

Technical and Bibliographic Notes / Notes techniques et bibliographiques

The Institute has attempted to obtain the best original copy available for filming. Features of this copy which may be bibliographically unique, which may alter any of the images in the reproduction, or which may significantly change the usual method of filming, are checked below.

L'Institut a microfilmé le meilleur exemplaire qu'il lui a été possible de se procurer. Les détails de cet exemplaire qui sont peut-être uniques du point de vue bibliographique, qui peuvent modifier une image reproduite, ou qui peuvent exiger une modification dans la méthode normale de filmage sont indiqués ci-dessous.

- Coloured covers/
Couverture de couleur
- Covers damaged/
Couverture endommagée
- Covers restored and/or laminated/
Couverture restaurée et/ou pelliculée
- Cover title missing/
Le titre de couverture manque
- Coloured maps/
Cartes géographiques en couleur
- Coloured ink (i.e. other than blue or black)/
Encre de couleur (i.e. autre que bleue ou noire)
- Coloured plates and/or illustrations/
Planches et/ou illustrations en couleur
- Bound with other material/
Relié avec d'autres documents
- Tight binding may cause shadows or distortion along interior margin/
La reliure serrée peut causer de l'ombre ou de la distorsion le long de la marge intérieure
- Blank leaves added during restoration may appear within the text. Whenever possible, these have been omitted from filming/
Il se peut que certaines pages blanches ajoutées lors d'une restauration apparaissent dans le texte, mais, lorsque cela était possible, ces pages n'ont pas été filmées.
- Additional comments:/
Commentaires supplémentaires:

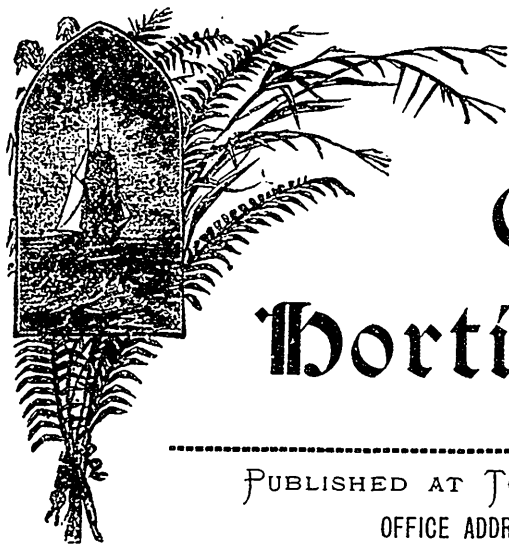
- Coloured pages/
Pages de couleur
- Pages damaged/
Pages endommagées
- Pages restored and/or laminated/
Pages restaurées et/ou pelliculées
- Pages discoloured, stained or foxed/
Pages décolorées, tachetées ou piquées
- Pages detached/
Pages détachées
- Showthrough/
Transparence
- Quality of print varies/
Qualité inégale de l'impression
- Continuous pagination/
Pagination continue
- Includes index(es)/
Comprend un (des) index
- Title on header taken from: /
Le titre de l'en-tête provient:
- Title page of issue/
Page de titre de la livraison
- Caption of issue/
Titre de départ de la livraison
- Masthead/
Générique (périodiques) de la livraison

This item is filmed at the reduction ratio checked below/
Ce document est filmé au taux de réduction indiqué ci-dessous.

| | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 10X | 12X | 14X | 16X | 18X | 20X | 22X | 24X | 26X | 28X | 30X | 32X |
| | | | | | | ✓ | | | | | |



DELAWARE RED WINTER.



The
Canadian
Horticulturist.

PUBLISHED AT TORONTO AND GRIMSBY, ONT.
OFFICE ADDRESS—GRIMSBY, ONT.

VOL. X.]

AUGUST, 1887.

[No. 8.

UP WITH THE BREEZE.

"Up with the breeze, the birds and the bees,"
I heard a boy sing in the morn;
And his hoe kept time with the merry rhyme,
As he cheerfully hoed the corn.

Down went the weeds and the noxious seeds,
And up went the emerald corn;
And I looked with delight at the gladsome sight,
The work of the early morn.

The broad green leaves turned to golden sheaves,
And the field of beautiful corn
Was gathered and sold, thus turned into gold—
The work of the early morn.

Then up with the breeze, the birds and the bees,
If you wish to grow wealthy and wise,
And merrily sing like birds in spring,
While your work as merrily flies.

The poor sleepy head, who lingers in bed,
Will have more sorrows than joys;
And when he grows old will be hungry and cold,
So keep "wide-awake," my boys.

—Unknown Exchange.

Fruits.

CANADIAN APPLES promise to be unusually fine in quality this year. The dreaded apple spot, which had almost driven us into despair, has suddenly vanished, and every variety, not excepting the Fameuse and the Early Harvest, is thus far perfectly

clean. Nor is this merely local. Mr. John Croil, of Aultsville, who was about to cut down or else top-graft his large orchard of Fameuse, says his apples are, so far this season, perfectly clean. Reports from Michigan, where the spot had been equally devastating, show the same encouraging state of things. We can well afford to have experimented in vain with hyposulphite of soda, in view of the absence of the disease which needs the remedy.

In quality, the apple crop promises to be light, except in Michigan, New York and Ontario; and in these great apple regions, only a moderate crop is expected. The Baldwin, which is so widely planted, still continues to be barren, or nearly so; and the Roxbury Russet has a light crop; but the Greening, King, Spy, and some other good sorts, are fairly well laden with an extra good quality of fruit.

It seems that our orchards are just recovering from a condition of barrenness and impoverishment to which for several years they have been subject, and which has been accompanied by the destructive effects of insects and diseases to an unprecedented extent. But now, either as the result of better cultivation and the more liberal application of fertilizers, or from other causes beyond the control of the fruit grower, our orchards are showing this year a thrifty growth, and a dark green healthy foliage which gives us the greatest reassurance.

All this combined with the splendid foreign markets opening up for our apples in England, Scotland, Norway and Sweden, and even by the Pacific route to the vast empire of India, cannot fail to remove all fears that apple growing will prove an unprofitable industry in Canada.

The privilege of wisely improving the
GOLDEN OPPORTUNITIES

now opening up, is ours. If we disappoint the expectations of our foreign friends whose opinions of our fruits have been so highly exalted by the display at the Colonial, we shall fall into a worse position than was our previous obscurity.

Our worthy President, Alex. McD. Allan, gave us many excellent hints on packing fruits for foreign shipments at the Collingwood meeting. One important point was the careful grading of our apples, the large size, the small but highly colored, and the uncolored, all to be put up in separate packages; and only one grade to go in each barrel. Indeed every package should prove through and through alike in quality, so that a buyer opening up could scarcely say which end was intended to be opened. For extra choice apples he recommended the use of half-barrels, as being more easily handled, and more salable for high-priced fruit.

It is proposed to have a

CONVENTION OF APPLE GROWERS

at our next annual meeting which will be held at either Hamilton or Grimsby in September next, in order that this question of our foreign markets may be fully ventilated, and thus this important Canadian industry be further promoted. Mr. A. McD. Allan has been solicited to take up this subject more or less in his annual address, by some of our prominent growers, and certainly no man in Canada is so well qualified to direct our enterprise towards a successful issue as Canada's Apple King.

As this meeting will be in the very heart of one of the foremost fruit producing regions of Canada, where are to be found some of the the most extensive and experienced of our fruit growers, a very large and enthusiastic gathering may be confidently expected, in spite even of the very busy season of the year.

THE DELAWARE RED WINTER.

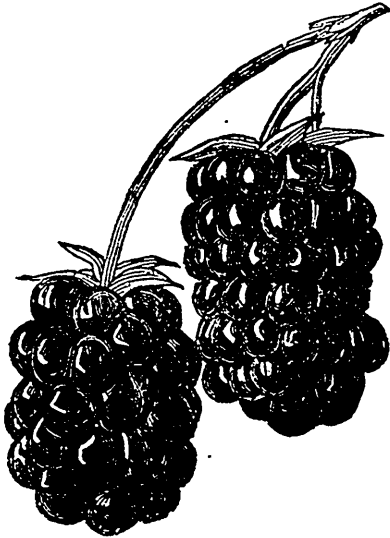
AMONG the new apples whose merits are to be tested within the next few years is the Delaware, of which our coloured plate is claimed to be a faithful representation. It is a seedling, which originated on the farm of Wm. P. Corsa, and gets its name from the State of Delaware in which it was found.

It is described thus:—"Fruit medium to large, round, bright red, highly coloured; flesh fine grained, crisp, juicy, excellent, sub-acid; tree a vigorous grower, an abundant an early bearer." As a market apple it is compared with the Baldwin, and the Northern Spy; and it is thought to be adapted for a more southern belt of country than that in which these varieties flourish. We do not know that it has been as yet tested farther north than the State of New Jersey.

If adapted to our climate, its wonderful long keeping quality would certainly commend it to our Canadian growers; for if when grown in Delaware, it will, as claimed, keep in excellent condition until July or August, what might be expected of it when grown in the Province of Ontario?

THE LUCRETIA DEWBERRY.

A mistaken notion seems to have gone abroad concerning the object of



THE LUCRETIA DEWBERRY.

the plant distribution by our Association, viz., that it is merely an ordinary premium with the *Canadian Horticulturist*. The object, on the other hand, is the speedy and faithful testing of new or highly commended fruits in various sections of Canada, in order that the public may be thoroughly posted concerning the most reliable fruits adapted to the various localities of our Province, and not be left to the mercy of every travelling agent in deciding upon his purchases.

For the attaining of this end, we shall call, from time to time, upon our

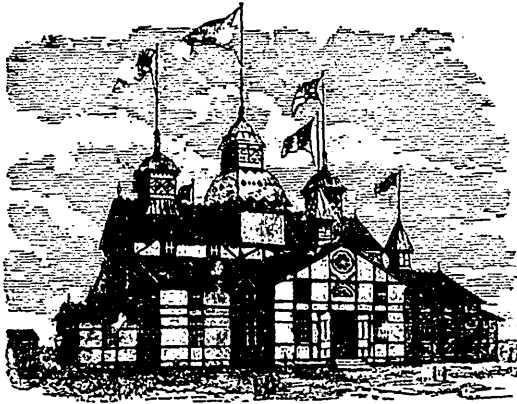
readers for reports concerning fruits sent out, and the replies may be sent in on post cards.

In the spring of 1886, the *Lucretia Dewberry* was sent out, and as it may in some cases be bearing its first fruit this month, or earlier if under favorable conditions, we would ask for reports concerning its growth, fruitfulness, hardiness, &c. Mr. J. H. Hale says, in the *Nebraska Horticulturist*, that he has visited the original plantations in Ohio, and found there large fields in fruiting. They are placed in rows eight or ten feet apart, with plants four or five feet apart in the row, forming a thick matted row or bed four or five feet wide. They throw up fruit spurs a foot or more high, which are laden with fruit as large as the Lawton blackberry, without its hard, ugly core, and of a most delicious spicy flavour. It ripens with the Gregg raspberry, a most favourable time for marketing it. He considers it as hardy as the Taylor, and as productive as the Snyder. Perhaps the question is premature, but we shall be glad to hear what our readers have to say of it.

OUR MEETING AT COLLINGWOOD.

THE OFFICERS and other members of our Association who attended the summer meeting were most kindly received by the Collingwood Horticultural Society, of which Dr. Stevens is the President and Mr. Jas. Gilfoyle the Secretary. This Society is amalgamated with the Township Agricultural Society, and together they hold a large annual Show, known as the Great Northern Exhibition. The quality and size of the apples, plums and pears shown at this Fair have already been noticed in this Journal; suffice it to say they surprise visitors from the more southern portions of Ontario who think that they alone know how to

grow fine fruit. The fact is, that the country about Collingwood and well



EXHIBITION BUILDING, COLLINGWOOD.

up the mountain, extending also to Meaford and points similarly situated along the Bay, is well adapted to the production of all the leading varieties of apples. The Spy, Baldwin, Greening, Russet, &c., all grow to perfection, and some orchardists there claim they can even grow the Early Harvest and the Fameuse, without spots.

The discussions at the day meetings were very valuable, but as they have been carefully taken down by an able stenographer for our next Annual Report we need not repeat them here.

A fine

PUBLIC MEETING

was held in the Town Hall, on Wednesday evening, the 29th inst. The place was literally full of ladies and gentlemen, who, notwithstanding the intense heat, listened with much evident interest to the addresses and music which made up the programme. His Worship the Mayor gave an address welcoming our Association to Collingwood, and expressing his belief that our coming would aid in advancing the interests of the town.

Our President gave a very valuable address, indicating the improved prospects now before Canadian fruit grow-

ers for foreign shipments, largely as the result of the Colonial Exhibition.

It was certainly encouraging to those of us who have invested our money largely in apple orchards, and were beginning to fear that the fruit would be a drug, to hear of the enquiries for Canadian apples not only in the British market but also on the Continent, and that almost every steamer is bringing over representatives of English houses desirous of procuring shipments from us. Mr. D. W. Beadle, Colonel McGill and others also addressed the meeting, and the intervals between the addresses were enlivened with excel-

lent music by some first-class local talent.

On Thursday afternoon about four o'clock when the discussions were ended, the Horticultural Society gave us all a

DRIVE INTO THE COUNTRY.

The procession of carriages formed at the Grand Central Hotel, and the whole party was conveyed out some eight or nine miles through Nottawasaga township to Duntroon. The scenery shown us was very beautiful, both going out with the mountain as a background to the picture, and returning along the "tenth line" where, at many points, we were high up the mountain with one of the most picturesque views possible opening up at intervals. Yonder, the stirring little town of Stayner nestled among the trees, and there, on the shore of the Georgian Bay which curves away toward Penetang and Parry Sound, lay the thriving town of Collingwood, with its five thousand inhabitants and its busy wharves.

Nottawasaga is pronounced to be one of the finest wheat-producing townships of Ontario, and we would infer as much from appearances, for almost every

available plot of ground, not excepting even the front yards of the farm houses, is occupied with this cereal. But although the capabilities of the soil are so good in this direction at present, the continual cropping of the soil, without fertilizers, will slowly but surely bring about a time when wheat can no longer be grown with profit. No doubt our visit would be a fortunate one for many of these farmers, should their attention be thereby directed, more or less, into the cultivation of such staple fruits as will succeed. The section is especially adapted to

PLUM CULTURE,

and it was shown by the discussions that all the best and most profitable varieties, such as Lombard, Imperial Gage, Pond's Seedling, Washington, &c., grow finely and produce fruit in great abundance. The Cur ulio and the Black-Knot are comparatively unknown to many plum growers in this favoured district. Samples of plums were laid upon the table at the meeting in such immense clusters as to call forth many exclamations of surprise. The writer counted upon one branch of the Lombard, about six inches long, no less than fifty fine, healthy plums; nor was this an exceptional branch but a fair sample of the crop in general. No wonder, under such conditions, that Mr. Brown's experience with Lombards was, that the trees had literally borne themselves to death. *Thinning* was advised, but many seemed to think it would be too much trouble. What a long time it takes to educate our farmers and fruit-growers to the importance of giving more attention to just such particulars in order to attain success in fruit culture.

The experiment of shipping plums from Collingwood to Winnipeg by water has been successfully tried by Dr. Aylesworth, jun., who has a fine large plum orchard, and it appears that

there is a particularly good market for Collingwood plum growers in this direction.

We have already said that most of the standard varieties of apples succeed well in the neighbourhood of Collingwood, and along the shores of the Bay; and farther back in the country where these fail, the Duchess, Tetofsky, Wealthy, Alexander, Haas, Brockville Beauty and Red Pound have been found hardy and profitable. In addition, we would suggest a trial of the Shiawassee Beauty, the Salome, the Cellini, and the McLellan of Vermont.

Small fruits are especially adapted to this district. Samples of as fine Crescent, Sharpless and other strawberries were shown at the meeting, by local growers, as could be shown in any other part of Canada, showing that Collingwood has no need to depend upon Toronto fruit dealers for her supply of this fruit, for if her gardeners but awake to their privileges, they will be fully able to furnish their own markets.

The streets of Collingwood have been largely planted with the Willow and the Lombardy Poplar, because it was supposed that other street trees would not succeed well, and, indeed, the few Maples we saw lacked that thrifty growth and dark-green foliage which they exhibit elsewhere. But we noticed the native Elm springing up freely along the road-sides everywhere, and surely its value must be underestimated. No tree is better adapted to street-planting. The close habit of growth and the dense foliage of the Maple so shut in a street that, not only the view, but even the light, is half excluded; while the beautiful curving branches of the Elm form a magnificent archway over a road, without too much obscuring the view.

Dr. Stevens showed us a curiosity on his lawn. It was a *variegated*

Horsechestnut, or at least one part of the tree has now for two years persisted in producing leaves beautifully variegated with white and green. If this curious growth could be propagated by budding or grafting, it would indeed be a desirable object upon a lawn.

Our Association carries away from the Collingwood friends their hearty good wishes, and an earnest invitation to revisit that town at as early a date as possible.

KEEPING QUALITIES OF THE WEALTHY APPLE.

A. HOOD, BARRIE.

MY ATTENTION has been called to the keeping and other qualities of the Wealthy Apple, by reading an article in your July issue from the pen of T. H. Hoskins, of Vermont.

Although this variety has been steadily gaining in favour since its first introduction, I feel sure that it is not even yet appreciated at its proper value; for when we take into consideration the hardness of the tree; the early age at which it comes into bearing; its regular annual productiveness; fine size, beauty, and regularity of the fruits; and its high standing as a dessert as well as a cooking apple; where, oh where! particularly in the north shall we turn to find its equal?

The distribution of fruit all over the branches instead of being clustered on spurs is, as remarked by Mr. Hoskins, one great point in its favour; and another, on which he is silent, but on which I can scarcely set too high a value is that when the apples do fall off the trees, which they are as little likely to do as any other kinds; they will not show a bruise, and can be sent to market along with the hand-picked without fear of complaints; and as regards keeping qualities I am a little afraid to tell the truth for fear I may not be believed.

On reading Mr. Hoskin's article, which was of course after 1st July, where he speaks of having them in good condition till 23rd March, I remember that my wife brought a plate of Wealthys out of the cellar about the 1st June, and they were then in good eating condition, so, thinking it possible there might be some left, I brought up a crock in which the remains of my stock of one kind or other had been left to get rotten, emptied out the contents, and found amongst them four or five sound Wealthys, and a number half rotten; the sound ones were plump as when first picked, the juice of the half rotten ones having swelled the flesh, and in good eatable condition.

Now will your readers be able to believe that I have sound Wealthy apples on 3rd July, in this jubilee year, that were grown in 1886? Perhaps not, but it is a fact nevertheless, for they were picked on the first week in October; were kept in a cellar that was not frost proof, and were consequently frozen; they remained in that condition a couple of months or so, came out of the frozen state uninjured, and have kept as above stated.

JUDGING FRUITS.

PRESIDENT LYON writes a very sensible article in the *Rural* about judging fruits, showing that the work of the judges may be very materially lessened and their investigations directed by care in framing premium lists, and by certain judicious rules. Speaking of the Michigan State Horticultural Society he writes as follows:—

"The fruits grown in the State, whether valuable or otherwise, are alphabetically arranged in the society's catalogue, and the comparative values of the varieties are given by means of a scale, varying from 1 to 10; the values for cooking, market and dessert being

placed in separate columns. The sum of the values of the varieties found in a given collection, taken from the column devoted to the purpose for which they were entered, will properly express the aggregate value of such collection for such purpose, and a comparison of the aggregates of competing collections will determine the award, subject, however, to modifications for superiority of size, freedom from blemishes, careful handling and taste in the arrangement and ornamentation. This society instructs its judges of fruits to exclude from competition all unlabeled and incorrectly labeled specimens, and to consider, 1st, the values of the varieties for the required purpose; 2nd, the color, size and evenness of the specimens; 3rd, their freedom from blemishes, the apparent care in handling and the taste displayed in their arrangement for exhibition. Duplicates are excluded from the competition, and large, showy, but indifferent varieties are held to discredit a collection.

Instead of the usual, "Best collection," the society stipulates, in each offer of a premium: For dessert and family purposes, for the most useful and best grown collection, giving a succession of varieties, superior quality, delicacy of texture and beauty (in order named), to take precedence of profitability and size. For market varieties the requirements are: For the most valuable and best grown collection, selected strictly for market purposes; productiveness, suitable, even size, handling qualities; color and succession being the leading considerations.

As will be seen, these offers bring together the conditions required, just where both the exhibitor and the judges can scarcely fail to become familiar with them; while the idea is definitely conveyed that the value to be attached to a given variety depends not upon its

general merits, but strictly upon its merits for the purpose for which it is placed in competition.

This process brings out the opinion of the exhibitor as to the relative merits of the varieties which he may enter, for the required purpose; while the awards, if fully reported, with the reasons therefor, also afford a clew to the estimate of their comparative values for such purpose, by the judges."

The society's catalogue referred to by Mr. Lyon, classes all fruits under three heads, viz. dessert, cooking and market, and grades the value of a perfect apple under each on a scale of one to ten. Competing collections are placed together, and a committee on correct nomenclature precedes the judges, and corrects erroneous names, and excludes such fruits from competition.

Under the head of market, the question of profit is a leading one, but it is not considered under either of the others.

The report of the Fruit Grower's Association for 1884 contains a very full catalogue of Canadian fruits, valued on a scale of 1-5, under six heads, with many additional remarks. This should be of great value to all local societies, and a copy should be in the hands of the Directors of every Agricultural and Horticultural society in the Province.

HORTICULTURAL NOTES.

Ringling Vines.—E. A. Carrière, in the *Revue Horticole*, favors ringling the vine, even in large vineyards. He says it advances the ripening of the fruit at least eight days, and in no way injures the quality of the wine.

Most American authorities, however, condemn the practice, especially in growing fruit for dessert, claiming that the increased size is gained at the expense of flavor. It may be done at any time during the growing season, but to have much effect should be done several

weeks before ripening of the fruit. It is done by removing a ring of the bark about half an inch wide, from such fruiting branches as are to be removed at the next pruning.

Summer Pruning Grape Vines.—There is no art in summer pruning grape vines. Simply do not allow any shoots to grow that you do not want to retain next year. Go over the plants occasionally and rub out with the finger and thumb the sprouts you do not want. This is particularly desirable in young vines. —*Gardener's Monthly*.

No Cultivation.—Col. Curtis writes in the *American Garden* that he considers the plow an enemy to orchards. The trees are bruised and barked, and the roots are torn, thereby checking the growth and reducing the feeding capacity of the trees. The orchards are also made prematurely old. His plan is to build a secure fence about his orchard, and make it a pasture for hogs. It makes a perfect pig paradise. He feeds them in movable long wooden troughs, in which he scatters grain or meal when required.

The Concord Grape.—Mr. S. S. Crissy writes in the same journal, that the experience of Chautauqua County, N. Y., growers is that no grape is so uniformly and certainly sure to yield a good crop as the Concord; and no grape is more free from mildew and black-rot.

Six tons per acre has not been an unusual yield, as the result of the best modes of tillage. Frequent shallow cultivation is given from May 1st to Sept. 1st, and phosphate and potash are applied.

The Concord needs special care in handling. Easily injured when first picked, it can be handled much better after standing from 24 to 28 hours.

Apples kept till July.—The *Prairie Farmer*, of the 18th June, says that at that date there were ten or more

varieties of winter apples still offered for sale at from \$4 to \$6 a bushel. The apples are kept in good condition by cold storage until the 4th July. Some of the most valued kinds for keeping in this way are Golden and Roxbury Russett, Ben Davis, Willow Twig, and Baldwin; the two last-mentioned not keeping as long as the others.

The Yellow Transparent Family.—Dr. Hoskins has an article in the July number of the *American Garden*, in which he says that his experience leads him to believe that the Charlottenthaler, Sweet Pear, and Grand Sultan are *one* variety, and that the Yellow Transparent, Green Transparent, and White Transparent are *another* variety. The apparent differences between the latter seem to be occasioned by poorer or richer soil, or by earlier or later picking.

The clipping of the growing ends of Raspberry and Blackberry bushes, if not already done, should be attended to at once. We do not want great long straggling fruitless canes, wasting their energies in trying to occupy as much ground as possible, and in blocking up all accession to their fruit. We want the canes to branch, and to be kept well under control. The writer has found a pair of hedge shears most useful in cutting back the canes.

The Parry Strawberry, says Mr. Upson in *Prairie Farmer*, is very fine in shape, large and productive. But in Indiana it ripens very little earlier than the Sharpless.

The Crescent.—Whatever objections may be made to the Crescent as a market strawberry, it still holds its own as the favourite berry for profit. The coming berry does not come, and until it puts in an appearance the Crescent will be the leading market berry. From reports received from many sections, it

appears that the Sucker State has given the largest general satisfaction as a fertilizer of the Crescent. The Sharpless, that at one time was considered the best for the purpose, has lost its reputation as a fertilizer.—*F. G. Journal.*

Scientific.

THE STRAWBERRY WEEVIL.

BY JAMES FLETCHER, ENTOMOLOGIST TO THE DEPARTMENT OF AGRICULTURE.

I am in receipt of your letter enclosing insects for identification. Although the specimens were much crushed in the mail they are easily recognizable as *Anthonomus Musculus*, a small weevil which has for the last year or two been very troublesome in the United States, attacking strawberries in the same way as you describe. They are reported to be particularly partial to the "Sharpless." I had not, before the receipt of your letter, heard of the injuries of this insect to strawberries in Canada, although it is a common species upon bushes and low herbage in spring. Another species of the same genus—*A. rubidus*—I have found very injurious to white currants in my garden, and it occasionally attacks black currants also. This attack, however, differs from the strawberry attack which you have described. When the white currants are injured they turn yellow prematurely, and drop from the bunch. The beetle passes all its stages inside the fallen fruit, and emerges in the perfect form during the autumn. At least, this was the case with many specimens which I confined for examination last season.

The only treatment which occurs to me as likely to succeed is the use of preventive remedies, to deter the insects coming to the strawberry beds to oviposit, for I anticipate that each of the buds, which are bitten off, will be found upon examination to con-

tain an egg of the insect. As a preventive remedy to protect my currant bushes against *A. rubidus*, I puffed pyrethrum powder over the bushes twice a week, from the time the flowers opened until they were fully formed. I also sprayed them once with a carbolic wash, and now find the fruit quite sound.

For strawberry beds, the following occur to me as remedies which might be tried:—

1. A light sprinkling of fresh gas-lime between the rows directly the insects begin to appear.

2. Spraying the beds either with an emulsion of coal-oil and soap-suds, or with a carbolic wash.

The coal-oil emulsion is probably well-known now to most fruit growers in Canada, but it may be well to repeat here Dr. Riley's formula:—

Coal-oil, 2 gallons; rain water, 1 gallon; common soap, $\frac{1}{2}$ lb. Or in smaller quantity: Coal-oil, 1 pint; rain water, $\frac{1}{2}$ pint; soap, 1 oz.

Dissolve the soap in the water, and add it boiling hot to the coal-oil. Churn the mixture for five or ten minutes by means of a force-pump and spray-nozzle; or the smaller quantity by placing it in a large bottle, and shaking it violently for the same period. The emulsion, if perfect, forms a cream, which thickens on cooling, and *should adhere without oiliness to the surface of glass.* Dilute before using 1 part of the emulsion with 9 parts of cold water.

The carbolic wash referred to above is that used so successfully by Prof. A. J. Cook, of the Michigan State Agricultural College, as a preventive remedy to protect radishes from the root maggots of Anthomyian flies, and is as follows:—

Dissolve 2 quarts of soft soap in 2 gallons of water, to which, when heated to the boiling point, add 1 pint of crude carbolic acid. For use take one part of this mixture to fifty of water, and spray directly on to the plants.

One application every week to radish beds I have found to protect them very satisfactorily.

I shall be obliged if you can procure me specimens of the injured strawberry bud.

THE DOWNY MILDEW OF THE GRAPE.

BY D. W. BEADLE, ST. CATHARINES, ONT.

It is very probable that many Canadian vineyardists have suffered more or less from the ravages of this parasite. Possibly they have not known its proper name, nor been able to distinguish it from other forms of mildew; but it is the most common form that infests our grape vines, and usually the most destructive in our climate.

We shall endeavor to give our readers such a description of it that they will have no difficulty in recognizing it, if it should appear; and what is better, give them a remedy that has been found effectual in Europe, and therefore worthy of careful trial here.

Mr. F. Lamson Scribner, of the United States Department of Agriculture, has made a very full report on the fungus diseases of the grape vine; and having been favored with a copy, we shall avail ourselves of his labors to give further publicity to information so valuable to every grower of grapes. We shall for the present confine ourselves to the Downy Mildew, hoping at some future time to take up the other fungi. The downy mildew is known to botanists by the name of *peronospora viticola*, and attacks our wild as well as our cultivated vines. It preys upon all the growing parts, leaves, young shoots and berries; and when very abundant so weakens the vine as to render it almost or quite worthless.

The first intimation that the vineyardist has of its presence is the appearance of small, irregular, light green, or yellowish spots on the upper side of the leaves. On turning up the leaves he will find that there is on the underside, directly beneath the spots

on the surface, white patches, which have the appearance of mould or mildew. These white patches are composed of the spore bearing filaments, little threads which have come up through the pores (stomata) of the leaf, have branched and fructified. The spores are borne on the ends of the branches. Four to even eight of these spore bearing filaments issue from each leaf pore, and it is because they are so numerous that they become visible to the naked eye. What we see, therefore, and call mildew, is only the functifying portion of the plant, the vegetative portion is concealed from view in the body of the leaf.

The vegetative portion is called the "mycelium," and grows between the cells which compose the tissue of the leaf, or of the young shoots, or grapes. This portion has the appearance of minute threads, on which are formed at frequent intervals small lateral projections that penetrate the walls of the cells of the vine, absorbing therefrom the nourishment which supports the fungus. It will be seen therefore that the destructive work is done by the portion of the fungus that lies concealed from observation in the tissues of the leaf, or berry, or young shoot. The contents of the cells that are thus perforated by these small lateral projections (called "suckers") soon turn brown, which causes the discoloration that meets the eye.

We shall now show how, and under what circumstances or conditions, this mycelium or vegetative portion of the fungus gains entrance into the tissue of the leaf or fruit. It has already been noted that the downy growth which is seen on the underside of the leaves is composed of filaments bearing, on the ends of their branches, spores. These spores are called by botanists *Conidia*. They are reproductive bodies. When one of these falls on a leaf wet with

dew, or fog, or rain, it begins to swell, the contents divide, and in an hour and a quarter the segments resolve themselves into oval bodies, which soon rupture the wall of the spore and make their escape, passing out slowly, usually one at a time. Shortly after this each of these oval bodies begins to move, separates itself from its fellows, and at length darts off with great rapidity. They are now called Zoospores, having for about twenty minutes the power of locomotion, at the end of that time they cease to move, and in about fifteen minutes after, an outgrowth appears on one side, which develops into the mycelium of a new plant. The usual number of zoospores that is produced from a conidium is five, each of which becomes a new plant. The number of conidia that may be produced from a single infested vine is to be reckoned by millions, some computations going as high as ten millions, but if we put it at five millions, and each of these should find the conditions favorable to reproduction, then we have to multiply that five millions by five, so that we have the almost incredible number of twenty-five millions as the product of one infested grapevine.

Fortunately the conditions are not always present that favor the reproductive process. There must always be the presence of water, else the conidia cannot produce the zoospores; and although the process we have described is not the only method of reproduction that these wonderful plants possess, yet in none of their modes of reproduction can germination take place without the presence of water. A moist atmosphere is not sufficient. There must be drops of rain or dew upon the leaves, or fruit, or growing branch into which the conidia fall, in order to their further development. We now understand why it is that this form of mildew is more prevalent in wet weather. Mr. Wil-

liam Saunders, in the United States Agricultural Report for 1861, describes his method of availing himself of this fact in order to prevent the attacks of this mildew, which was, to place a covering over the trellis of sufficient width to prevent the fogs, or dews, or rains, from wetting the foliage.

We have already shewn that the vegetative portion of the fungus, called the mycelium, grows within the tissues of its host, hence it is impossible to destroy the plant in that stage without destroying the leaf also, or the fruit, if the fungus be growing in the fruit. Our hope is to find some means of preventing the conidia from performing their office of producing the zoospores, from which the new plants are developed. Mr. Saunders' method in small vineyards, but is difficult application to large establishments.

The remedies that have been found serviceable in Europe will now be enumerated, in the hope that they will be carefully tested during the present season, and their usefulness in our climate definitely ascertained. If we shall be able to combat this pest of our vineyards with some measure of success, we shall have gained much toward the solution of profitable grape culture in Ontario.

Sulphate of Copper, either alone or in mixture, has been found efficacious in destroying the germs of this fungus. The following preparations have been recommended for trial by the United States Commissioner of Agriculture.

First—Spray the vines with a solution of 1 pound dissolved in 25 gallons of water.

Second—Dissolve a pound in 4 gallons of warm water; when completely dissolved and the water has cooled, add 1 pint of commercial ammonia, and dilute this by adding 18 gallons of water, and with this spray the vines. The concentrated solution, that is, the four

gallons to which the ammonia has been added, should be kept in a keg or other wooden vessel, and diluted as used.

Third—Dissolve 16 pounds of the sulphate in 22 gallons of water. In another vessel slake 30 pounds of lime in 6 gallons of water. When the lime and water have become cold, pour it slowly into the sulphate solution, stirring constantly, so as to mix thoroughly. It is recommended to prepare this compound some days before using. When used it should be well stirred, and may be applied by dipping a wisp into the mixture, and switching it to the right and left, so as to scatter it over the foliage. In large vineyards it will be less wasteful to use a pump with nozzle specially constructed for the purpose of applying this compound.

As these applications are only preventive in their operation, and by their use we can only hope to destroy the spores, either in the conidia state, or at the latest as zoospores, before the mycelium or vegetative portion has made its way into the tissues of the plant, it is therefore important that we do not wait to see the spots on the leaves, or the discoloration of the fruit before we apply the sulphate, or some of one of these mixtures, but rather apply at once, and repeat as often as the application is washed off by the rains.

The sulphate of copper is not expensive, the cost as given by the Commissioner is only six cents a pound by the barrel, and ten cents at retail, and the commercial ammonia is the same.

In addition to these applications, the careful vineyardist will take measures to destroy all the germs that winter over. We have not given the life history of these, it being a matter of interest to the botanist more than to the general reader; it will be sufficient for the present to say that these winter germs, as they have been called, pass the winter in the tissues of the dead leaves, or

dried up berries, and possibly upon the branches. Hence the importance of gathering all the leaves and fallen fruit with a fine-toothed rake in the autumn and burning them. Also after pruning the vines, to gather the trimmings and burn these. In addition to these precautions, the naked vines should be washed with a strong solution of sulphate of iron.

The sulphate of iron is also an excellent fungicide, and possesses this advantage over the sulphate of copper, that it is not so poisonous to human beings, and is also less costly.

We should be pleased if some of the readers of the *Canadian Horticulturist* would substitute the sulphate of iron for the sulphate of copper on some of their vines, where the downy mildew appeared last year, and report the result.

A CAUTION REGARDING THE USE OF PARIS GREEN,

NOTICES have appeared from time to time of the efficacy of Paris green and London purple in destroying the Colorado beetle and its progeny, and more recently the use of Paris green has been strongly recommended in dealing with the Codlin moth.

There is no question as to the value of these agents as insecticides, but there are other considerations as regards ourselves and those who are to come after us which should make potato growers and orchardists pause before applying Paris green, *et omne hoc genus*, in the liberal way in which it is now proposed to do. Paris green and London purple are preparations of arsenic, and arsenic is a virulent poison; so much so that one grain has been known to cause death, and poisonous symptoms have been caused by one-half, one fourth, and even by the one-eighth of a grain. On some of the lower forms of vegetable life—ferns and mosses—it does not seem to exercise any injurious effects,

but it is different with all the higher plants. Seeds soaked in a solution of arsenic will not germinate, and buds to which it has been freely applied will not expand, while the roots and young shoots of plants immersed in it perish. It has been stated in the pages of the *Horticulturist*, I think, that only the leaves of the potato can be destroyed or the petals of the apple blossom, while the tubers in the one case, and the fruit in the other, remain unscathed. But this is only partially true, and what truth there is depends entirely upon the circumstances of the application. The metal arsenic is insoluble in water, and so long as it remains insoluble it very likely would be harmless to plants. But it is freely soluble in the alkalis, potash, soda, and ammonia, lime and other earths, as well as acids resulting from decomposition of vegetable matter; all of which are more or less abundantly found in every variety of soil, and so soon as it is reduced to the solvent condition it is then readily taken up by the roots of plants, especially by those of the coarser vegetables, the potato, carrot, parsnip, etc. Similarly, also, in applying solutions of Paris green to the apple blossom, it is not only that the petals are destroyed, and this itself may be no small matter, but the poison may be absorbed by the fruit, or find its way into the ovary by the pistils, and in this way, if no greater mischief results, those who have a fancy for chewing the seeds of the apple may some day find themselves attacked with symptoms of arsenical poisoning.

There are other sources of danger besides, such as the contamination of drinking water, in wells, springs, streams, etc. But I fear that I have already occupied too much of your limited space, and therefore will not pursue the subject any further at present.

Yours truly, C.

Durham, June, 1887.

Flowers.

CARE AND CULTIVATION OF LILIES.

BY HERMANN SIMMERS, TORONTO, ONT.

IN the last issue of the *Horticulturist* the subject of the principal finer varieties of Lilies was spoken of. There are many other varieties much more beautiful than



LILIUM TENUIFOLIUM.

those mentioned which I could write about, but they would be useless to the amateur, as I have frequently experimented with them and have found them unsuccessful, not only in wintering them, but also in persuading them to flower, even with the greatest care. If any amateur would like a description of any varieties that I may not mention I would cheerfully answer any such questions through the columns of the *Horticulturist*. By far the most general-

ly cultivated of all the lilies is the ever popular *Lilium Candidum* or ordinary sweet-scented White Lily, which thrives in almost any kind of soil, particularly however in sandy loam. This variety, if it is not already in the gardens of our readers, we would specially recommend for planting, as nothing is more satisfactory, not only on account of its fragrance, but also on account of its beautiful white wax-like flowers borne on a long stem, with from five to fifteen flowers on each stem. To a great many, any explanation of the care and treatment of this variety may seem superfluous, but to some a few points may be added in order to encourage a larger growth of this justly popular variety. In planting for open air, the same care may be observed as was described in the July issue concerning the *Lilium Auratum*; but as for ordinary forcing for the house I would not advise any amateur to attempt it, unless provided with the facility of a conservatory, when they may be planted during the month of September, and treated precisely the same as the Hyacinth for forcing. *Lilium Candidum*, when grown in the open air, is apt to propagate very freely, and in order to secure flowers yearly it is necessary, say once in three years, to take the main bulbs up, and detach any extra small bulbs that will certainly be attached to the parent bulb, replacing the large bulb and planting the smaller bulbs in a separate bed, where after three years growth they are sufficiently large enough to flower, and may be planted where it is required of them to do so. Another variety not very often seen in the garden, but, nevertheless, a very beautiful flower is the *Lilium longiflorum album*. This variety may be grown and propagated as easily as the *Lilium Candidum*, but its habit of growth is very much smaller, reaching only to the height of

fifteen inches; the flower is long tube-shaped, and bears about five to eight flowers on each stem. *Lilium Tigrinum*, or spotted Tiger Lily may also be classed among the varieties of easy culture, and is seen in almost every garden.

The Fuchsia should have rather a shady place, unless particular pains be taken to water it freely. If allowed to wilt, the leaves are apt to drop, and the plant then looks much like a pretty young miss shorn of her tresses. The plants should be turned out of the pots, except *Speciosa* and *Mrs. Marshall*, which are the best of winter bloomers, and should be grown in pots for that purpose alone.—*Orchard and Garden.*

The Crystal Palace Gem *Nasturtium* sent out last spring is just now in full bloom in our Experimental Grounds, and is very pretty. It produces a great abundance of pale yellow flowers with maroon blotches, a very pretty contrast to the ordinary shades.

Shipping Flowers.—Ladies in Crystal Springs, Miss., are shipping flowers to city markets. They receive in Chicago from \$2.50 to \$3 per 100 for Cape Jasmine buds, and a single rose bush has yielded \$10 worth of bloom in one season.

Sunflowers.—Seedsmen state that of late years there has been an unwonted demand for seeds of sunflowers. It is a fact that a blaze of sunflowers gives conspicuous dashes of color to gardens. Some one has styled the sunflower "the king of the flower garden," and there is a kind of regal aspect about it. It is common to see flowers more than a foot across, and the dark centres stand out conspicuously when margined with their broad zones of golden petals. There are dwarf and tall forms of the single, and also of the double varieties. The last named, when of a fine double

character, are very imposing objects ; but the current taste certainly runs in the direction of the single in preference to the double varieties.

Birds.

WIRE FENCES AND BIRDS.

SIR:—It is certainly pleasing to the eye to see straight, clean fences, such as those constructed of barbed wire, in comparison with the old style of snake fence ; and a considerable saving of land is made by its adoption. Another advantage is the prevention of heavy snow drifts, and perhaps other good points might be claimed for the wire fence ; but there is one drawback, and that is a serious one—one that requires more than a passing notice—viz. : the banishment of our small insect destroying birds.

We find, year by year, slowly but surely, the birds become scarce, particularly in those localities where the wire fence is most in use. The reason is plain to be seen. Along the line of the wire fence rubbish is seldom allowed to accumulate, the coarse grass is kept cut and no small bushes are allowed to grow, consequently there is no harbour or shelter for the small birds that live principally on insects. The result is the decrease of birds and the *increase of insects*.

In the old style rail fence all sorts of rubbish would accumulate ; piles of stones, rank grass, small bushes, hazel, wild raspberry, wild currant, etc., would find a lodgment, affording the small birds shelter in rough weather, and protection and security in raising their young ; for our common small birds do not build their nests in tall trees.

It is not likely we will ever go back to the old snake fence again ; but if we

want to retain our friends the birds, we must protect them, extend to them the blessings of National Policy, as well as to the manufacturers of barbed wire, and protect the birds, who are unable to protect themselves.

The first thing to do is to *enforce the law prohibiting the destruction of insect destroying birds*, and any and every man or boy found shooting or destroying the birds to lock him up and teach him better. Next, as it appears the wire fence has come to stay, we should *protect the birds by planting trees or hedges all around the farm*, or at least on the north and west sides, which will encourage the birds to stay. The trees or hedges will grow, and not only afford shelter for the birds, but form wind-breaks, which are becoming so necessary in some localities. The loss sustained by the amount of land occupied by the trees will be repaid by the benefits derived in the shelter of crops from the bleak and raking winds, and the retention of the birds, which are the true friends of the farmer and of the fruit grower.

"RUSTIC."

Mimico.

AN ENEMY OF THE ENGLISH SPARROW.

In a recent report from the Department of Agriculture Professor Riley states that the screech owl has proved useful in destroying the web worms that defoliate so many trees in autumn, and adds : "Perhaps the statement may be of interest that this little owl is getting much more common in the vicinity of cities in which the English sparrow has become numerous, and that the imported birds will find in this owl as bold an enemy as the sparrow-hawk is to them in Europe ; and even more dangerous, since its attacks are made towards dusk—at a time when the sparrow has retired for the night and is not as wide awake for ways and means to escape."

Uses of Fruits.

Next in importance to the best modes of cultivation and the selection of the choicest varieties, comes the most approved methods of preparing fruits for use. We would be glad therefore if the ladies, who read this Journal, would make free use of this column for an interchange of ideas on this subject.

FRUIT JUICES MEDICINAL.

REED of seeds, fruit juices are, says Miss Clarissa Potter, invaluable in correcting deranged bowels. They relieve constipation and check diarrhoea. This seems a contradiction, but personal observation justifies the statement. I was not afraid to give my nine-months old baby bread softened with these juices, when I found milk nauseated her, the child having inherited a strong antipathy against it, and, though my other children have been "bread and milk babies," she has always been a bread and fruit juice baby. A pint of red, ripe, currant, or raspberry juice tart, thick as cream, with flavour and sunshine, and as fresh as when swelling the ripe berry on the stem, is just the gift to send an invalid friend who is heartily tired of her moulds of insipid, sweetish jellies.—*Hort. Times (Eng.)*.

Beware of Orange Seeds.—Several cases have been reported of late of death resulting from the swallowing an orange seed. The seed, lodging in the small intestines is productive of fatal inflammation.

Pineapple Water (a refreshing summer beverage).—Take a moderate-sized pineapple, pare and slice it, and pound it to a pulp in a mortar. Put this into a bowl with the strained juice of a large fresh lemon, and pour over it a pint of boiling syrup made in the proportion of 1lb. of sugar to a pint of water. Cover the jug which contains the liquid, and leave it in a cool place for two hours or more. Strain through a

napkin. Put two pints of cold spring water with it and serve. Sufficient for three pints of pineapple water.—*Hort. Times*.

TO MAKE RASPBERRY VINEGAR.

WASH raspberries in a stone jar. To every pound of fruit add a pint of pure cider vinegar, cover, and let it stand three days; then press it through a jelly bag; to every pint put a half pound of lump sugar. Set the juice on the fire to come to a boil. Take off any scum that may rise. Allow five minutes gentle boiling. Set it to get cold, then pour into small bottles, cork with new corks, and seal. Two or three table-spoonfuls in a glass of ice water makes a delicious, refreshing drink in hot weather. Strawberries or currants can be prepared in the same manner.—*Horticultural Times*.

FRUIT STAINS.

In the season of fruits, the napkin used at the table, and often the handkerchiefs and other articles, will become stained. Those who have access to a good drug store can procure a bottle of Javelle water. If the stains are wet with this before the articles are put into wash, they will be completely removed. Those who cannot get Javelle water can make a solution of chloride of lime. Four ounces of the chloride of lime is to be put in a quart of water in a bottle, and after thoroughly shaking allow the dregs to settle. The clean liquid will remove the stains as readily as Javelle water, but in using this one precaution must be observed. Be careful to thoroughly rinse the article to which this solution has been applied in clear water before bringing it in contact with soap. When Javelle water is used, this precaution is not necessary; but with the chloride of lime liquid it is, or the articles will be harsh and stiff.—*Ex.*

Open Letters.



MR. LOUDON.

THE JESSIE.—SIR: In passing by the home of the Jessie, at Janesville, Wisconsin, on my way home from the North-west, I could not resist the desire to see the Jessie, so I laid over till the next train and I do not regret it, although I had to walk out about a mile. A very genial and kindly man is Mr. Loudon, and after a kind reception from his wife and himself, when breakfast was over, he took me to the Jessie field where he has 70 other new seedlings, some of them larger than the Jessie. You and others ought for yourselves to see the sight I saw. After three pickings they still lay in heaps around the plants. I could have had my eyes covered and went on any row and picked bushels of berries, of which twenty would fill a quart.

JOHN LITTLE, Granton.

SIR: I observed in your June number an article headed "The English Sparrow," where it is blamed for picking the heart of the plums and cherries

when in bloom. Now I think your correspondent has made a mistake. There is a bird that might be mistaken for the sparrow—the purple Finch, (*Frigillia purpurea*), which I have often detected in the same operation, but never the sparrows. They are a bold bird and beautiful singers. See Wilson's Ornithology.

JOHN McLEAN.

NIAGARA GRAPEVINE, INSECTICIDES, &c.—SIR: I am glad to inform you that the Niagara vine you so kindly sent me is thriving most vigorously. As it has been planted in an exposed position on the mountain, I will let you know how it stands the winter. As allusion is often made in the journal as to various insecticides, I would say that this year I have tried the "Slugshot," and have found it in every way satisfactory. This powder has kept the currant and gooseberry bushes entirely free from the caterpillar.

D. BERWICK.

Hamilton, June 30, 1887.

[NOTE.—The so-called "Slug-shot" owes its effectiveness largely to the presence of arsenic.—EDITOR.]

THE BLACK KNOT.—SIR: I fear we shall all be used up this year with the black-knot, which is far worse than than during any previous single year. It has struck all over the trees, both cherry and plum, so that I think I shall have to cut down many of them. I do not know if its ravages extend beyond our city, but doubtless it does, and fear there is no remedy but to wait until this generation is succeeded by a new order, for better or for worse.

C. JARVIS, Brantford.

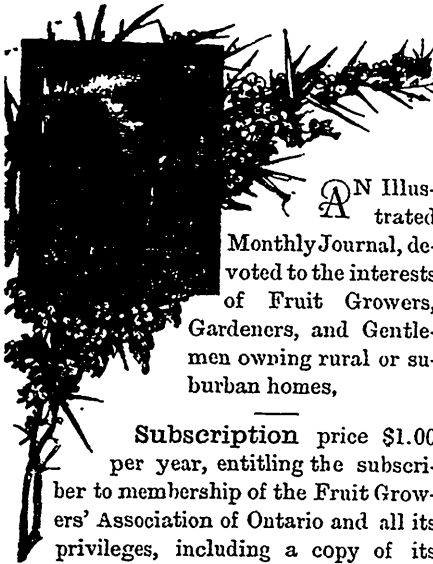
[NOTE.—Prof. Pantou's paper at Colingwood showed clearly that the black knot is a fungus growth, propagated by spores, which scatter at maturity; and that the only way to check its progress is to cut off and burn all affected parts.—ED.]

CATALPA. — SIR: You may like to know that I have the Catalpa, in full bloom, here now. I see by the *Horticulturist* that it will not grow in every part of Canada. The blossom is large, very beautiful, and, if away from the tree, it would pass for an orchid, *i.e.*, for its delicacy of colour and form.

MARIA S. RYE.

Niagara, 2nd July, 1887.

Canadian Horticulturist.



AN Illustrated
Monthly Journal, devoted to the interests of Fruit Growers, Gardeners, and Gentlemen owning rural or suburban homes,

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.

This Journal is not published in the interests, or for the pecuniary advantage of any one, but its pages are devoted wholly to the progress of Horticultural Science and Art in Canada.

The Evening Primrose.—One of our subscribers who complained about receiving seeds of the Evening Primrose among our flower seeds sent out last spring, because it was a noxious weed, must surely be ignorant of the great difference between the native and the

cultivated varieties. The genus *Cenothera* comprises some of our most showy summer blooming plants, and are highly prized in the best gardens. Some of the finest are natives of Texas, California, and Missouri.

Summer Pruning of ornamental trees and shrubs is commended by the *Gardeners' Monthly*. By this is meant a judicious thinning out, and the pinching back of growing branches of both deciduous and evergreen trees. The Scotch Pine may be made a "most beautiful ornament to the lawn, by cutting off its head when about ten feet high, and never allowing another to grow. The side branches are cut away, excepting the upper tier, which then spread and droop in such a way as to present a beautiful arbor-like form.

Many of our deciduous shrubs may also be much improved by clipping. At many of the Northern Railway stations, we noticed the Tartarian Honey-suckle, the Weigela, and other shrubs pruned into roundish or oblong shapes, with flat tops. Thus pruned they are adapted to small tidy lawns, where otherwise their natural free habits of growth would exclude them.

The Marlboro' raspberry is just now (7th July) ripening its first fruit of this season on our grounds. It is quite reassuring to find such stout canes, so well laden with large, bright, scarlet berries.

The Cherry Crop has been unusually satisfactory this year. The horrid aphid has been entirely routed by the friendly lady bug, and the rot upon the Biggareau varieties has been less destructive than usual. For several years past the Heart and Biggareau varieties have been such utter failures in the Niagara district that we were quite prepared to condemn them as being wholly unprofitable. But this season it has been a pleasure to handle them, so fine

and large and clean was the fruit; and the market so greedy to obtain them. On the 5th July the Napoleon Biggareau and the Yellow Spanish, those most magnificent of white cherries, commanded no less than \$1.90 per twelve-quart basket in Toronto market. Without doubt these two are the finest of the Biggareaus, as the Black Tartarian and the Black Eagle are the leading Heart varieties.

A New Asparagus.—The *Scientific American* speaks of a new variety of asparagus which has been discovered on the steppes of the Akhal-Tekiz. It grows perfectly wild; has stalks nearly as thick as a man's arm, and attaining a height of five or six feet. One of these immense stalks is said to be sufficient for a meal for ten Russian soldiers!

Pears.—The Duchess, Winter Nelis, and Seckel are regarded by the *Country Gentleman* as the pears least liable to blight. The Clairgeau and Urbaniste also promise well.

In our experience we may mention the Osbands Summer and the Flemish Beauty as among the most subject to this dread disease.

Tuition in Horticulture was the subject of Secretary Garfield's first lecture at Cornell. He shows in it the inadequacy of books and lectures to teach this science, unless accompanied by practical work in the laboratory and in the field. He also points out the great value of horticultural periodicals, and of the meeting of practical men in horticultural societies.

The Corner Stone of the most richly endowed university in the world was laid on the 18th of last May at Pals Alto, in Santa Clara County, California. It is built by Senator Stanford, upon his cattle ranch of over 7,000 acres, and is endowed with about \$20,000,000 to begin with. The plans are on a gigantic scale, and the curricu-

lum is to include not only art and science, but courses in practical agriculture and horticulture under the most gifted specialists.

Does it not appear that the most thoroughly equipped universities of the future are to be those which are founded and sustained by private beneficence.

Prunus Simoni or Apricot Plum. Prof. Budd of the Iowa State Agricultural College writes of this plum as follows:—"It will be the king of fruits—better than any apricot. In France it is placed at the head of the plums. Hardy even here (42nd parallel). In all respects it is a botanical curiosity. In color of bark, and in all points except



PRUNUS SIMONI.

the net veining and color of the leaves, it resembles the peach. In fruit it comes nearer to a flattish, smooth, brick-red tomato than to any of our stone fruits; yet in smell and flavour it approaches very near the nectarine."

Unpaid.—We regret to find a good many on our lists who have not yet paid for the year 1887, and yet they have accepted from the post office seven

numbers of the Horticulturist for the year 1887. Those who send in their subscriptions may have the bulbs mentioned below if they so desire.

Fall Distribution of Bulbs.—Any subscriber, new or old, sending in his subscription of \$1.00 to the *Canadian Horticulturist*, for either the year 1887 or 1888, between now and the first of November, may have a package of winter flowering bulbs sent him, post paid, early in November next. The package will contain 1 Hyacinth, 1 Narcissus and 1 Tulip, all named varieties. As the contract is with a reliable Canadian seedsman, we believe the bulbs will give the best of satisfaction, and we hope may be the means of introducing these floral treasures into homes hitherto ungraced by their beauty.

The Annual Meeting will be held at either Hamilton or Grimsby, about the last week in September. The annual address of the President will be a prominent feature of the occasion, and will be of special interest to apple growers, of whom we expect to see a large representation.

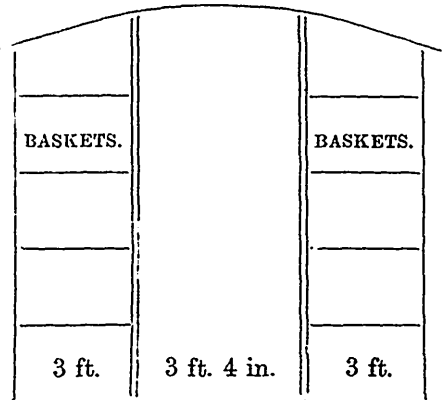
The Winter Meeting will be held at some point in the eastern part of the Province, possibly at Ottawa.

THE NEW G. T. R. FRUIT CARS.

ON the 21st of June the first of these new special fruit cars passed through Grimsby. As fruit growers we hail with gladness any such improvement marking a step in advance in accommodation for the enlargement of our business.

The car is a fine large one, similar in size and shape to a passenger coach, with the same excellent running gear and easy springs, and is therefore far better than any freight car for the carriage of tender fruits, especially for long distances. The length of the car

is about 40 ft. and the width over 9 ft. The car is shelved all around, with a passage lengthwise through the middle as well as across, thus affording easy access to packages of fruit in any part of the car. The accompanying sketch of a section of this car will aid us in giving our readers some idea of its conveniences :



G. T. R. FRUIT CAR—SECTION.

One of these cars will pass through the Niagara District every afternoon throughout the fruit season, gathering up fruit for the Montreal market from between the Suspension Bridge and Toronto. It will reach Montreal about 9 o'clock the next morning.

BUDDING.

THE nurseryman's art of budding trees is a very simple operation, and easily learned by any one who is at all handy with his knife. It is so useful, too, that every fruit grower should practice it for himself. Perhaps some of our readers were trying to top-graft their apple trees last spring, and in some instances the scion has failed to grow; in its place, however, several strong shoots have grown up by the side of the cleft. Now is the time, say from the 1st to the 15th of August, to make up for the failure of the graft by

inserting buds in these young thrifty sprouts.

First cut a fresh shoot, of this sea-

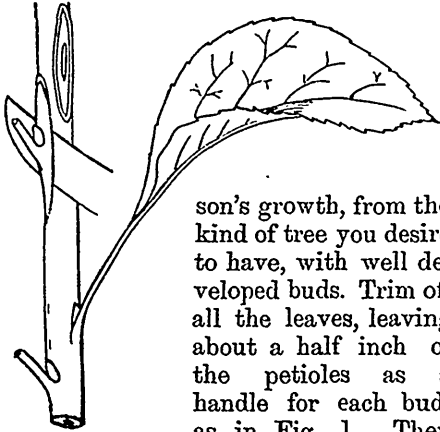


FIG. 1.

son's growth, from the kind of tree you desire to have, with well developed buds. Trim off all the leaves, leaving about a half inch of the petioles as a handle for each bud, as in Fig. 1. Then

with a keen-edged budding knife remove the buds as required; taking care to cut as little of the wood as possible. Then make a T shaped cut in the stock quite through to the wood, as is shown in Fig. 2, insert the bud from the top downward, slipping it neatly into its place as in Fig. 3. Then tie snugly with bass bark, or yarn, as shown in Fig. 4.

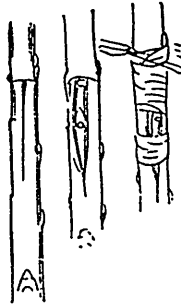


FIG. 2. FIG. 3. FIG. 4.

Plums and pears (on pear stocks) should be budded in July, while peaches are budded during the first half of September. These latter may be worked with greater ease and success than any other tree, providing always the stalk is the current season's growth from the peach pit.

About a fortnight after budding the bandages should be loosened, and then left until the following spring, when, if the bud is alive, the stock should be cut off about an inch above the bud.

This is the whole secret, and we give it to our readers hoping the practice of

it may prove both interesting and profitable to practical horticulturists.

Question Drawer.

This department is intended as an open one to every reader of the "Horticulturist" to send in either questions or answers. Often a reader will be able to answer a question which has been left unanswered, or only partially answered by us. For convenience of reference the questions are numbered, and any one replying or referring to any question will please mention the number of it.

55. Tomatoes.—*As many of my friends are contemplating going rather largely into tomato growing for the Canning companies, could you kindly state the kind of soil suitable; also the best artificial manure and the best variety to grow.* [D. BERWICK, Hamilton.]

The best soil for the tomato is a light sandy loam, which of course should receive very frequent cultivation. Probably there is no more profitable variety than the Trophy, if true to name. We are trying this year the Improved Trophy and the Perfection, the latter of which is highly commended by Mr. John Harris, of Rochester, and will report later on the result of the comparison. Has any reader tested artificial manures for the tomato?

56. Hardest Apple Trees.—*Please state which are the hardest apple-trees for this section; which the largest gooseberries and currants; and which plum-trees do not get the black knot.*

[A. DOBERER, Hanover, Grey Co.]

(Summer) Red Astracan and Yellow Transparent and Duchess of Oldenburgh; (Fall) Alexander, Haas, St. Lawrence, Cellini; (Winter) Wealthy, American Golden Russet, Wagner, Westfield Seek-no-farther.

57. Gooseberries and Currants.—The large English gooseberries, such as Crown Bob and Whitesmith, mildew badly in Canada. The largest kinds that will succeed are Downing, Smith's Improved, and Industry. The Cherry is the

largest currant, but bears very poorly on light soil. Fay's Prolific is about as large; the bunch is much longer, and it is a much better bearer.

58. Plum-trees.—We know of no kind entirely free from black knot. The Moore's Arctic is claimed to be comparatively free.

59. Evaporators.—*Which kind is best? Are other fruits, besides apples, successfully dried? What about markets? What about a vinegar department? Are the peelings and cores worth drying for jelly?* [A. SLAGHT, Waterford.]

60. Budding.—*In cutting the bark of the stock to insert the bud, should both the outer and inner barks be cut through to the wood?* [R.]

Yes. See p. 189.

61. Cold Grapery.—*Please inform me if there is any objection to my leaving the ventilator of my cold grapery open all night this hot weather. Is it likely to induce mildew?* [R., Toronto.]

REPLY BY D. W. BEADLE.—Mildew is frequently caused by sudden changes of temperature especially if accompanied by draughts of air. If R. can be sure that the wind will not veer to the north-west during the night and blow a gale of chilling air through his vinery, then he can safely leave the ventilators open.

62. Plow.—In reply to an enquiry of a subscriber for a plow to throw heavy sub-soil to the surface, Mr. Wm. Rennie says: "I do not know of one manufactured in the County of York. I do not approve of throwing the sub-soil on the surface, but would rather keep the fine mould on top by following an ordinary plow by a sub-soil plow."

63. *Gladiolus Lemoinei*.—*I intend trying to protect Gladiolus Lemoinei this winter. What do you think of my prospects of success?* [J. A. M., Wingham.]

Mr. A. Simmers answers as follows: *Gladiolus Lemoinei* will need to be well protected with a heavy covering of straw litter or else I would not give much for the chances of success in winter of such tender bulbs. I would advise putting them in a sheltered place and then you may succeed in wintering them over.

64. *Lilium Longiflorum*.—*Do you think Lilium Longiflorum would stand remaining in the ground all winter; thermometer going down to 30 below zero sometimes?* [J. A. M., Wingham.]

Mr. Anton Simmers says in reply: *Longiflorum* will stand without fear of freezing or failure in the open ground all winter, where the temperature goes down to 30 below zero. To ensure it, however, better cover the *Lilium Longiflorum* with manure about half a foot, and a board over it.

Review.

We will gladly give our candid opinion of any books, magazines or catalogues received, especially if they are likely to interest or benefit Canadian fruit growers, but will not insert cut and dried reading notices in favor of any publication whatever.

BOOKS.

Elements of Botany.—Including Organography, Vegetable Histology, Vegetable Physiology and Vegetable Taxonomy and a Glossary of Botanical Terms, illustrated by nearly five hundred engravings from drawings by the author. By Edson S. Bastin, A.M., F.R.M.S., Professor of Botany, Materia Medica and Microscopy in the Chicago College of Pharmacy. Cloth, Octavo, 300 pages, price, \$2.50. Chicago: G. P. Engelhard & Company: 1887.

Bastin's *Botany* is a fairly got up volume of 300 pages. The intention of the writer is to supply a text-book for our High Schools, Academies and Medical Colleges, which shall also be sufficiently clear to be understood by young beginners, and prove a means of attraction to them in this most delightful of studies.

The freshness of the illustrations, which are largely drawn by the author, and the constant references by this means to well-known plants is a very valuable feature of the work. One is thus introduced to the study of nature in the most natural and easy manner.

Part I. is devoted to Organography, and takes up 1st, the organs of vegetation, and second, those of reproduction. Practical exercises are appended to each chapter, a most useful addition especially for the student who wishes to pursue microscopic examination of plant life apart from the class-room. The subject of *Plant Hairs* is considered by the Professor as of sufficient importance to occupy a whole chapter. Those upon the roots are shown to be useful in absorbing nourishment from the soil, while those on the stems and leaves are active agents in absorbing nitrogenous compounds from the air. This is of interest to us just now when so many are discussing the sources of nitrogen for the supply of plant growth.

Part IV., which is devoted to Vegetable Taxonomy, or the classification and naming of plants, is also a valuable contribution to Horticultural Science. Prof. Bastin divides vegetable life into seven groups, beginning with such low organisms as jelly-like sea-weeds and bacteria, and gradually leading the student on up through the various kinds of parasitic fungi which play such an important factor in the injury or destruction of plant life, to those mosses and ferns and flowering plants which are commonly treated of in our botanical text-books.

In our humble opinion, however, the book has one serious fault, viz. its advocacy of the doctrines of Evolution. Why should a botanical text-book so step out of its sphere—viz. the study of nature as it is—as to deal with metaphysical hypotheses? Because there is a wonderfully planned gradation of

species from the lowest to the highest forms in both animal and vegetable life, why should the botanical student be expected to swallow such teaching as the following, found on page 173?

“Plants and animals resemble each other fundamentally; the protoplasm which constitutes the physical basis of life of both has in both the same essential properties. We must regard plants and animals as two branches of a common trunk. *The first living being that made its appearance on our globe was probably neither distinctly plant or animal, but a bit of undifferentiated protoplasm (!)*”

Has Prof. Bastin, or Prof. Huxley, or Prof. Darwin ever yet discovered one single instance of one genus of either plant or animal life, reverting to an inferior one, or of one new genus developing from an inferior one? Is there any proof on p 22 where we read:

“As now in tropical regions evergreen trees are much the more common, while in our own climate they are rare, there is good reason to believe that in the warm ages of the world preceding the ice period, all trees were evergreens, and that our northern trees have become deciduous-leaved by gradual adaption to the vicissitudes of the climate.”

Did any one ever find a Norway Spruce in process of development into an apple tree, or an apple-tree reverting into the direction of a Norway Spruce.

Granting that vegetable growth may somewhat adapt itself in time to its surroundings, and this is all that has been proved, we cannot see in this the slightest ground upon which to base the theory that one genus has ever, or ever will, pass into another by any power except that of the Divine Being who first originated it and bestowed upon it its essential characteristics.

Annual Report of the Minnesota State Horticultural Society. Cloth, 486 pp. Secretary, S. D. Hilman, Minneapolis, Minn.

This report is full of valuable information concerning hardy fruits for our northern sections. For instance, on page 151 we notice a *black list* of

apples usually counted hardy, but proved to be only half hardy, and considered dangerous to plant in large quantities. The kinds mentioned are Mann, Bethel, Walbridge, Haas, Peewaukee, Alexander, Borsdorf, Northern Spy, Salome, Utter, Fameuse, and Wolf River.

Transactions of the Indiana Horticultural Society, for the year 1886. Cloth. C. M. Hobbs, Bridgeport, Secretary.

In this report are included papers and discussions on the following subjects: Village Improvement Associations, Ethics of Horticulture, The old Grape Vine on the Wall, A glance at Horticultural Interests in England, Grafting and Budding, The other side of Fruit Culture, Ornamentation of School Property, &c.

Transactions of the Massachusetts Horticultural Society, for the year 1886. Part II. Robt. Manning, Boston, Secretary.

Fifth Annual Report of the Ohio Agricultural Experiment Station for 1886. W. R. Lazenby, Secretary of the Board of Control, Columbus, Ohio.

Report of the Entomologist, 1885. Jas. Fletcher, Department of Agriculture, Ottawa.

(Correspondence, and small packages containing insects for identification may be sent by mail, and will receive prompt attention.)

Report of Sir Charles Tupper, G.C.M.G., C.B., Executive Commissioner on the Canadian Section of the Colonial and Indian Exhibition at South Kensington, 1886.

The North-West of Canada. A general sketch published by authority of the Department of Agriculture, Ottawa.

Calendar of Queen's College and University, Kingston, Canada, for the year 1887-88.

Seventeenth Annual Report of the Entomological Society of Ontario.

Copies of this Report will be sent to members of the Fruit Growers' Association in course of time.

Humorous.

"WHAT do you grow on this land?" he inquired of the farmer who was leaning over a fence inspecting a particularly barren piece of ground. "Grow lazy," was the satisfactory reply.—*Field and Farm*.

A BOOK of rules for playing lawn-tennis has been published, but it omits the most important rule of all for beginners, which is: First get your lawn.—*Somerville Journal*.

WHAT'S in a name? An exhibitor, writes a correspondent, at the last annual show of a provincial Society, divided a sample of peaches, entering one half in his own name, and the other in the name of a gentleman of local prominence. His own half was passed over, but the other sample took the prize proving that there is something in a name after all.—*Hort. Times*.

"I hear that your husband is very ill," said Mrs. Philpot. "Yes, poor fellow," replied Mrs. Snooper, "he leads such a sedentary life that his health is shattered."

A HEALTHFUL FRUIT.—A lazy dyspeptic was bemoaning his own misfortunes, and speaking with a friend on the latter's healthy appearance. "What do you do to make you so strong and healthy?" inquired the dyspeptic. "Live on fruit alone," answered his friend. "What kind of fruit?" "The fruit of industry; and I am never troubled with indigestion."—*People's Health Journal*.

Made in vane—a weather-cock.

"EPRUM, what makes so many cat-tails grow in this here pon'?" "Well, I would say, doan you know? Why dey grows up from kittens that people has drowned in the pon' of course. 'Pears like you wimmen folks doan know nuffin' 'bout agricultshah.—*Am. Garden*.

It is as difficult to catalogue books as it is to catalogue some other things. A librarian in a Boston library lately confessed that a work on "Greek Roots" was found entered under agriculture, and a book entitled "The Fountain of Life" under water.—*Christian Register*.