what horticulturist has not got horticultural friends? And would it not be a sin to refuse an offering from such an one? I took the trees, planted them, expecting they would die the first winter; but to my utter astonishment they are

doing well. They have not fruited with me as yet, consequently I know nothing about them, either as to size, appearance or quality. Am pleased to note the continued improvement in the HORTICULTURIST. — A. A. WRIGHT, *Renfrew.*

DECORATION OF HOME GROUNDS.

DEAR EDITOR: I was pleased to see in June number of your much prized journal, an article on the Honeysuckle, accompanied by a colored plate of three popular and desirable varieties. Nothing so much improves the appearance of our homes as a few hardy climbers and flowering shrubs about the grounds, and the climbing Honeysuckle is one easily managed, of thrifty growth, and that will abundantly repay the small amount of annual care required. It is a pity some of our Canadian farmers do not pay more attention to the adornment of their homes by the addition of a few hardy flowering shrubs and native shade trees. We know they are industrious, hard-working people, and that "time is money" to them, as well as to the merchant; but a very few days out of each year given to the care of the lawn and flower garden, would so amply repay those concerned that we should like all owners of homes to try the experiment. One or two common lilacs, say a white and colored; a syringa, or mock orange, a snow ball, and that most showy of all white flowering shrubs, the 'Spirea Van Houtti;' these with a few of our native evergreens, as

Spruce, Hemlock or White Cedar, would require little or no care after they are once started, besides making home more home-like to our children: they would also add money value to the place and make the neighborhood a more desirable one for strangers to settle in. Almost any one who has them growing would be pleased to give for the asking a few sprouts or suckers of the shrubs named above, and they may be transplanted in either Spring or Fall. Some of our farm houses in this district are really elegant structures, and a credit to those who, through thrift and industry, have acquired the means to build and furnish them; yet we have often remarked that some of these grand places, without either flowers, shrubs or trees, do not look nearly as home-like as an unpainted cottage, perhaps not far from them, which is surrounded by foliage and flowers. I hope you will continue from time to time to give a little space in your valuable journal to articles on the cultivation of flowers and lawn decoration. At some future time I may perhaps write you on "House Plants—How I Succeeded with Them," etc.—FRED. G. LOCKETT, *Belleville, Ontario.*

AMATEUR GARDENING.

BY W. S. TURNER, CORNWALL, ONT.

THE size of my garden plot is about 100 feet square. I commenced work by ploughing the sod under, and putting in corn and potatoes as a first crop. I saw there was a goodly quantity of quack grass, and having read of the experience of others in the *Rural New Yorker*, the *CANADIAN HORTICULTURIST*, and other journals of that class, I came to the conclusion that my best partners must be the hoe, rake and perseverance.

I used these three articles with such good purpose that the following spring I saw very little of my old enemy the quack grass; though I was not quite so successful with the nut grass, and which even yet troubles me some.

The second spring, having made my soil a little mellowed by cultivation and old manure, I put in ten apple trees, some gooseberries, black and red currants and raspberries. I now began to aspire to a few vegetables, such as beets, turnips, mangolds, sweet corn, peas, beans, tomatoes, celery, etc.

I cultivated between the fruit trees just as if I did not have any. I soon found that my family could not begin to consume the good things I grew, so I gave away some, and as that did not pay very well, I began to sell, so my little garden began to pay expenses, and more so when my celery began to be fit to sell, for celery, as some of you are aware, comes in as a good second crop.

The third spring, my garden, being in a proportionately better condition, I aspired a little higher, and put in one or two grapevines and a few strawberries, more currants and gooseberries. I find there are some things I can grow to better advantage than others, for I believe in making use of every foot of ground and taking out of it all I can get; and it is surprising what one can take out of a small piece of ground, well cultivated, well manured, and well studying the demands and requirements of each variety of fruit or vegetable. Now, for instance, take a tomatoe plant, it will take up about the same space as a hill of potatoes, and will produce, on an average, three times the value; true, it requires a little more care and cultivation, but the potato bugs will not trouble it until all the potato vines are dead. I will just say here that it is necessary, if you want extra fine tomatoes, to train them to one or two stalks by nipping off the laterals or small branches that grow out just above the leaves, and tying the one or two leaders to a stake, using a soft string for the purpose.

Some gardeners assert that poor soil is best for tomatoes, but that is not my experience. I give them good soil, rotted manure, and a sprinkling of wood ashes during the growing season.

I would here put in a protest against our farmers selling their wood ashes to enterprising Yankees

to be shipped to the States, and there sold at \$2.50 per barrel. It ought not to require much arithmetic to convince them that it would pay them to use ashes as well as our friends across the border.

This valuable fertilizer is especially good for currants, gooseberries, strawberries, and, in fact, for all small fruits, and also for everything else in the garden. A favorite vegetable with me is celery. Too much cannot be said in favor of this excellent vegetable, and certainly too little of it is eaten; even physicians and druggists are beginning to recognize the good qualities of celery, for you may see in the druggist shop windows beautiful pictures, setting forth the wonderful cures by Paine's Celery Compound, and guaranteeing to cure all diseases of a rheumatic character; but why not use the celery in its purity, just fresh out of the garden. Once taste it, and the relish for it increases, and you want more every day. There are many vegetables that can be grown as a second crop, celery is one of these. It is something like the mangold and field turnip, it grows best in the cool, moist nights of the latter part of August, September and forepart of October, and it will take a very severe frost to hurt it.

You may put your plants in after early potatoes, beets, onions, shallots, peas, beans, and even after taking up old strawberry beds. For the more minute details of growing celery, I would refer to an article in the *CANADIAN HORTICULTURIST*.

When I began to grow more than my family could consume, I made a bargain with one of our local vegetable pedlars to take my surplus stock, but he could only come on certain days, as the other days were taken up in going out to the country to sell vegetables to the farmers!

Just think of it. This is carrying coals to Newcastle with a vengeance. Now friend-farmers, do not suffer this reproach any more. Fence off a quarter of an acre near the house, give it a good dose of old manure and plough it up. Do not forget a corner for a few flowers; it will brighten the home for the girls; another corner for strawberries, it will be fun for the boys; another portion for tomatoes, celery and other vegetables, and my word for it you will receive the blessings of your wife and family, and everything will look brighter and pleasanter, for you will have everything fresh from the garden, and the vegetable pedlar will be a thing of the past.

MUSHROOM CULTURE.

BY HERMANN SIMMERS, ESQ., TORONTO.

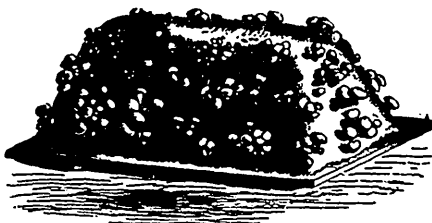


Fig. 51.

THE cultivation of this nutritious esculent is a very simple matter, and requires only ordinary intelligence and care. The materials needed are fresh horse manure, good soil and live spawn. The manure should not be too short, as it does not combine the necessary qualities. Long strawy litter plentifully mixed with short manure, makes by far the best beds, as it does not heat too violently, decomposes slowly, and retains its heat for a long period. Put in a heap and turn every three or four days to permit the escape of noxious gases, and prevent burning. Manure that has become white or "fire fanged" and mouldy is worthless for mushroom beds. When ready for use it should not possess an offensive odor, and should be as hot as can be borne comfortably by the hand. It should also be moist, for if too dry the decomposition of the mass will be rapid, and the bed exhausted before the crop has matured. If a shed or cellar is not available they can be grown in the open air, but the time necessary to perfect a crop will be longer. Make the beds 3 feet wide at the base, 2½ feet high, tapering to 6 inches at the top, and of any desired length. The manure, when in proper condition, should be quickly handled to prevent the loss of heat, and be beaten down to make the heap firm and compact. When of the desired size the sides should be

dressed down neatly and the heap covered with long litter. Allow this to remain till the heat has decreased to 90°; at this point the bed is ready to receive the spawn, which is done by raising the manure with the hand and inserting pieces of spawn 2 inches square, 9 inches apart each way. Liberal use of spawn results in larger crops. Many beds fail to give satisfactory returns owing to the bricks being broken in too small pieces. At the expiration of three days the spawn will have commenced to run, and the bed is in proper condition for covering with soil. Any good fresh soil will answer, but turfy loam from an old pasture or meadow is preferable. If the soil is poor add a liberal quantity of bonemeal. The earth should be just moist enough to press together nicely; if too wet when put on it is apt to crack and thereby permit the heat to escape instead of permeating the bed evenly. If the soil is light put on to the depth of 2 inches, but if heavy 1 inch will be sufficient. The bed should again be covered with the litter, and it should remain on till the bed is exhausted, only removing it to gather the crop. If the bed shows signs of dryness water on top of the litter, and not directly on the soil.

Mushrooms can be readily grown in cellars, stables, sheds or pits. The requirements as to manure, soil, etc., are similar, but the season can be

prolonged and the temperature regulated more easily than in the open air. Many are successfully grown on a shelf in an ordinary cellar, and yield sufficient crop to compensate the grower for his effort. Spent hot beds also meet the requirements of

them exactly, using materials in same manner as described. They will also grow admirably on top of the bench, using cloth for shading instead of litter. The time required for a bed to come into bearing is three to six weeks.

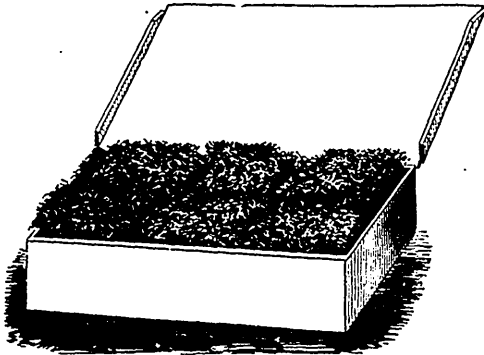


FIG. 52.

the mushroom in a large measure. Bits of mushroom can be inserted before the bed has become cold between the plants. When the plants are removed keep shaded with long litter, and water occasionally if necessary. The space under greenhouse benches or stagings will suit

In gathering the crop do not cut with a knife, but pull them up with a twisted motion. The spawn we offer is the best French and English. Amateurs and ordinary cultivators will find the English best suited to their needs.

HONEYSUCKLES.

YOUR interesting article in the June number on the Twining Honeysuckles doing well in Ontario is suggestive.

Of those you name only the *L. Sempervirens* will endure our summer and winter air, and the eastern and southern forms of this species are tender.

The hardy species we grow were imported from east Europe, and their botanic names show the uselessness of specific names from a horticultural

standpoint. Some of the best we received under the names: *Lonicera Germanica*, *L. Media*, *L. Grata*, *L. Douglasi*, *L. Coccinium*, *L. Fraseri*, *L. Flava*, and *L. Quercifolium*.

The books say that some of these are natives of the eastern and southern U. S., some to our north-west coast and some to west Europe. But those familiar with the great herbariums of this country and Europe know that these species are widely distributed and include hardy and

tender varieties for given climates. As introduced from coast climates on our latitude from either continent, these species will not endure our summer heat or winter cold; while the interior varieties of either continent are perfect and even more beautiful in foliage and blossom. It is the old story illustrated by the hardy and tender Box Elders, Red Cedar, Silver Spruce, etc.

The great extent of our country, and extreme variations of climate, suggest the need of a garden botany; species not only vary in hardiness, but desirability for garden culture.

Our grounds contain a very large number of illustrative varieties. Among them I will name the Josika Lilac and the Privet.

The books say *Syringa Josikaea* was first discovered mingled with the Beech and other moisture loving plants in Transylvania. The flowers are described as "bluish purple and scentless."

This was tried and found wanting in our climate several years ago. Hence we were surprised to find varieties of this lilac in 1882, in nearly all parts of Russia. One of these from Central Russia has the typical foliage and flower of the *Josikaea*, but the leaves and flower trusses are larger and handsomer, and they are so fragrant as to per-

fume the whole house. It flowers fully four weeks later than the common lilac, and is as hardy with us as the Siberian Almond.

The common Privet (*Ligustrum Vulgare*) of west Europe, is defective in leaf and wood with us. But the form from Central Russia is perfect in plant and much handsomer in foliage and flower. Yet it is named *L. Vulgare*.

The point I wish to make is that trees and shrubs distributed under their specific name, as found in the botanical works, are delusive, and that we should have garden names that mean something.

J. L. BUDD.

Agri. College, Ames, Iowa.

NOTE BY EDITOR.—We thank Prof. Budd for this article, and hope for frequent communications from his pen. We must explain, however, that on page 147 we did not intend to convey the impression that we had found *each of the three varieties* illustrated to be hardy in Ontario. We have the *Sempervirens* and *Halleana*; and these grow finely at Grimsby. We also have the native climbing honeysuckle, *Parviflora* and *Hirsuta*, doing well in our woods. We have still to find out by testing how far north *Flava* and *Periclymenium* will succeed.

FLORICULTURAL.

Adam's Needle.

"**Y**UCCA FILAMENTOSA" is a native of our Southern States, but sufficiently hardy to be successfully grown in the latitude of New

York, and even farther North with a slight protection. The foliage somewhat resembles that of the Aloe. It is a plant of striking form that is sure to arrest attention. It seems natur-

ally to find a place in old-fashioned grave-yards as well as in the modern cemetery, and as an ornamental plant deserves a place in the flower border and on the lawn. It may be readily recognized by the long, thread-like filaments that grow along the margin of the leaves. These thread-like appendages have given rise to several names, such as Eve's Thread and Bear's Thread, but the plant is most commonly known as Adam's Needle. The scape or flower stalk of a well-established plant grows five or six feet high, and produces from two to three hundred flowers of a creamy white, which last a long time.

The Yucca is a plant of very stately appearance. The wonder is that it is not more commonly grown. It is propagated from seeds, suckers, and root cuttings, suckers being preferred, as they soonest make large plants.

There is quite a pretty variegated form of *Yucca filamentosa*, but it is rarely seen, except here and there under glass, where its variegation becomes more pronounced than in the open air. The variegation consists of a white stripe along the margin of the leaves. The variegated form does not sucker as freely as the type, but may be readily propagated from root cuttings. The Yucca grows best in a light soil, and will even eke out an existence in pure sand; but it is worthy of something better.—P. B. MEAD.

NOTE.—The Yucca succeeds well in Southern Ontario even without protection, and for a back ground, not too near, is a most desirable plant, soon propagating itself to fill a large bed, and thus becoming particularly showy. It is grown on Dr. Beadle's grounds, St. Catharines, and on the grounds of the writer at Grimsby.

Management of Roses.

A CONGENIAL soil is the first requisite for success with roses, and this is not always at hand. That in

which the rose delights more than in any other is a deep, rich, heavy loam, moderately moist. The rose is a gross feeder and will at all times resent neglect. Poor soil will not yield good roses. No, not even poor ones. A liberal supply of plant food is absolutely necessary, in order to secure roses. The amount of flowers is proportionate to the growth of the plant; they will appear just as fast as the wood is produced that bears them, and the wood is produced according to the supply of plant food furnished. That is about all the secret there is in growing roses.

The best plant food for the rose is a compost of well-rotted turf and cow manure in equal parts; this is to be applied at any and all times; it makes but little difference how or when, so long as the plant has always a supply on hand ready for use. Manures should never be applied to rose beds until thoroughly decomposed, then a surfeit is impossible. The best plan is, after the plants have been set in a well-prepared bed, to mulch the surface, say to the depth of two inches. If the soil is naturally cold and heavy, horse dung will be better; if light and dry, cow dung is decidedly preferable. Whatever the nature of the ground may be it should always be kept moist and warm, at the same time never sodden; too much wet is as fatal as drought; either will consume. The best situation for the rose is an open and airy one; in such, with a liberal supply of manure, roses can be had the entire summer, and it is folly to think of getting a crop in any other manner. In cases of drought, liquid manure can be applied with excellent results. Growth must be constantly kept up; the more rapid, the greater will be the number of flowers, and the quality will be proportionate. As a rule young plants are to be preferred, and these that have never had a check from the time the cuttings were put into the propagating bench give the best results. Old and half-

starved plants we would not plant under any circumstances, and it is by far the best economy to set out new plants every spring, or at least as often as once in two years.

To keep roses over winter, take them up after a good hard frost, and heel them in, in some protected place in the garden; lay them close together at an angle of about forty-five degrees; pack the earth closely around the roots, then cover the whole with newly-fallen leaves to the depth of six inches; over the leaves lay some brush or throw over them sufficient earth to keep the leaves from being scattered by the wind. The following spring gradually uncover upon the approach of warm weather, and replant as soon as the soil is in proper condition,—*American Agriculturist.*

Summer Flowering Bulbs.

THE following hints from the *Garden and Forest* will be especially interesting to those of our readers who have selected the summer flowering bulbs:

“An important point to remember in the culture of these bulbs is that their flowering season is the rainy season of their native countries. This is particularly true of the *Tigridia* and the *Gladiolus*, which bloom in cool, rainy or winter season, while their period of rest is in the excessive hot, dry weather peculiar to their home. The *Calla*, a native of the Nile, blooms when the roots are a foot under water in the spring, and rests at low water, when their roots are as dry as it is possible to be and live. The same is the case with many of the so-called Cape bulbs.

“The *Gladiolus* will grow under any conditions, but it will not grow well. A cool, moist atmosphere is the one in which they delight. Climate alone is what makes them succeed so well in England. Last year we had rain in abundance, with low temperature, and never before have we had such

perfection in *Gladiolus* flowers. We make a mistake in planting our bulbs too early. They should be kept cool and dry, and in a dark room until the first of July, when they will come into bloom about the first of October, throwing up spikes that for number and size of flowers would hardly be recognized as the varieties that bloomed in midsummer. If planted early, so as to flower in July and August, they should be protected against the heat of the sun by a lattice or light canvas covering, and the bed should have a light mulching of newly-cut grass. This will keep the roots cool and is not unsightly. The capabilities of the *Gladiolus* are only known to those who grow them in this manner. The soil makes but little difference with the *Gladiolus*. Any soil that will yield good crops of potatoes will be equally good for these plants. If it is heavy, plant shallow, say from one to two inches deep; if light, from four to six inches will be better. It is best to use ground made very rich for some other crop, the previous year, as fresh manure does not suit them.

“Lilies, quite as much as *Gladiolus*, need a good mulching to keep the root cool and moist. A bed of lilies that has been properly mulched a few years will yield enormously; more than thrice the number of flowers will be produced, and they will be much larger, with better defined colours and of greater substance. A lily-bed should be made in a position where it can remain undisturbed for a number of years, and as long as the plants flower well. An *Ascension Lily* (*L. Candidum*), the handsomest of all Lilies, should be planted in July or August, while the bulb is resting. They will live when planted at any time, but will flourish only when planted at the proper season.

“*Tigridias* are Mexican bulbs, and do not endure our northern sun. Treat them as Lilies should be treated. In October the flowers

remain open nearly the whole day, while in August they close before noon. Give them a moist, cool situation, and they will appreciate the treatment.

"Dahlias are not properly bulbous plants, but they may properly be included in the same list. To be grown well they must have a cool and moist soil, which is usually a heavy one. If the garden does not

afford such, assist it by heavy mulching. If Dahlias are grown simply for distant effect, give them plenty of room to branch out and plenty of the plant food, for they are great feeders. If individual blooms are desired, thin out the smaller branches and disbud. We prefer the former treatment, and want the plant to occupy all the space it requires, and to produce as many flowers as it likes."

EVAPORATION OF FRUIT.

WITH many of our farmers it is certainly becoming an important question, what disposal shall we make of our surplus fruits? Even when situated near a good market, there are times of low prices when the shipments of small fruits scarcely pay expenses, and every year the large orchardist finds he has a large quantity of second class apples on hand that are unfit to ship. Many are so situated at such inconvenient distances from the railway, or from a city market, that even with the best quality of fruit land, there is no encouragement to grow fruit.

Now, the fruit evaporator seems to us a solution of the problem, and, by co-operation, several growers might use one machine among them, and so economise expenses.

The annual report of the Secretary of Agriculture for Nova Scotia contains some interesting matter on this subject, and from it we have made the following selection on the extent of this industry about Rochester, N.Y., in view of the importance of the subject at this season:—

Glancing, first, at general facts indicating the character and extent of this new industry: 1,500 evaporators were at work in the neighborhood of Rochester during the year 1887, and some 150 more were started during 1888. These range in capacity from 25 to 1000 bushels of apples per day.

The 1500 evaporators in question gave employment, during the autumn and winter of 1887, to 30,000 hands, who earned from 5 to 12 dollars each per week, according to skill and experience. The total quantity of dried apples produced was about 30,000,000 lbs., and their value two million dollars. Five million bushels, or 250,000,000 pounds of green apples, were required for this purpose, from which more than 200,000 tons of water were driven off by the consumption of 15,000 tons of coal. The product finds a market all over the world, but the chief consuming countries are Germany, England, Belgium, Holland and France. Evaporated apples are packed in cases, each containing 50 lbs., and the cost of carriage per case to Liverpool is 30 cents. The same quantity of green fruit sent in barrels would cost \$2.50, and canned fruit \$2.10. In the case of evaporated fruit, no damage is done even by the longest transit; while fresh fruit suffers enormously, and canned fruit is always liable to ferment.

The refuse of the apples, consisting of cores and parings, is not lost, for these also are dried, and form the basis of all the cheap jellies now so largely manufactured. Twelve millions of pounds of dried cores and parings were exported from America during the year in question. Sliced apples, dried without coring or paring, are

exported in large quantities to France, where they are used in the production of the cheaper wines, and sometimes by the distiller. Eighteen thousand barrels, containing four million pounds of sliced apples, were sent to France during 1887, and of this quantity more than half was furnished by the Rochester Evaporators. The dried apples of Western New York can now be bought in almost every town on the Continent of Europe, while an increasing demand for them is springing up even in such remote parts of the world as Australia and Western Africa. Passing from the general to the particular, it may, in the first place, be remarked that the practice at Rochester is to dry not only apples, but peaches, plums and raspberries.

Green apples are bought in average years, at from fifteen to twenty cents per bushel of 50 pounds. The actual cost of drying averages from twelve to fifteen cents per bushel. The total cost of the dried product is from six to ten cents per lb., and the average selling price seven to twelve cents per lb. One bushel of green apples produces about 6 lbs. of dried apples. The best apples are barreled and exported as fresh fruit; only the second grade fruit is evaporated, while a third grade goes to the cider mills at an average price of $7\frac{1}{2}$ cents per bushel. Nothing is wasted. The cores and parings are dried and sold for jelly, making an average price of \$20.00 per ton. A bushel of apples yields 30 lbs. of meat and 20 lbs. of refuse.

The 30 lbs. of "meat" is reduced to 6 lbs. by evaporation, and the 20 lbs. of refuse to 4 lbs. One pound of coal is used in evaporating one pound of fruit. Peaches are dried both in the "pared" and "unpared" state. The cost of a bushel of good peaches in average years is fifty cents. Each bushel yields $4\frac{1}{2}$ lbs. of dried pared, and 8 lbs. of unpared fruit. The actual cost of drying, in both cases, is fifteen cents per bushel.

The cost of the dried "pared" product is 15 cents per lb., and its selling value twenty to twenty-two per lb. The cost of "unpared" dried peaches is eight cents per lb., and the selling value from ten to twelve cents per pound.

Raspberries (black) cost, in average years, six cents per quart. A quart of fruit yields one-third of a pound of dried product. The actual cost of drying is two cents per lb., and the total cost of the dried raspberries twenty cents per pound.

Plums are only evaporated when so abundant as to become unsaleable. One bushel of green plums produces 8 lbs. of dried fruit, whose average selling price is seven cents per lb. Fruit evaporation is mainly an independent business. The 1500 evaporating establishments already mentioned as surrounding Rochester are all of this character. The farmer indeed owns a dryer of his own, whenever his orchards are large, but he sells for the most part to the nearest "Evaporator."

Apple orchards in Western New York are commonly from 100 to 300 acres in extent, peach orchards from 50 to 150 acres. The Evaporators themselves vary in capacity from 10 bushels to 1000 bushels a day.

The smaller drying apparatus is of the simplest description. It consists of an iron stove, surmounted by an upright wooden casing, the stove being fixed in the basement, and the wood casing on the floor above. The products of combustion are carried away by a flue, while the hot air rising from the stove passes upwards through the box-like dryer, which terminates in a cowl and vane. The dryer itself is fitted with a number of sliding trays made of wire netting, upon which the fruit is placed, and these are replenished by hand as the drying proceeds. Evaporators of the greatest capacity do not differ from the smallest in principle, but the former usually employ steam instead of fire heat.

The cost of the smaller (Parmer's) apparatus is very trifling, and the cost of coal has already been stated as 1 lb. per lb. of evaporated fruit. Mechanical appliances for coring and paring apples are extremely ingenious and very numerous. They are worked by hand and are continuous in action—i. e., one apple is being "chucked" while a second is being pared and a

third cored. Peach-paring machines are also in vogue, and cherries, when these are dried, are stoned by a very pretty special machine. None of these mechanical adjuncts to the system of fruit evaporation are expensive, although it must be said they are all specially American productions.

PHOSPHORIC ACID.

THE fourteenth Annual Report of the Ontario Agricultural College contains among other interesting matter some particulars about phosphoric acid which we as fruit growers are interested in, from which we select the following portions:

USES.

Plants require phosphorus for the development of their seeds, and animals also require it for the structure of their bones. When we speak of phosphoric acid in connection with soils, plants and animals, we refer to a compound of phosphorus and oxygen (P_2O_5): it is the white fume that comes from the burning tip of an ordinary match. It is not found, however, in this condition in soils, plants and animals, but it exists, combined with such substances as lime, iron and alumina, forming salts which are termed *phosphates*. To say, therefore, that a soil, a fertilizer, a grain of wheat or a bone contains so much of phosphoric acid means that the acid is present in the combined state of a salt. The most common form is the compound with lime, known as phosphate of lime, or calcic phosphate.

Soils require phosphoric acid for the development of plant life and are often deficient in this regard. Hence the application of phosphates in one of the several forms will often con-

vert an unproductive soil into one of great productiveness.

Three samples of soil lately analyzed here gave 0.31 per cent. of phosphoric acid, while one that was said to be unproductive gave little trace of it. Let us take a soil of average quality as possessing 0.20 per cent. of phosphoric acid. Twelve inches of surface soil will weigh from one thousand to two thousand five hundred tons per acre, and will contain from four thousand to ten thousand pounds of phosphoric acid to the acre. There is in the average soil, therefore, a supply of phosphoric acid (as of other mineral materials) sufficient for many years crop production. That crops cannot thus live upon the constituents of the soil without the regular return to the soil of fertilizers can be explained in two ways: 1st, the plant, through its roots, is brought into close proximity to only a small portion of the soil; 2nd, The food is, for the most part, in an insoluble or unavailable form. Hence we need a much larger supply of plant food in the soil than is required for the immediate necessities of the plant, and some of this food must be in soluble form.

VALUE.

The difference in value, owing to the state of solubility, will be seen at once from the following trade values

used by the analysts of the Eastern States during the present year :

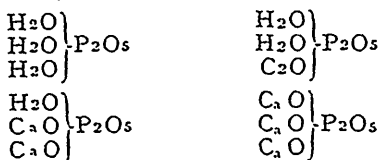
Ph. Acid—Soluble in water, 8cts. p. lb	
“ Reverted form, 7½ “	
“ Fish, fine bone, 7 “	
“ Fine med. bone, 6 “	
“ Medium bone, 5 “	
“ Coarser bone, 4 “	
“ Fine gr. r'k ph. 2 “	

A value is thus arrived at by considering the solubility, the size of particles, and the source.

Let us next distinguish between soluble, reverted or partially soluble, and soluble phosphates. We shall take the different phosphates of lime. The relationship of the various forms can be most easily seen from the following arrangement :

<i>Pure Acid.</i>	<i>Soluble Phosphate.</i>
Water } Ph. Acid.	Water } Ph. Acid.
Water } Ph. Acid.	Water } Ph. Acid.
Water } Ph. Acid.	Lime } Ph. Acid.
<i>Reverted Phos.</i>	<i>Insoluble Phos.</i>
Water } Ph. Acid.	Lime } Ph. Acid.
Lime } Ph. Acid.	Lime } Ph. Acid.
Lime } Ph. Acid.	Lime } Ph. Acid.

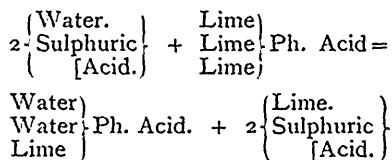
Or, in chemical notation :



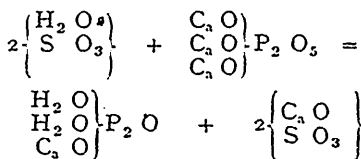
The change from the pure acid to the insoluble form is a removal of water and an introduction of lime. In our rock phosphate, and in bones, the form is that of the insoluble phosphate. The treatment by sulphuric acid changes this, more or less, into soluble phosphate, the lime that is removed being changed into sulphate of lime or gypsum. Superphosphate thus made, therefore, consists of soluble phosphate, gypsum, and variable quantities of the other two phosphates.

In harmony with the above, we can represent the formation of super-

phosphate in simple form as follows:



Or, in chemical notation :



Sulphuric acid and insoluble phosphate of lime react on each other, forming soluble phosphate of lime and sulphate of lime or gypsum.

Bone superphosphate, or dissolved bone, is considered more valuable than mineral or rock superphosphate. The mixing of lime with superphosphate tends to change the soluble phosphate back to the less soluble form, the *reverted*. Decaying organic matter, whether in a compost heap or in a soil, will have the effect, to a small extent, of changing the insoluble forms to soluble.

Phosphates are of most service with organic fertilizers on black humus soils, along with farm-yard manure or nitrogenous fertilizers, and are of less benefit in connection with lime.

Phosphatic fertilizers give good results when applied to pastures, cereals and roots, especially turnips.

SOURCES.

I. Farm-yard manure contains from 0.15 to 0.75 per cent. of this acid, having an average of about 0.50 per cent., or 10 lbs. to the ton. Poultry droppings have about four times as much.

II. Ashes (fresh and leached) have from ¾ to 1½ lbs. per bushel.

III. Fresh bones (sold as crushed bone, bone meal, or float bone, according to texture) should contain

about 4 % of nitrogen and 25 % of phosphoric acid.

A good fertilizer may be obtained by mixing 500 lbs. of bone with 25 bushels of fresh ashes per acre.

IV. Bone ash, the ashes obtained by burning out all of the organic matter. Little used in Ontario.

V. Boiled or steamed bone, the refuse bone from which most of the organic matter has been boiled or steamed for glue, this is more easily ground and made into superphosphate than III.

VI. Bone, char, animal, charcoal, bone black, or bone charcoal, the refuse charred bone after being used for the refining of sugar. A sample analyzed here gave 30% of phosphoric acid.

VII. Bone superphosphate or dissolved bone, made by treating bones (especially V. or VI.) with sulphuric acid—15 to 25 per cent. phosphoric acid.

VIII. Guano contains from 10 per cent. to 30 per cent. phosphoric

acid Buy this only from reliable dealers on guaranteed analysis.

IX. Dried blood and scrap have 3 to 10 per cent.

X. Apatite—Canadian, containing about 80 per cent. of phosphoric of lime, should have over 35 per cent.

XI. A good superphosphate should have about 25 per cent.

XII. Marls: The presence of phosphoric acid greatly adds to their value; those we have examined have never given much more than traces.

XIII. Basic Slag, Thomas Slag, Thomas Scoria, Phosphate Meal: These are all names for the finely ground slag from smelting iron containing phosphorus. The phosphorus is removed by lime and the slag therefore contains phosphate of lime. It is being experimented with in Europe, promises well, sells in Eastern States at \$15 per ton, and is claimed to be the cheapest available form of phosphate. It contains an excess of caustic lime.

From Our Exchanges.

An Apple Orchard as a Commercial Enterprise.

THE following paper shows the profit in the apple culture in the Province of Quebec, and if profitable there, it must be still more so in our more favored Province:

"I think we must admit that apple culture is an industry belonging to the farm, and that the bulk of the apples must be grown by the farmer.

"To the farmer who has land suitable for an orchard, and who is desirous of entering into fruit culture, the question naturally arises, which is most profitable, to grow apples or cereals? He may read the different horticultural reports of the Provinces and States, and in almost all of them he may find reports on fruit culture by different men, who assert that orcharding is more profitable than growing grain. But as to what per cent. it is more profitable he is left to draw his own conclusions.

"You ask the farmer what is the net profit on an acre of oats or barley, he answers, 'That depends a great deal on the season.' It varies all the way from \$5 to \$20, and sometimes there is no profit. And so it is in all agricul-

tural and horticultural pursuits. It is impossible to say what percentage an orchard will yield, or what net profit an acre of oats or barley will yield. The majority of farmers, when they have realized \$12 to \$15 net profit on an acre of oats or barley, feel quite content.

"Would the orchardist feel contented to realize that amount per acre, or in the same ratio for the money invested? I think not!

"Neither the horticulturist nor the farmer, as a rule, keeps an account-book that would enable him to give the amount of expenditure and receipts of his orchard. Hence the reason why it is we so seldom see any figures or facts that would enable us to come to a conclusion as to the result of an apple orchard as a commercial enterprise.

"For the benefit of those who are seeking information, and would like facts and figures of the returns of an orchard 25 years old, I will give the receipts for the last four years:—

1884	2,871 Bushels	\$1,132.84
1885	1,477 "	583.90
1886	1,461 "	758.50
1887	2,015 "	1,062.05
Total	7,824	Total..\$3,537.29

"Average of orchard per year, \$884.32; average per acre, \$88.43. Deducting, say 25 per cent. for expense of picking, packing, marketing and care of orchard, it would leave a net profit of \$66.33 per acre per year.

"These figures compared with figures in growing grain give a far better result.

"Notwithstanding that this orchard was planted 25 years ago, on a stony piece of land, prohibiting cultivation other than top-dressing with manure, and before any reports as to the most hardy varieties for this Province had been published, and the fact that the orchard contains more than 30 varieties of apples, and some of the varieties almost worthless, I think the above figures show that orcharding as a commercial investment has given fair profits—N. C. FISK, before Montreal Horticultural Society.

Girdling Grape Vines.

I have practiced girdling more or less for many years to test its value in a scientific and economical way. The numerous experiments made in the college vineyard lead to the following results:

1. No injury to the vines girdled has ever been detected, even where the girdle was made on the main trunk near the ground.

2. The time of ripening is generally hastened by one or two weeks.

3. Careful sugar tests show no injury to the quality of the fruit.

4. The fruit was larger, more beautiful, and sold for from three to five cents per basket more than that from ungirdled vines.

5. The best time to perform the work has been found to be early in July.

6. For reasons of economy of the forces of the vine, only a part of the cane of each vine should be girdled and only those that are to be cut away.

7. Annual arms should be grown for the purpose of girdling to bear the fruit, and a few unbearing ones fruit for spurs to produce the canes for next year's girdling.

8. The best results were obtained when the ring of bark taken out was from one-eighth to one-quarter of an inch wide, according to the size of the cane girdled.

9. Good results were obtained when wires were twisted about the canes, but only when twisted very hard with pinners. For this purpose about No. 20 annealed was used and the work done late in June.

10. From our experience we believe that girdling will result in profit to the vineyardist, and in much pleasure to those who are growing choice late grape varieties.

In our practice we have worked out a method of girdling that may be applied to any system, but is most satisfactory where one cane is allowed to grow ungirdled on one side of the vine, but not permitted to grow fruit, while the cane of the previous year has been girdled and is producing fruit.—S. T. MAYNARD, Mass. Agric. Coll.

Caragana Arborescens.

CARAGANA ARBORESCENS, the Siberian Pea-tree, is an old inhabitant of gardens, and a perfectly hardy small tree, of good habit, and

an unfailing bloomer at this season of the year when the erect branches are covered with its handsome, bright yellow, pea-shaped flowers, borne in fasciated clusters from the axils of the compound leaves. These have spinescent stipules, and consist of four to six pairs of small, oblong-oval vilous leaflets. This tree, which will grow to a height of fifteen or twenty feet, is often found in nurseries grafted as a tall standard; but it makes a more beautiful object when it is grown on its own roots and is allowed to send out its branches from near the ground.

The shrubby "*Caragana frutescens*" is a native of Siberia also, and a desirable plant. It has larger solitary flowers of a paler yellow, and smooth leaves with broader leaflets. It flowers a few days earlier than *C. arborescens*, and is equally hardy. Both species are easily grown from seed.—Garden and Forest, June 5th.

Mixed Manure.

The experiments at stations and by individuals continue to confirm the old opinion that barn manure is more universally useful and efficient under all circumstances than any of the special fertilizers. In rating its value by analysis, the carbonaceous matter which it contains is not commonly taken into account, but its abundant presence is one reason why it is so generally beneficial to all soils. It operates in several ways, among them in the mechanical condition given to land, and in promoting the absorption of moisture and essential ingredients of fertilizers. It greatly assists in improving the texture of many soils. With these qualities, it is well to mix with yard manure various other substances. Inquiry is often made as to the best way to apply bone-dust, plaster, marl, air-slaked lime, superphosphate, etc. In most cases the easiest way is to mix them through heaps of manure, in their alternating layers; and if there is plenty of the manure, and the quantity of the other ingredients is small, the more perfect the intermixture can be made, the thinner and more numerous the layers, the more perfectly they will be diffused through the manure, and the less labor will be required in working over the pile of manure.—Cultivator.

Ink for Zinc Labels.

A LEGIBLE and permanent black ink for labels may be made as follows: Verdigris, one ounce; sal ammoniac, one ounce; lamp black, half an ounce; rain water, half a pint. Mix in an earthenware mortar or jar, and put up in small bottles. To be shaken before use and used with a clean quill pen on bright zinc.

Ruby Currant.

MOORE'S RUBY CURRANT.—Mr. Hooker—This currant originated in Rochester, N. Y., and has borne with us for several years. It was produced by crossing the Cherry with the White Grape, and shows characteristics of both parents; is of fine quality and unsurpassed for family use. It is about the size of the Victoria, and is much more productive than the Cherry.

It has surpassed Fay's Prolific with us, but I would not say that it would do so with others. I think it should be recommended for amateur use.

Mr. Willard—I think Moore's Ruby the best red currant for table use I have ever seen, and I endorse all Mr. Hooker has said concerning it.

Mr. Hubbard—I saw this currant fruited on the government grounds at Washington, and was favorably impressed with it.—*Vick's Report of N. Y. Horticultural Society.*

The Apple Picker.

THE question whether it was advisable to use an apple picker was answered at the meeting of the N. Y. State Horticultural Society, by Dewane Bogue of Medina, who said that a grower told him that a buyer refused to buy his apples because they were gathered with a picker. Another buyer came along and paid five cents more a barrel for the same apples because they were not bruised. Mr. Harris, in giving his experience with the picker, said that with that article apples could be gathered at half the cost of hand work and with less damage to the fruit.

The Use of Coal Ashes.

EVERYTHING grows well under a mulch of coal ashes, provided that the plant leaves are not covered, and that the ashes be stirred after rains, during the growing season. Without this they pack so as to exclude the air. In planting the seeds we cover them with soil or leaf mould. We have tried coal ashes, thinking that the young seedlings might push through the easily broken inch of ashes. But very rarely has a plant appeared through such a covering, because of too close exclusion of air, some being indispensable at the moment of germination.—*Chicago News.*

A Profitable Use of Apples.

SOME of us are feeding our apples to stock. I feed them to horses, pigs and poultry. For the general purpose horse of the farmer I know from experience that apples are a valuable food. I have had horses that were in a very low condition from worms entirely freed from this trouble by the use of apples, and my horses always improve in the fall when running among apple trees, where they eat all they want. I believe that a horse not at hard work would do as well on 4 qts. of oats and a peck of apples as on a peck of oats. If this were so, it would give apples a feeding value of about 24c. per bush. Now if the windfalls and refuse apples are of any value, why should not good sound fruit be of still greater food value?

My pigs eat apples when they don't eat meal. To about 50 hens I feed 2 or 3 qts. of apples daily, crushing them a little with the food. The hens seem to fairly revel in them.—E. H. HURCHINSON.

Value of United States Fruits.

THE census reports, which are, of course, only approximative, give the following value of orchard products in the United States: For 1886, estimated, apples, \$50,400,000; pears, \$14,130,000; peaches, \$56,135,000; grapes, \$2,118,900; strawberries, \$5,000,000; other fruits, \$10,000,000. Total, \$137,783,900. In 1880, the census report made the whole amount \$50,876,154. The gradual increase since 1850 was about the following: In 1850, \$7,723,000; in 1860, \$19,991,000; in 1870, \$47,335,000. With the only exception of the decade between 1870 and 1880, the amount has much more than doubled in each decade.

The Crandall.

MR. PARRY asked about the Crandall currant. Mr. Trowbridge was not prepossessed with it; had seen it but never fruited it: a black currant originating in Kansas. Mr. Teas—"It belongs to the black currant family, and is similar to it for cooking. I consider it valuable. Common people will be reasonably well-satisfied with it for eating. It is questionable however, whether it is a hybrid with our com. mon fruit."

Crowing Black Walnuts.

MR. GEORGE VAN HOUTEN, who is regarded as good authority in such matters, says if the husks are removed, it is safe to count that about 1,000 nuts will make a bushel. With the husks, from 500 to 600 per bushel would be a reasonable estimate. Some years many of the nuts are abortive, while other years nearly all will grow. A fair estimate of their germinating qualities can be made by cracking a few, as nearly all plump, natural appearing kernels will grow under favorable circumstances. It is best to plant rather more nuts than trees are wanted for; like most nut-bearing trees, the walnut does not transplant easily. After being gathered, the seed should not be allowed to dry; if shipped a distance the nuts will keep from drying out with damp moss about them. In the fall they can be planted at once, and covered three or four inches deep in well-prepared ground. If planted in the spring, over winter spread the nuts two or three layers deep, mixed with earth or leaves, and covered lightly; if the ground is moist, at least part of the rains should be kept off, planting as soon as the frost is out of the ground. Good cultivation should be given for the first few years, after which but little further care.—*Iowa Homestead.*



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.

WATER LILIES ON THE LAWN.—*Orchard and Garden* suggests a very pretty plan for growing *Nymphaea odorata*. Several tubs, coal oil barrels cut in two will answer, may be sunk in the ground quite close to each other in a group, the spaces between them being filled with Calla lilies, tuberous-rooted Begonias, Caladiums Ferns, Grasses, etc. In planting, fill the tubs about half full of a mixture of good loam and thoroughly rolled cow manure in equal parts, in which imbed the roots, and cover the soil with about half an inch of clear sand. Fill the tubs slowly with rain-water, and replace the loss by evaporation.

Nymphaea Devonensis is commended as the queen of all water lilies, surpassing in brilliancy of flower if not in size of leaf, the famous *Victoria regia*. It is a night bloomer, each flower opening from 8 p.m. to 10 a.m. for three nights in succession. Under favorable circumstances a single plant of this variety will, in one season, cover a circle of twenty feet across, with leaves twenty-five inches in diameter, and flowers twelve inches from tip to tip of petals. The flowers are rosy red with bright scarlet stamens.

CARELESSNESS in handling Paris green and London purple is likely to follow the wholesale use of them. The dry powder rises almost imperceptibly. Breathing this will introduce arsenical poison into the system through the lungs. In case of accidental poisoning occurring, the best antidote to administer is the hydrated sesqui-oxide of iron, which should be taken at once.

BENEFITS OF SPRAYING.—Mr. A. C. Hammond, Sec'y Ill. Hort. Soc'y, states that, as a result of spraying one portion of his apple orchard in 1887, he gathered 500 bushels of apples, of which seventy-five per cent. were perfect, and eighty-five per cent. marketable; while from the same number of trees in the other orchard he had not a peck of perfect fruit. Let our readers give us facts and figures, until the question is settled to everyone's satisfaction. The writer has used fifteen pounds of Paris green this season on his orchard, while some neighbors say they have not confidence enough in it to go to the expense and trouble of applying it at all.

ROSEBUG.—The R.N.Y. recommends spraying with pyrethrum

water for this beetle, known scientifically as *Macrodactylus subspinosus*. The method is: Wet two tablespoonfuls of the powder with water and mix into a paste. Stir this into two gallons of water, and apply with a force pump in a fine spray.

NIAGARA FALLS PARK.—The *Garden and Forest*, a journal of the very highest standing and of the most correct taste in matters of landscape gardening, devotes the editorial of a recent issue, to warning the public against allowing this beautiful park to be marred by the erection of museums, monuments or buildings for educational ends, as being wholly out of keeping with the object with which the park has been set apart. Constant attempts are being made to utilize the wonderful privileges of the place for private ends, or to suit a vulgar taste. In the memorial to the Governor of New York and to the Governor-General of Canada, the great point made was that "objects of great natural beauty and grandeur are among the most valuable gifts which Providence has bestowed upon man. The contemplation of them elevates and informs the human understanding. They are instruments of education. They conduce to the order of society. They address sentiments which are universal. They draw together men of all nations and thus contribute to the peace of nations."

Notwithstanding this, it appears that a memorial has already been presented to the New York State Legislature at Albany by the Niagara Hydraulic Electric Company, asking for the privilege of building cofferdams above the cataract, erecting machinery and boring a tunnel under the bank of the river, and this has passed the committees of both houses. The bill has been checked by the Senate, but its existence

shows the constant danger to which the attractions of this delightful reserve is subject.

Spraying for the Plum Curculio.

At a recent meeting of the Central Illinois Horticultural Society, Prof. Forbes, the State Entomologist, gave an address giving the result of his investigations and experiments in reducing the extent of the ravages of the plum curculio by means of spraying. According to the *Prairie Farmer's* report, Prof. Forbes stated that it had been found by careful experiment, that the mature insect subsisted on dead and decaying leaf vegetation until the green leaves and fruit appeared. One pound of London purple or Paris green to 100 gallons of water was found to injure the foliage of the peach and plum. Experiments showed that one pound to 500 gallons of water destroyed the plum curculio in ten days, and this solution was recommended as proper for the peach and plum. The stronger medium killed somewhat quicker. The advice in general was to spray early in the season with a solution found not to weaken the foliage, operated on the basis of say, one pound of Paris green or London purple to 300, 400 or 500 gallons of water, as might be found not detrimental to the leaves of a species. There seemed no doubt in the mind of the speaker that the curculio could be killed in the early season by the means recommended. This accords with our experience at Grimsby, that where the poison has been applied early enough in the season, and repeatedly enough, almost the entire plum crop can be saved; but when delayed until the plums are formed, and cleared of the calyx, the damage will be done before the parent beetles can be destroyed. We await further evidence on this important question.

QUESTION DRAWER

The Pithy Gall of the Blackberry.

53. I ENCLOSE to you by to-day's mail a peculiar growth found on a Brinckle's Orange raspberry cane in the garden of Mr. J. H. Davison, of this town. Mr. Davison showed it to me some days ago, when I suggested that it be sent to you for examination and description in the *HORTICULTURIST*. The cane upon which it was found was dead and when the knot was cut open there was found in it a small black fly about a sixteenth of an inch in length. Please give us your opinion.—W. A. BROWN-LEE, *Mt. Forest*.

This peculiar growth is a gall caused by a gall-fly belonging to the family *Cyripidæ*, and known to our entomological friends as *Diastrophus Nebulosus*. The tumor is formed by the unnatural growth of the vegetable cells, which is produced by the depositing of the eggs. The tumor or gall is soft and spongy, and the one sent us is shown in the engrav-

the winter safely hidden in these galls, and change to flies in the spring-time. The fly is described as black, with transparent wings and red feet and antennae. They more commonly attack the blackberry canes than the raspberry, but are not very troublesome, as they are destroyed by parasitic insects and by birds.

Kerosene for Bark-Lice.

54. SIR,—A friend of mine in Toronto gives the following method of dealing with the Oyster Shell Bark Louse nuisance:—

"In early spring, before the buds commence to swell, apply crude petroleum to the affected parts."

He assures me that no injury whatever is done the trees by this treatment, and that when growth commences in the spring, the outer bark of all twigs so treated will peel off, taking with it all the shells with its eggs, and leaves the inner bark smooth as if polished.

Will you please give your readers your opinion of this—to me—new treatment.—THOS. BEALL, *Lindsay*.

We have tried this remedy and find it certainly most effective in destroying the bark lice. Not a single one remained to tell the story of the disaster. But the bark of the tree in places was totally destroyed also. On one tree three applications were made, washing the bark thoroughly with a cloth dipped in the oil; on another only one application was made. On the former the bark was so badly killed that the tree must eventually die; on the latter it was only killed in places on the under side of the limbs, where it would naturally collect.

The only safe mode of applying kerosene is as an emulsion with soap and water. A half pound of soap, dissolved in a few quarts of water, is set on the stove until it boils. Then while boiling add two gallons of kerosene, stirring at the same time, and a perfect emulsion will be formed. This may be applied with an old broom, or a scrubbing brush, after first scraping off the loose bark,

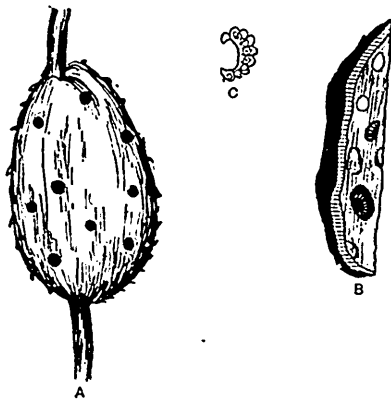


Fig. 53.

ing, *fig. 53 a*, with little holes, through which the flies have escaped. The section *b* shows the interior, with several oblong cells, about an eighth of an inch in length, each of which has contained a larvæ, or young grub, one of which is more plainly shown at *c*. These are about one-tenth of an inch long, white, with reddish mouth; they remain through

and will be found most effective, and quite harmless to the tree.

We have not had very much success with washing-soda and water, nor even with caustic soda and water. The latter was applied so strong that it burned the bark and leaves, and yet we find the insects still abundant on those very trees.

Frosted Grape Vines.

53. GRAPES are all gone here. What do you advise in the matter? Leave old canes to throw out fresh shoots or cut them back for fresh canes from the root?—A GODERICH CORRESPONDENT.

The wholesale destruction of the young grape wood by frost such as has happened this year to vineyards in many parts of the country is so unusual that we cannot speak from experience. In our opinion the best plan is to wait until the new growth starts, when it will be plain how much of the vine is destroyed.

Ants in Dooryards.

See Question 50.

56. A writer in *Orchard and Garden* recommends bisulphide of carbon as a reliable remedy, and gives the following method of application as very successful:

"A large horse blanket was saturated with water and placed over as much of the nest as it would cover, a tablespoonful of the bisulphide having first been poured into each of some 20 holes. The blanket was allowed to remain for about 15 minutes and was then removed. A long-handled torch was then made with a rag saturated with kerosene tied at the end of a broom, which was ignited and the vapor at the mouth of several of the orifices was exploded. For the next fifteen minutes successive pops were noticed at the mouths of many of the orifices, at many in fact in which the substance had not been poured, showing that the vapour had thoroughly permeated through the subterranean galleries of the nest. The object of exploding the vapour was to drive it

further through the intricate ramifications of these galleries."

The Kniffen System of Grape Pruning.

57. PLEASE give a short account of the Kniffen system of grape training. This system is referred to in the report of this year, but from some cause, perhaps the want of a diagram, it is not to be easily understood. Whether one or two arms at two and a half feet and at five feet are to be grown does not clearly appear.—T. ALLAN, *London, Ont.*

The Kniffen system is a simple one, and requires less labor than the Ful-

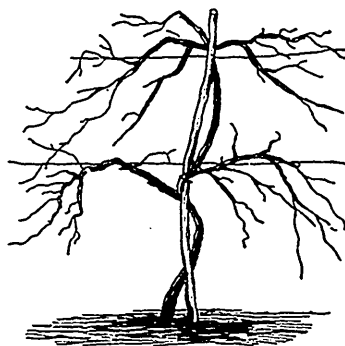


Fig. 54.

ler system of grape pruning, because the young bearing shoots hang down

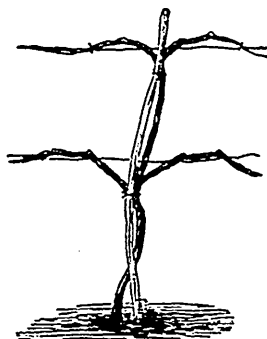


Fig. 55.

and do not require much tying. But it is not adapted to places where vines need laying down in the winter,

and to our taste, a vineyard trained in this way is less slightly than the latter method.

We here give an illustration Fig. 54 of a three year old vine trained on the Kniffen system, according to which four main arms are allowed to grow, two at each vine. These four main laterals remain from year to year, the young wood being cut away each fall or spring, as in Fig. 55.

Force Pump.

58. I WOULD like to know what is the best kind of force pump to use in a small orchard of apple trees, of say half to an acre in extent for the purpose of spraying with Paris green.—A. RONALD, *Minesing*.

We think the hand force pump made by Messrs. Beecher Bros., London, very satisfactory.

Hardy Crabs.

59. PLEASE give a list of valuable Hardy Crabs.—A SUBSCRIBER.

Reply by Mr. Charles Gibb, *Abbotsford, Que.*

My choice of crab apples are (in order of ripening).

1. Early Strawberry (of Minn), ripens with Red Astrachan.

2. Whitney's No. 20 (of Illinois).
3. Gibb (of Wis.) from Yellow Siberian by Fall Greening produced by G. P. Peffer, of Pewaukee, Wis.
4. Brice's Sweet (of Wis.) from Transcendent and Bailey's Sweet.
5. Orange (of Minn).
6. Lake Winter (of Wis.) from J. C. Plum, of Milton, Wis.

My choice of three kinds would be (in order of preference) Whitney's No. 20, Gibb, and Brice's Sweet.

Red Flowering Shrub.

60. Do you know of some shrub for the lawn with red flower or berries that would be more desirable, as flowering over a longer period than Paul's Red Thorn.—A. R., *Minesing*.

Paul's Double Red Flowering Thorn is one of the very prettiest of small trees or shrubs that we know of for the month of June. The Japan Quince is a very showy flowering shrub, blooming in May. For showy red berries hanging through the winter, we commend the "Black Alder or winter berry," a native of swampy places, if a suitable spot can be found.

OPEN LETTERS

From Mr. R. McKnight. A Correction. Boxes for apple-shipping.

SIR,—The HORTICULTURIST came to hand this morning. On opening it I was surprised to find my own "phiz" looking me in the face. I suppose there is more or less vanity in the composition of every man, and mine was not a little excited by your flattering notice.

I see a typographical error in my letter as published. It was not "three or four barrels" I had sent me to London, but three or four hundred barrels. The fact is I had two lots sent me. The first lot was sent forward in bushel boxes and the second in barrels as directed. The boxes sold quite as well as the barrels. I got the idea of sending in boxes from the Australians, who sent their fruit to the Colonial in this form, and they arrived in London in excellent condition.—R. MCKNIGHT, *Ocean Sound*.

The Crandall Currant. Use of Paris Green and London Purple.

SIR,—In looking through the welcome June number of the HORTICULTURIST, which was delivered this morning, I notice your article on the Crandall Currant, that you have received a plant and also a twig of the green fruit, which twig of fruit I should like to see. I should have reported to you sooner on the Crandall Currant bush, only I was waiting to see if there would be a bloom upon either of my two plants. They are growing nicely. I planted them out very carefully when I received them, and I had them protected the night of the hard frost, so that they did not get hurt at all. I am very pleased so far with action and appearance. I will report again in regard to them. I see also in this number some remarks upon the good qualities of London purple vs. Paris green. Now I will give a little account of experience

that I had of them this season. Early in the spring I got a sprayer and used Paris green once just about the time the bloom was opening. Then I saw the advertisement by a nurseryman of the superiority of London purple over Paris green, so I sent to him and got a force pump and two pounds of London purple. I did not put in as much of the London purple as was recommended to be safe. I sprayed the trees once and it soon showed itself; it must have killed the curculio for it killed the leaves, and where it dropped off the trees on the currant and gooseberry bushes burnt in spots like vitrol would. Perhaps it was too strong. The next time I'll put it on weaker, but I don't think the trees will require it this year.—TROS. G. GASTON, *Hamilton*.

The Seedless Apple.

SIR,—I see on page 142 of CANADIAN HORTICULTURIST my letter, etc. about my new apple, also Prof. Panton's statement. Mr. Panton seems to be sceptical. I will ask you to refer him to June number of *American Garden*. He there can see a plate of this fruit taken from a twig sent to Mr. L. H. Bailey, of Cornell University, Experiment Station, Ithaca, New York, at blooming time. Of course it is impossible for me to write and send samples to an army of sceptics. What I have stated on page 142 of the HORTICULTURIST is true, and I cannot help the unbelief of Professor Panton or Professor any body else, unless they are disposed to believe ten or twelve good men on oath. I would like to have it tested in Canada, but as to sales of scions I could not half way supply our own home wants this season. I had to return over fifty orders for good lots and every scion that would do was cut. I sell at \$5.00 per hundred. I would like for Prof. Panton to write me a letter. I will answer him kindly.—G. W. ROBINETTE, *Flag Pond*.

Too Much Paris Green.

SIR,—I duly received your post card of 16th May, and also by same mail the four strawberry plants. They were nice, healthy plants, carefully packed, but whether they had been delayed *in transit* or not, of course I could not say, but they were unquestionably dry. I at once put their roots into tepid water and kept them immersed seven hours, and in evening planted them carefully, and have given them good attention since. They are doing well.

The May number of the CANADIAN HORTICULTURIST duly reached me. Its contents have given me very great satisfaction. In it there is, *inter alia*, much seasonable information about curculios and codling moths—antagonists that I have been fighting for a good while and not always successfully, and I feel assured that many fruit growers will be very thankful for it. I had, however, anticipated the advice the day before, and had given all my fruit trees that were in blossom, plums, pears and apples, a good spraying of Paris Green, $\frac{3}{4}$ oz. average to the patent pail, exactly the proportions recommended by Mr. Fletcher, of Ottawa, and others, and hope to secure my fruit this year from these ruthless spoliators.

Three years ago my orchard suffered considerably from an overdose of Paris Green, arising from the indefinite nature of the instructions given respecting the amount required to a given quantity of water, "a teaspoonful." Now this "teaspoonful," by actual weight is nearly 1 oz. average, it is, therefore, about eight times the amount now deemed sufficient to save the fruit from the destroyer. It is not surprising, then, that the result of the larger dose was so disastrous.

This spring, owing to the frequent and heavy rains, I have had to make several sprayings, but whether owing to the weakness of the solution, or the repeated washings, the foliage, so far, has not suffered as I feared it might. What effect on the marauders this may have, it is too soon to say, but as yet I have only seen one curculio mark on the fruit of eight plum trees.

I will be glad to report results as soon as ascertained.

The sharp frost of last Tuesday night has done much damage in this city and neighborhood.—J. L. THOMPSON, *Toronto, June 1, 1889*.

Plants Tested in Huron County.

SIR,—I suppose it is expected that we should give a report of plants received, occasionally. Since I last wrote I have had the Niagara grape, and it has done well, also the Storm King Fuchsia, but has not blossomed yet; I hope it will be true to name. The Jessie strawberry has not increased much. The Golden Queen Raspberry is a fine berry and good cropper, but it suckers too freely; and this year the Vergennes grape was growing nicely, but alas! on the night of the 22nd inst., we had a sharp frost, which killed off the young shoots, and did a great deal of damage to all my grapes; I don't think it was severe enough to hurt the apple, pear or plums. I had a fine show of grape clusters, and in fact most of the fruit of all descriptions had plenty of blossom.

The crops of all kinds of grain, as well as the meadows, are looking well, but the weather has been cold this last week and has checked the growth.

I see in the last HORTICULTURIST an item on the English Sparrow, also in the Annual Report, with various means of keeping them down. I think a simple and inexpensive method that we used to adopt in England when I was a boy, is about as good as any, that is, trap them with a downfall, thus:—Take a batten door, or something of the sort, and set one edge on a stick about two feet long, tie a cord on one end of the stick, and when there are a number under it (which will soon be if you scatter small grain plentifully), pull the stick out. Of course one must stand off a little distance and watch them. If every one would wage war on them they could be kept within bounds, but many people don't care how plentiful they are.

Can you tell me anything about the Ritson pear or Saunders plum that some agents are pushing, or are they about on a par with the Pocklington grape, not a single vine of which but gets killed to the ground in the winter in

this section, and almost all others stand well; they were sold at a big figure.

Again the Russian Apricot was sold at \$1 each, and not one out of scores is living, and this was something "remarkably hardy"; now they are pushing this pear and plum at a big price.—WALTER HICK, *Goderich, Ont.*

The Saunders Plum.

SIR.—In reply to the question by Mr. Trotter, of Owen Sound, respecting the Saunders Plum, page 163, June number CANADIAN HORTICULTURIST, you state that the Saunders Plum was first brought into public notice at the meeting of our Association at Barrie in 1884. Permit me to say that I think this is an error on your part, as it was first brought to the notice of the Fruit Growers' Association at our meeting in St. Catharines, commencing 29th August, 1883. The plum was then over-ripe.—Yours very truly, THOS. BEALL, *Lindsay, 19th June, 1889.*

NOTE.—Mr. Beall is correct. In the fruit committee's report on page 183, Report for 1883, will be found the following words:—"There were very good specimens of a yellow

seedling plum, grown by John Aris, Belleville. They are of excellent quality, and worthy of extensive trial." It was not named until the following year at Barrie.—EDITOR.

The Forestry Report.

SIR.—In Mr. Phipps's letter in the May number we read, "Such crops of wheat, such weight of grass per acre, etc. A brother of mine writing on last year's harvest, says, "Last summer was very wet and dull, the corn (grain) was very small, for we had very little sunshine and the corn did not get fit. With respect to such crops of grass, those who have to be off to the cities or towns, as the writer has had to, and be clear of their limits not later than five o'clock in the morning with the load of night manure, know something about what underlies such crops of grass other than the planting of trees. And the contrast made by Mr. Phipps between the Canadian and English farmers is, in my opinion, very misleading, for there are any amount of as good farmers in Ontario as are to be met with anywhere.—T. B. WHITE, *Clarksburg, Ont., June 8th, 1889.*

ORIGINAL POETRY.

The Crofter's Farewell.

A TORRENT of imagining,
Rise in sorrowful array,
As we hear those weeping Crofters sing
Their wail of Highland melody!

See them gather on the strand
Sighing their farewell o'er and o'er,
Shall ever that heart-riven band
Return? sad waves reply, "No more!"

Lochaber! thy sunny braes shall never
Fade from our vision, in weal or woe,
Death only shall our fond hearts wither,
But Freedom beckons, we must go!

Away to the land that is owned by the free!
Away to the glorious West,
Away from all toll-worn penury
Where lordly power oppressed!

Good shepherd lead, with gentle hand,
Soothe each wild and wasted soul,
Guide them in a distant land,
Be thou the Pilgrim's Sentinel!

Ah, see their now deserted cots!
Dark and green, their white-washed walls.
Casements let in the drowsy bats,
From chimney clefts the ivy falls!

See their little "Garden Patch,"
Thorns and thistles usurp their sway,
Ripp'd from the roof the cosy thatch,
All's desolation and decay!

There's where the spacious ingle stood,
That yawning ruin, dark and gray,
Where the old cotters' happy brood
Were gathered every Sabbath day!

Grandsire's chair stood in that nook,
And by the light of the crackling log,
He read aloud from the holy Book,
Then raised a loving song to God!

Where now is the good old man of God,
Who fill'd love's seat in days gone by,
He sleeps beneath the moorland sod,
And the skylarks sing his requiem high.

The grave shall keep its hallowed store,
In mountain, plain or dell,
Their quickened clay shall rise and soar
At th' evicting trump of Gabriel!

GRANDMA GOWAN.

May.

WITH floral sweets the air is redolent,
And beauty breathes a soul through every
spray,
For now is Spring, and Spring's divinity—
May.

And every sense is eager turned, intent
To catch her voice and touch beneficent,
A polio charmed now lengthens much the day,
So lover-like he thus prolongs his stay.
The coy Queen weds—'tis Power and Beauty
blent.

Now zephyr gently summer's cradle rocks,
The green boughs waves to part the sun's
bright hair,
That so his child may sport the golden locks
Which warmly fall upon the infant fair.
Earth all unconscious that she suffers ill,
Sings, laughs and loves as though 'twere Eden
still.

S. P. MORSE, *Milton.*