

ELEVENTH ANNUAL REPORT  
OF THE  
MONTREAL  
HORTICULTURAL SOCIETY

AND

Fruit-Growers' Association of the Province of Quebec.



1885.

REPORT COMMITTEE FOR 1886.

PROF. PENHALLOW  
R. W. SHEPHERD, JR.  
J. McKENNA

C. GIBB  
R. BRODIE, JR.  
J. DOYLE

DR. J. BAKER EDWARDS.

MONTREAL:  
PRINTED BY THE GAZETTE PRINTING COMPANY.

1886.

634-062  
M811

HC

F

ELEVENTH ANNUAL REPORT  
OF THE  
MONTREAL  
HORTICULTURAL SOCIETY

AND

Fruit-Growers' Association of the Province of Quebec.



1885.

---

REPORT COMMITTEE FOR 1886.

PROF. PENHALLOW  
R. W. SHEPHERD, JR.  
J. McKENNA

C. GIBB  
R. BRODIE, JR.  
J. DOYLE

DR. J. BAKER EDWARDS.

---

MONTREAL:  
PRINTED BY THE GAZETTE PRINTING COMPANY.

1886.

DR.  
D. P.  
E. J.

## OFFICERS FOR 1885.

---

DR. T. STERRY HUNT..... *President.*  
D. P. PENHALLOW..... *Vice-President.*  
E. J. MAXWELL..... *Secretary and Treasurer.*

---

## DIRECTORS:

DR. T. STERRY HUNT	R. BRODIE, JR.
PROF. PENHALLOW	WM. EVANS
R. W. SHEPHERD, JR.	J. McKENNA
C. GIBB	J. DOYLE
E. J. MAXWELL.	

---

## REPORT COMMITTEE.

R. W. SHEPHERD, JR.	R. BRODIE, JR.
PROF. PENHALLOW	C. GIBB
J. DOYLE	J. McKENNA
DR. J. BAKER EDWARDS.	

## TABLE OF CONTENTS.

Annual Meeting and Secretary's Report for 1885.....	1
Nomenclature of our Russian Fruits .....	By C. GIBB. 13.
Winter St. Lawrence Apple ( <i>with cut</i> ).....	By R. W. SHEPHERD, JR. 17
Hardy Fruits in Württemberg ( <i>with cuts</i> ).....	By C. GIBB. 19
Insects Injurious to Ornamental Trees and Shrubs ( <i>with cut</i> ). By Rev. T. W. FYLES.....	33
Resumé of Out-door Grape Culture in the Province of Quebec.....	By W. M. PATTISON .....
.....	37
Fruit-Growing in the Province of Quebec, and the Effect of Last Winter on our Orchards.....	By J. M. FISK. 42
Keeping Qualities and Use of Grapes during Winter.....	By W. M. PATTISON. 45
Window Gardening.....	By J. MCKENNA. 47
Ornamental Trees.....	By C. GIBB. 50
The Blackberry.....	By ANNIE JACK. 59
Garden Roses.....	By ANNIE JACK. 60
Grape Culture in Northern Latitudes, with Special Attention to Quality rather than Quantity ( <i>with cuts</i> ).....	By W. GRAHAM. 62
Apple Culture.....	By R. BRODIE, JR. 69
How to Grow and Flower Chrysanthemums.....	By J. DOYLE. 74
FIRST WINTER MEETING.—(1.) Subject: <i>Grapes</i> . Contributions by Mrs. A. JACK, Messrs. H. McCOLL, R. BENNY, C. GIBB and N. C. FISK, with discussion. (2.) Subject: <i>Plums</i> . Contributions by Messrs. A. DUPUIS, C. GIBB and J. BROWN.....	76
EVENING SESSION.—Subject: <i>Apples</i> . Contributions by Messrs. R. W. SHEPHERD, JR., Cap. RAYNES, J. M. FISK, Rev. R. HAMILTON, Prof. PENHALLOW, R. D. MACPHERSON, G. A. COCHRANE, and FRASER TORRANCE.....	95
SECOND WINTER MEETING.—(1.) Subject: <i>Flowers</i> . Contributions by the President, Messrs. J. MCKENNA, JR., and E. J. MAXWELL, with discussion. (2.) Horticulture for Women, by Mrs. A. JACK.....	116
JUDGES' RETURNS.—A.—Special Exhibits of Plants, 1885.....	128
B.—Garden Plots, 1885 .....	130
C.—Window Gardens and Conservatories, 1885-6.....	131
LOCAL SOCIETIES.—Montreal Botanic Garden.....	133
Abbotsford Fruit-Growers' Association.....	162
Horticultural Society and Fruit-Growers' Association of Missisquoi.....	164
Fruit-Growers' Association of the County of Shefford.....	165
Meteorological Observations for 1885..	168
Donations to the Library.....	170

FRUIT

The  
the Roo  
meeting  
and elec  
pied the  
among  
H. Jose  
Shepher  
well, R.  
Phillips  
Eddy, C  
The  
SECRET  
1885, as  
Not  
Society  
them fo  
period,  
long ad  
of the M  
and the  
are prof  
pleasur

.... 1  
BB. 13  
JR. 17  
BB. 19  
W.  
.... 33  
M.  
.... 37  
our  
SK. 42  
ON. 45  
NA. 47  
BB. 50  
K. 59  
K. 60  
er  
M. 62  
R. 69  
74  
A.  
s-  
C.  
... 76  
D.  
D.  
95  
si-  
)  
... 116  
... 128  
... 130  
... 131  
... 133  
... 162  
f  
... 164  
... 165  
... 168  
... 170

# MONTREAL HORTICULTURAL SOCIETY

AND

FRUIT GROWERS' ASSOCIATION OF THE PROVINCE OF QUEBEC.

---

## *Annual Meeting and Secretary's Report for 1885.*

The Annual Meeting of the Montreal Horticultural Society was held in the Rooms of the Natural History Society, Montreal, December 4th, 1885. The meeting was for the purpose of receiving the report of the Secretary-Treasurer and electing a board of directors for the ensuing year; Dr. T. Sterry Hunt occupied the chair and Mr. H. S. Evans acted as Secretary. There were present among others: Messrs. Charles Gibb, Jas. McKenna, R. Jack, R. Evans, J. H. Joseph, G. Cheney, S. S. Bain, Alderman Holland, W. Henry, R. W. Shepherd, jr., D. Neville, James Bray, James Torrance, R. Brodie, E. J. Maxwell, R. Hamilton, Prof. Penhallow, T. McAnulty, A. T. Drummond, S. D. Phillips, R. Harvey, D. R. McCord, H. Meyer, H. Matlock, D. J. Ross, D. Eddy, G. H. E. Blaiklock.

The minutes of the last meeting having been read and approved, the SECRETARY proceeded to read his Report for the Year ending November 30th, 1885, as follows:—

Not quite a year has elapsed since the Board of Management of this Society called the members together for the annual meeting, to lay before them for their approval a report of the year's operations. Within that period, one important work, which some of the members of this Society have long advocated, has become an accomplished fact. I allude to the formation of the Montreal Botanic Garden Association, a Society kindred to our own, and the promoters of which are also members of this Association. There are probably present in this room several persons who a week ago had the pleasure of listening to the first report of the new association, prepared by

the Director of the Garden, Professor Penhallow, who is also Vice-President of this Society. There is but one opinion as to the excellence of that report, and the pains which it showed had been taken to obtain the fullest information as to everything connected with the working of Botanic Gardens throughout the world. The amount of stock which has been got together from various places, and the preparations which have been made to go into immediate operation so soon as suitable ground is procured, either by lease or purchase, show the energy which has been imparted to the scheme by the Board of Management and Director. The number of letters which have been received by the Director from kindred associations, expressing best wishes for the success of the enterprise, and offering assistance in various ways, bears out the statement made in my last year's report, that many plants and seeds would be presented to the Association, were one formed. It is rather a singular coincidence that, at the time my last report was read, in which the establishment of a Botanic Garden was again brought to the notice of the members of the Society, other gentlemen connected with McGill University were thinking of a similar project. Neither had any knowledge that the other was looking to the establishment of an enterprise so desirable and so much required, but when the suggestion did come it was taken hold of at once by both parties. Joint meetings were held and plans discussed, and the outcome has been the establishment of the Garden. As most persons are aware, the present scheme is to try to arrange for a long lease with the Corporation of the City of Montreal, of a portion of the Mountain Park on the west of Bleury Street, running backward towards the mountain, and round towards Mount Royal Cemetery. Competent judges have pronounced the situation almost unsurpassed, as the ground is greatly diversified, and the view from the plateau, where it is proposed to build the conservatories, is magnificent. Plant houses, such as it is proposed to erect, could be seen for miles around, and no traveller arriving in the City of Montreal by the line of the Canadian Pacific Railway could fail to have his attention attracted by them.

It is a fact worthy of note, that at the Annual Meeting of this Society, held in December, 1873, the late Mr. S. J. Lyman advocated the establishment of a Botanic Garden on this very spot. Your Secretary was elected to his present position on that occasion, and it may be that one of the reasons why the project has never been lost sight of during my twelve years of office, has been, in a measure at least, owing to the strong arguments brought forward in its favor not only by Mr. Lyman but by Mr. Kay, then President of the Society, and others present at the meeting. I have touched on this matter at considerable length, in view of its importance and the particular interests which the members of this Society have in the carrying out of the

plan  
inform  
only of  
annual  
1886.  
desire

Y  
represe  
Dr. No  
A lette  
the gar  
been in

By  
Botani  
ment i  
made  
to see  
I woul  
the Pr  
A sug  
Garden  
ment t  
Quebe  
say, th  
has gi  
not on  
done b  
ferent  
provin  
made t  
plenis  
view,  
shall b  
the Sc  
a leadi  
request  
to cons  
consid  
Rev. I  
Rober  
made



plan proposed. What I have said, however, does not give the title of the information conveyed in the report of the Director. This report, a synopsis only of which has been published by the newspapers, will appear with the annual report of this Society, which it is hoped will be issued early in 1886. I would recommend, not only members of the Society, but all who desire the improvement and elevation of the public taste, to read it.

You will be called upon at this meeting, to elect two gentlemen to represent the Society on the corporation of the Botanic Garden, to succeed Dr. Norman and the Hon. Louis Beaubien on whom the lot fell to retire. A letter will be read to you this evening on the part of the corporation of the garden, asking you to re-elect these two gentlemen, whose services have been invaluable and who can fitly represent this important Society,

By the time the next Annual Meeting takes place, I hope the Montreal Botanic Garden may be in full working order. Whether the proposed agreement is carried out with the City Corporation or not, a great effort will be made to have one established in any case, as many citizens have come to see its value and importance. If agreeable to the members of this Society, I would suggest that, if the Board of Management of the Garden is increased, the President of this Society should be always an ex-officio member. A suggestion to the present Board of Management of the Montreal Botanic Garden, to this effect, would probably receive due attention, if any amendment to the Act of Incorporation is sought for at the next Session of the Quebec Legislature. In closing this portion of my report, I think I may say, that this Society may congratulate itself on the aid and countenance it has given to the establishment of a Botanic Garden, and that it has rendered not only the Province, but the whole Dominion a real service. The work done by the Society the past year, owing to various causes, has been different from that of other years. Much that has been done has been of a provincial rather than of a local character. Considerable effort has been made the past few years to induce the planting of trees as a means of replenishing our forests and ornamenting the country. With this object in view, "Arbor Day" has been instituted, as a sort of annual festival, which shall be devoted to the planting of trees. At a meeting of the directors of the Society held on April 16th last, the question of the Society's taking a leading part in the proper observance of the day (the Society having been requested to do so) was discussed. The following Committee was named to consider the question and make the necessary arrangements, should it be considered advisable to manage the city celebration: Prof. Penhallow, Rev. Dr. Norman, Dr. T. Sterry Hunt, Alderman Holland, S. C. Stevenson, Robert Hamilton, and your Secretary. The Provincial Government, having made the Society a grant of \$100 in aid of the celebration, it was decided

to go on. With this object in view, communication was at once opened with the Protestant and Roman Catholic School Commissioners, in order to have the schools take part. Nothing satisfactory was elicited from the Roman Catholic Commissioners, and none of their schools were present. The Protestant Commissioners, however, responded, and the Rev. Dr. Norman and Mr. Arthy, the Secretary, greatly interested themselves. Both of them visited the grounds several times, and on Arbor Day many hundred scholars turned out from various schools.

The day was magnificent, and the schools having assembled opposite the Windsor Hotel, proceeded, headed by the City Band, to the place where the tree-planting took place. Mr. Iles having placed one of the committee rooms in the Windsor Hotel at the disposal of the Society, the directors, invited guests, gentlemen who were to deliver addresses on the ground, and members of the press assembled there, and proceeded in carriages with the schools to the ground. Some fifteen or twenty trees were planted on this occasion, one to each of the following: His Excellency the Governor-General, Lady Lansdowne, President Cleveland, Lieutenant-Governor Masson, Hon. Dr. Ross, W. W. Lynch, and H. G. Joly, His Worship the Mayor, the Park Commissioners, and Mr. Charles Gibb, also one to each of the schools present.

The arrangements of the Committee had been carefully made, and, owing to the admirable manner in which the masters having charge of the boys managed their work, there was no confusion. So soon as the planting was finished, all adjourned to listen to the speaking from the Golf Club House, which had been kindly placed at the disposal of the Committee. Letters and telegrams expressing their regret at not being able to be present at the celebration, were read from several members of the Government and other gentlemen. The meeting was addressed by Dr. T. Sterry Hunt, President of the Society, Hon. Louis Beaubien, Rev. Dr. Norman, Rev. Mr. Stevenson, Alderman Holland, J. K. Ward, and others. The celebration was such a pronounced success, that at the meeting of the directors of this Society, held on June 3rd last, Professor Penhallow presented a report on the part of the Arbor Day Committee, containing the following suggestions, which were unanimously adopted:—

1st.—That a record book be opened for Arbor Day proceedings, and that a duplicate be deposited with the Park Commissioners.

2nd.—That Arbor Day for Montreal, and surrounding municipalities, be placed in the hands of the Horticultural Society, and communication be had with the Quebec Government for the purpose.

3rd.—That the Arbor Day Committee, for 1886, be appointed immediately upon the election of the new Board of Directors, and that they at

once secure the cooperation of all heads of schools of the Educational Department at Quebec.

This is only a recommendation, and it will, of course, remain with the new Board, to decide whether the suggestions are to be carried out.

Probably all persons have observed the collection of fruits which has been on exhibition in the windows of the Ichi Ban warehouse on St. James Street. This collection has been gathered by the Society, to be exhibited by the Dominion Government at the Colonial and Indian Exhibition in London. A grant of \$150 has been made the Society by the Department of Agriculture in Ottawa, in aid of the work. Owing, however, to the lateness at which the work was placed in the Society's hands, the collection is not so fully representative, or as large as might have been made. Not having the jars on the spot when the fruit came in, has also materially reduced the size of the exhibit, several varieties of fruit having rotted while waiting. Special agents were employed by the Society to visit growers, and procure what was possible. Very many, however, it was found, had disposed of their fruit, and much of what was obtained was taken out of barrels, and was, of course, not in as good order as if it had been selected while still growing on the tree. Mr. Wm. Saunders, of London, has charge of the collection of fruit to be sent from the Province of Ontario, and is following a similar process in preserving it, to that used by this Society. The formula has been furnished by the Department of Agriculture; and if not furnished the Department by Mr. Saunders, from letters received from him, it would seem as if it had at least been based on the results of his experiments. The fruit was dipped in paraffine in the first place, to give it a thin, transparent coating; and was then placed in jars, which were afterwards filled with a solution of salicylic acid, alcohol, and water. The object of paraffining was to endeavor to preserve the color from the action of the alcohol.

It will be indeed a most desirable thing if the fruit can be forwarded to London and exhibited in the condition in which it now is. The whole process, however, from the tenor of Mr. Saunders' letter, would seem to be experimental and may or may not be successful. The Board of Management of the Society were, however, greatly impressed with the importance of a good fruit exhibit; and the preparation has been personally looked after by Mr. Charles Gibb, Professor Penhallow, Mr. Robert Hamilton, and myself more particularly. Every effort was made to have the fruit as representative as possible, and among the contributors are Mrs. Caverhill, Miss Orkney, R. W. Shepherd, jr., James Drummond, Wm. Pressiau, B. Aubertin, Joseph Brown, John Doyle, Henry S. Evans, H. Montagu Allan, F. Rupert, D. Rutherford, Jas. W. Newman, John Smith, M. Maillet, J. B. Goode, and G.

W. Harduty, Montreal and vicinity; Hon. Mr. Cochrane, P. J. Bagley, T. Robertson, G. Carr, Ira Carr, Mr. Rugg, F. B. Harney, and Joel Shurtcliffe, Compton; Mr. Jordon Eaton, W. Hepburn Milby, Mr. Baker and D. Westover, Frelighsburg; George Whitfield, Rougement; Mr. McRae, Hemmingford; Charles Gibb, George E. Roach, Robert W. Whitney, J. W. Whitney, A. Rasseau, N. E. Fish, J. N. Fish, E. Buzzle, Mr. Buzzle, W. R. Henry, C. Wilkins, Mr. Albert, Abbotsford; Rev. J. Stephens, Hatley, And. Kees, Robert Jack, (Magra Grape) Chateauguay, and Messrs. Edwards and Manning, Huntington County.

However, under any circumstances, if arrangements could be made to have the fruits of this Province forwarded as they ripen to the London Exhibition, which, I understand, does not close until October 31st next, an exhibit could be made that would be in the highest degree creditable. If the fruit were shipped in cases, and after being on exhibition for a few days, sold, the Government might perhaps recoup themselves for the expense. If this plan should not be thought advisable, it would be possible to select a splendid exhibit from the tables of the Society's Exhibition. The exhibition usually opens on Tuesday, and with proper preparations it would be possible to ship the fruit selected, by express or steamer, on Friday evening, so as to catch the outgoing mail steamer on Saturday morning. This would give the fruits of the Province a full month to be shown on the other side. Mr. S. C. Stevenson is managing these matters for the Dominion Government in Montreal, and the Society may, I think, count on the fullest sympathy and assistance from him in what they undertake. Some person should also be on the other side, to receive and exhibit the fruit properly on its arrival.

A member of the Society, Mr. J. B. Cartwright, suggested last year that in order to encourage a taste for the cultivation of small plots of ground, some prizes should be offered by the Society. Mr. Cartwright offered to contribute one prize of \$5 himself and the matter being brought before the directors, Dr. Hunt, the President, offered a prize of \$10, and the Society contributed the third. Several entries were received, and Messrs. Betrix and Copperthwaite being appointed judges, the first prize was awarded to Wm. Lewis, the second prize to J. J. Riddle, and the third prize to George Hodge.

Small prizes were again offered last winter for the best kept conservatories and window gardens, the result of which competition has already been published in the Tenth Report. These prizes are all productive of good results, and as the Society is now financially in a very much better position than last year, the new Board may see their way to be more liberal this year.

TH  
ladies  
during  
of Mr.  
Macka  
Andrev  
least of  
to con  
trust t  
and ot  
Fe  
bition  
part of  
and a  
work c  
ing of  
meeting  
certain  
though  
Society  
amuse  
Officer  
holding  
in his  
the Se  
to stop  
the di  
culture  
had be  
was su  
expenc  
of the  
most l  
esced  
Minist  
are esp  
ation,  
tion :—  
desire  
intenti  
Direct

The members of the Society are again under obligations to several ladies and gentlemen for their kindness in opening their conservatories during last winter. The list was never so large before, and comprised those of Mr. Andrew Allan, and Mr. H. Montagu Allan, Mr. William Lunn, Mr. Mackay, Mr. William McGibbon, Mr. John Molson, Mrs. Redpath, Mr. Andrew Robertson, and Mr. George Stephen. All but one of these opened at least one afternoon during Carnival week, and the Society was thus enabled to contribute something towards the success of our great winter fête. I trust that the members may be afforded an opportunity of visiting these and other conservatories during the present winter.

For the first time for many years past, there was no horticultural exhibition in Montreal during the past summer. This arose from no fault on the part of the Society. A building had been secured and every preparation made, and a good deal of expense incurred, though probably a portion of the work done may be utilized for another year. At the time fixed for the holding of the exhibition, the smallpox had become epidemic here; and public meetings and gatherings of every sort were discountenanced. In view of certain statements made in the press, some of the officers of the Association thought it advisable to call on the health authorities and see how the Society's interests were going to be effected, if, as was proposed, all places of amusement were to be closed. The Mayor, Ald. Gray, and the Health Officer, Dr. Laberge, expressed themselves as most strongly opposed to the holding of an exhibition. A second interview with Dr. Laberge resulted in his writing a letter, stating that if he thought it was the intention of the Society to go on with the show, he would take immediate steps to stop it. Meantime, the collection of the members' fees was stopped, and the directors decided to refer the whole matter to the Department of Agriculture of Quebec for their decision. Feeling that plant growers, especially, had been at considerable expense in growing plants for the exhibition, it was suggested to the Department that the Directors might be allowed to expend a certain amount in special awards, based on the general excellence of the plants exhibited. The Department of Agriculture at Quebec took a most liberal view of the state of affairs, paid the annual grant, and acquiesced in the action taken by the Board of Directors. Mr. Lesage, the Deputy Minister of Agriculture, and Mr. Gagnon, the Secretary of the Department, are especially to be thanked for their prompt action. After careful consideration, the Board of Directors unanimously agreed to the following resolution:—'That owing to the prevalence of smallpox, and the expressed desire of the Mayor that the exhibition be postponed, as, also, the declared intention of the Health Officers to prevent its being held, the Board of Directors do not feel justified in holding the usual exhibition for this year.'

I am aware that there have been different opinions expressed, as to the course pursued by the directors, but if they had persisted in going on and been ultimately stopped, or the holding of the exhibition had resulted in a heavy loss, their course would have been much more condemned. This is irrespective of the bad moral effect which the action of a large and influential society would have, in opposing the proper authorities in endeavoring to stamp out an epidemic which has cost the city so dear.

Our Tenth Report has now been in the hands of the members for some time, and all will agree as to its being a creditable production, worthy of the Society and of the Committee having the work in charge. I am happy to be able to state, that for the future, the Society hope to be relieved of the cost of publication. An agreement has been arrived at with the Government, by which it will be published as an Appendix to the Report of the Department of Agriculture, and a certain number of copies furnished the Society free. The total amount expended by the Society in publishing the first nine Reports amounts to \$2,275.79. Four special grants, amounting to \$800, were received in aid of the work. Thus the Society have expended, out of their own ordinary income, \$1,475.79 more than they have received, on what is really a Provincial work. The matter for the Eleventh Report is now being prepared, so as to be in the hands of the Government for publication early in January. As the work of superintending the editing occupied so much of the time of some of the members of the Committee, the Board have arranged with a gentleman who is well qualified to superintend the work for a very moderate sum.

The directors have transferred their Library from the Natural History Rooms to the Fraser Institute Building. The Library will be in complete order in a few days, and a sum has been voted to purchase new books and to subscribe to some agricultural and horticultural papers for the use of our members. The Library is in the same room as that occupied by the Book Club. The room will also be used for the meetings of the Board of Management of this Society and of that of the Montreal Botanic Garden. The Hon. J. J. C. Abbott was very liberal in his views, each Society paying almost a nominal rent, and having excellent accommodation. It is to be hoped that members may avail themselves of these privileges.

The working expenses of the Society for the past year, in view of the fact of there having been no exhibition, may seem large, though less than last year. The exhibition itself, though entailing very hard work for a time, is but a small portion of the work connected with the Society, and has been fully made up for by the work involved in making the collection of fruit for the Colonial and Indian Exhibition. The Society is now so large that

every  
work, a  
fees. I  
five or  
comes  
obtaine  
mind, t  
the ten  
to pay  
report p  
ment of  
that the  
surpris  
ly for th  
about  
membe  
1874 to  
gross in  
was for  
more of  
was em  
an alto  
Montre  
good.  
hand a  
Since t  
has bee  
exhibiti  
stock, v  
year. I  
there is  
great fl  
hibition  
director  
care, to  
of worl  
paid, an  
it may  
bear co

In

everything undertaken involves a great deal of labor. The most disagreeable work, and involving the most waste of time is the collection of the members' fees. I think it is possible to keep the membership of the Society up to five or six hundred by means of ordinary collectors, but beyond that, it becomes almost a matter of personal influence, and the subscriptions thus obtained cost almost as much as they are worth. Still, it must be borne in mind, that the amount in members' fees usually obtained, over and above the ten to twelve hundred dollars before referred to, generally suffices to to pay the Secretary's salary, and all clerical expenses. In the Secretary's report published with the Ninth Report of the Society, may be found a statement of the receipts and expenditures of the Society for twenty years, showing that they had rather more than doubled in the last ten. It may, perhaps, surprise some, that the working expenses have been rather less proportionately for the latter ten years. The Secretary's salary from 1864 to 1873, absorbed about 13½ per cent. off the gross income, and about 45 per cent. off the members' fees, which included \$450 received for life-membership. From 1874 to 1883, the Secretary's salary absorbed about 13 per cent. off the gross income, and about 28½ per cent. off the member's fees, none of which was for life-membership. From the above it would seem as if the Society were more cheaply worked now than in former years. Extra clerical assistance was employed then as now, and having in mind the size of the exhibitions, an altogether larger staff was employed. At the close of the year 1873 the Montreal Horticultural Society was without position or power to do any good. Now it has a position equalled by few. At that time, it had cash in hand amounting to \$7.02, and plant estimated at about \$260 in value. Since then it has paid out over \$32,000 in various ways. About \$1,200 has been expended in purchase and improvement of materials used at the exhibitions, \$1,119 has been expended in the purchase of Bank of Montreal stock, which is held in reserve to meet all liabilities in the event of a bad year. Some \$700 of liabilities at this time last year, have been paid off, and there is a good balance now at the credit of the Society. In view of the great fluctuations of income secured from the public for entrance to the exhibition, varying since 1874 from \$118 to \$1,435, the various boards of directors must have managed the affairs of the Society with considerable care, to be able to present so good a result. The fact is that a great amount of work not generally known is done for the Society for which nothing is paid, and for which the Society could not afford to pay adequately. I think it may be said that, in usefulness at least, our work for the past year will bear comparison with that of any previous year.

In conclusion, I think that it is due to the members of this Society and

to other gentlemen who have assisted materially in the establishment of the Botanic Garden to make some reference to their services.

Our President, by his address before the Legislature at Quebec, placed the matter before the representatives of the people from all sections of the Province, thereby aiding the Society in obtaining needed legislation. In pecuniary and other ways, he has also contributed to the object in view. Our Vice-President, in his particular sphere, has thrown an amount of energy into his work and produced results which in so short a period, of time, are remarkable. The Hon. Mr. Beaubien, by his action in the Legislature, especially in connection with obtaining the grant of \$1,000 for preliminary expenses, has rendered a real service, and his interest and assistance in the project are unabated. The Hon. W. W. Lynch and other members of Parliament also showed a great deal of interest in the Garden. The rules of the House were suspended and everything done to facilitate necessary legislation. The Rev. Dr. Norman, whose interest in all things of an educational character is well known, has given much time to the work and aided in many ways. Mr. David Ross McCord, in legal matters, has greatly assisted the Association, and visited Quebec in its interests. Alderman Holland, aided by other members of the City Council, has advocated its cause at the different meetings of the Corporation, and Mr. Charles Gibb, whose keen interest in such matters is well known, has assisted it in a pecuniary way, as well as in many others.

The accounts of the Society have been audited and found correct, showing a balance on hand of \$655.37. Mr. J. M. M. Duff, the well-known accountant, has kindly performed this service for the past three years. Mr. C. S. J. Phillips kindly acted as assistant auditor this year.

HENRY S. EVANS,

*Secretary-Treasurer.*

TH  
then pro

To Ba  
" Gr

" Bo

" Di

" An

" Me

" Me

" Ca

" Su

" Ca

By An

" An

" Pr

" Ju

" Pa

" Li

" Re

" Pr

" Su

" Bo

" Ar

" Ex

" Pa

" Ba

Dr.

haustive

the Soc

having

the Arb

Garden,

Legislat

of the g

returned

said, ha

meeting

associati



The following report of the Secretary-Treasurer for the last year was then presented, duly audited, and accepted.

<i>Dr.</i>		
To Balance cash on hand 30th Nov., 1884.....		\$ 54 16
" Grant from Provincial Government in aid of the Arbor Day celebration.....		100 00
" Botanic Garden disbursements repaid.....		76 52
" Dividends on bank stock.....		66 00
" Annual grant from Provincial Government.....		1,000 00
" Members' fees received, 703 at \$2.00.....	\$1,406 00	
" Members' fees received, 18 at \$1.00.....	18 00	
	<hr/>	1,424 00
" Cash received for special prizes.....		18 00
" Sundries.....		9 36
" Cash received from Dominion Government in aid of collection of fruit for Colonial and Indian Exhibition...		150 00
		<hr/>
		\$2,898 04
<i>Cr.</i>		
By Amount of loan repaid.....		300 00
" Amount paid on account Ninth Report.....		340 00
" Prizes paid.....	146 75	
" Judges' expenses paid.....	20 80	
	<hr/>	167 55
" Paid for postage stamps.....		61 00
" Library account, including rent of room.....		115 30
" Rent and insurance.....		153 45
" Printing and advertising account.....		120 95
" Sundry accounts, including clerical assistance and collecting.....		137 05
" Botanic Garden expenses (refunded).....		78 62
" Arbor Day celebration expenses.....		134 00
" Expenses current to date, incurred in collecting fruit for the Colonial and Indian Exhibition.....		134 75
" Paid Secretary's salary.....		500 00
" Balance cash on hand deposited in Merchants Bank of Canada.....		655 37
		<hr/>
		\$2,898 04

Dr. Hunt then complimented the Secretary upon the able and exhaustive report which he had presented. He referred to the progress of the Society and its growth from a very small body to the importance of having charge of the forestry and culture of fruit in the Province, and of the Arbor Day celebrations. Referring to the establishment of a Botanic Garden, he sketched the history of the movement, and thanked the Quebec Legislature for the interest taken in the movement, which was an evidence of the growing importance of the Society in the eyes of the public. He returned thanks on behalf of the Society to the Hon. J. J. C. Abbott, who, he said, had done much toward providing excellent accommodation for their meetings in the Fraser Institute, and also for a depository for the books of the association. He hoped that the Institute would become a pleasing rendez-

vous for the members of the Horticultural Society. He felt great satisfaction in the present state of the Society and had high hopes for the future. Already the action of Montreal in establishing a Botanic Garden had furnished a precedent to the rest of the continent. He believed that, at this session of Congress, a bill would be passed to establish a Botanic Garden in the United States. He then read a letter from the Botanic Garden Association recommending that Rev. Canon Norman and Hon. Louis Beaubien, the retiring directors, be reappointed.

It was then moved by Mr. Cheney, seconded by Alderman Holland, that the report of the Secretary be adopted, which was unanimously agreed to.

Prof. Penhallow took occasion to return thanks to the Local Government for having undertaken, free of charge, the publication of the annual reports of the Association which he believed would be a saving to the Society of about \$300 per year. On behalf of the library committee, he thanked Mr. Charles Gibb for his very generous donation of books to the library of the Society.

On motion of Prof. Penhallow, seconded by Mr. A. T. Drummond, Hon. Louis Beaubien and Rev. Canon Norman were elected to represent the Society at the Botanic Association Board.

A vote by ballot was then taken for a new Board of Directors, when the old Board was chosen by a large majority over all others.

Prof. Penhallow then referred to the celebration of Arbor Day which would occur in the Spring. He said that he thought the Society should give some expression for the guidance of the Directors. They should feel their responsibility in carrying out the proper celebration of the day. He had no doubt that the Provincial Government would be glad to have the cooperation of this Society in this respect.

Alderman Holland moved that a Committee be appointed by the Board of Management to communicate with the Government regarding the celebration of Arbor Day and the grant for that purpose. This was carried.

Mr. Shepherd moved, seconded by Mr. Brodie, that a special meeting be held during the winter, and that fruit-growers from adjoining counties should be invited to attend.

It was then moved by Mr. S. S. Bain, seconded by Mr. Brodie, that an Exhibition of Chrysanthemums be held in November next. Mr. Bain said he would give as a first prize for the 12 best varieties of flowers for the season of 1886 the sum of \$20. Dr. Hunt said he would give as a second prize \$10, and Mr. Phillips offered \$5 as a third prize.

Remarks were then made by several gentlemen as to the holding of a floral exhibition and the expense necessary in carrying them on.

The meeting then adjourned.

The  
nomencl  
since its  
literatur  
so that t  
ledged o  
Of I  
received  
Russia.  
names v  
spelled i  
or whol

The  
ment of  
St. Peter  
Mr. Wm  
and inte  
to a Russ  
was not  
are rend  
point. Th  
be pronc  
these nar  
of half t

We  
these Ru  
*selonka*,  
We find  
Russian  
variation  
of those  
Russia, v

<sup>1</sup> A paper

*Nomenclature of our Russian Fruits.*<sup>1</sup>

By CHARLES GIBB, Abbotsford, P. Q.

The American Pomological Society has been the guardian of the nomenclature of our fruits. This has been the special duty of the Society since its origination. What L'Académie Française has been to French literature, to a certain extent has this Society been to American Pomology, so that the Society's catalogue is "the authority," and her dictum acknowledged over a wider area than any other Society in the world.

Of late, however, one foreign element has come in which has not yet received the Society's attention. Large importations have been made from Russia. These fruits have been propagated in this country under the names which they bore when they were received, viz., Russian names, spelled in all sorts of queer ways, or translations of them often unmusical or wholly wrong.

The first large importation of Russian apples was that of the Department of Agriculture at Washington, in 1870, received from Dr. Regel of St. Petersburg. The list, which was received with the trees, was sent by Mr. Wm. Saunders to the Russian Embassy at Washington, for translation, and internal evidence would seem to show that it was dictated by a Russian to a Russian or German clerk. It would seem, too, that the clerk's writing was not very legible: at least, the printer thought so. Then these names are rendered into English sounds, from a foreign, not an English, standpoint. Thus, *ov* and *ou* are intended to be pronounced "ov" or "off;" *ja* should be pronounced "ya". The Russian language is as musical as Italian; and these names, when properly rendered into English sounds, will be divested of half their difficulty.

We should aim at a certain amount of uniformity in the spelling of these Russian names. We find in the Departmental list *schlenka*, *sclenka*, *selonka*, *sclonnoe*, *selennoe*, *sclonniu*, *selanui*, *selomaja*, for the word "green." We find *scholti*, *schotoi*, *schaltui*, *scholtoe*, *scholto* for the word "yellow." The Russian language is rich in inflection, yet is not responsible for all these variations, and if I were to add to these variations the different renderings of those who have shipped orders to this country from different parts of Russia, we should have an approach to this state of things in England

<sup>1</sup> A paper read before the American Pomological Society at Grand Rapids, Mich., Sept., 1885.

when the name "Shakespeare" was spelled, it is said, in over thirty different ways.

The translation of these Russian names is often faulty. In the Departmental list, *Vasilui Velikui* is translated "Vassilis Largest." It should be "Basil the Great." *Pipka Gorkaya* is the "Bitter" not the "Butter Pipka." *Skrishapel*, evidently a German name, which comes through the Russian, does not, I am told, mean "Cross Apple." No. 231, *Solotoi arcad* is the "Golden Arcad," different in name and fruit from the "Yellow Arcad." In Minnesota, the *Lieby* is coming into notice on account of its hardness. *Teschanka* or rather *Leschanka*, I am told, means a "lying down" or "recumbent" form of tree, but the word *Lieby* but faintly suggests this. *Yantarnoe* is the "Amber" not the "Zantar Apple"; *Astrachanskoe skvosnoe* is not "Red Astrachan," but "Transparent Astrachan"; *Romenskoe* is translated "Omensk"! *Repristoe Walisonoe*, translated "Turnipy Juicy," seems to be *Rebristoe Nalivnoe*, and should be translated "Juicy Ribbed Apple." *Krimskoe nalivnoe* is translated "Juicy Krimtarter." It is true that the Krim, the inhabitant of the Crimea, as we would say, is a Tartar yet "Juicy Krimtarter" is a strange compound, and does not suggest a juicy Crimean apple. The translation of the German names needs amending. *Aport herbst* is translated "Autumn Orange," but *Aport* does not mean "orange." *Erdbeerapfel* or "Strawberry Apple," is translated "Red Calville." *Anasapfel rother*, or "Red Duck," is a puzzle. They say, it might be "Anna's Apple." Only in the sense of a tempting or endearing apple, could it be said to be a "duck" of an apple. It probably is intended for *Ananasapfel rother* or "Red Pine." It is difficult to say why it is translated "Red Duck" when, even in the dry prairie climates, it shows no trace of red. The importance of this work was not understood at the Russian Embassy; and it was done, not only hastily, but carelessly; besides this the MS. sent in by the Department was lost, and Mr. Saunders was compelled to issue it in its present form.

Let us pass now from the importations of the Department to those of the Iowa Agricultural College—large importations from different parts of Russia, around which our hopes so largely centre. I have seen the original lists which accompanied three of these importations, viz., those from St. Petersburg, Moscow and Voronesh. In these lists the names are rendered from a foreign or non-English standpoint, and each from a standpoint of its own, causing great variation. I will give one instance, an extreme one. In the list received from the Academy at Petrowskoe Rasumowskoe, near Moscow, *Lietnaya* is spelled "Letnjaja," while in parenthesis, a suggestion is added that we should spell it "latnyagh." Owing to these several difficulties, the apples of the St. Petersburg and Moscow importations have so far been sent

out by  
varietie  
been se  
by tran  
konetch  
MS. tha  
the nam  
This sh  
tation v  
five var  
a versio  
tion is r  
There i  
Society  
and the  
done at

An  
a good  
by seed  
isolated  
from se  
rather t  
Alexan  
several  
like it.

Let  
St. Pete  
Petrows  
from a  
That re  
That re  
Petrows  
same in  
same in  
near Ku  
recogniz  
different  
Departm  
by the  
differen

out by numbers ; but mistakes always have and always will creep in when varieties are sent out and received by number. Later importations have been sent out, mostly by name, usually by Russian name, though sometimes by translated, and, in some few cases, by wrong names. The *Pipka ostrokonetchnaya* was received from Moscow, and as it was supposed from the MS. that the word began with an *a* instead of an *o*, it was propagated under the name of "Astrachan Pippin." It means the "Sharply-pointed Pipka." This shows the necessity of going to the Russian original. Another importation was that by Ellwanger & Barry, from St. Petersburg, of about thirty-five varieties of apples, a list of which they kindly sent me. Each shipper has a version of his own, and the trouble is that the "Zuzzoff" of one importation is not recognized to be the same in name as the "Jussow" of another. There is but one way of stopping all this confusion, and that is for this Society to publish these lists of imported fruits, giving the Russian name, and the name by which each variety is to be grown. This work can be done at once, and without any serious difficulty.

Another work remains undone, a work for the future and attended with a good deal of difficulty. In Russia, apples have been grown for centuries by seedling production. In some cases, no doubt, certain families of apples, isolated from other families, have been more or less reproducing themselves from seed. Hence *Aport*, *Borovinka*, *Arcad*, *Arabka*, etc., are names of families, rather than of individual varieties; and if we were to import *Aport* or *Alexander*, from twelve different parts of Russia, we might expect to get several varieties, most of which, though not *Alexander*, were more or less like it.

Let me cite another case. *Arabka* was brought to this country from St. Petersburg, by the Department ; as well as direct from Dr. Regel ; from Petrowskoe College, by Iowa Agricultural College ; by Ellwanger & Barry, from another source in Moscow, and also from Kursk and Voronesh. That received by the Department proved to be "Duchess"<sup>a</sup>—a mistake. That received by Ellwanger & Barry from Moscow, and that from Petrowskoe College, at Moscow, by Iowa College, do not seem the same in growth ; that fruited by Ellwanger & Barry does not seem the same in fruit as that which Mr. Budd and I saw on the Bogdanoff estates near Kursk, nor like the Volga specimen which Mr. Fischer of Voronesh, recognized as *Arabka*. It seems as though we had two if not three, different varieties, among these six *Arabkas*, not counting that of the Department, which is a mistake. Besides this, *Herrenapfel* was imported by the Department from Dr. Regel, and by the Iowa College from two different sources in Riga, as well as from Vilna. *Herrenapfel* is an "*Arabka*."

So we have Arabka in this country from ten sources! Imagine the care that will be needed to prevent confusion. Here lies the greatest difficulty in regard to the nomenclature of the Russian Fruits; a difficulty, however, which will be overcome in time, owing to the extensive importation and propagation carried on by the Iowa Agricultural College.

A minor difficulty allied to this is that of tracing to their source varieties that reach us in roundabout ways. Ellwanger & Barry, of Rochester, received, I believe, from Rivers & Son, Sawbridgeworth, England, "Peter the Great." There is no *Peter Vilikui* mentioned by Regel, nor in any Russian catalogue I have seen. Is this, then, the *Petrovskoe* of Regel, which in the Department list is translated "St. Peter"? Yet Peter the Great of Russia, who built his city on the Neva, was not a Saint. I have fruited Count Orloff, Grand Sultan, and Red Transparent, from this source, and find them all "White Astrachan." Can I assume that I have fruited the *Sultanapfel* and *Orlovskoe*, of Regel? How unsatisfactory is conjecture.

There are two ways of dealing with foreign names of fruits; one is by translation, just as in Russian catalogues I find *Kentskaya Krasivitsa* for "Beauty of Kent," and *Klapovka* for "Chapp's Favorite." The other method is to retain the name in the language of its native land, and thus give to it the universality of a Botanic name. This is the method coming into favor among European Pomologists, and I regret we can adopt it only in a very limited way. Names like *Schirokolitchiko*, or *Steklianka Ostrokovskaya* must not be admitted. We need names that our farmers can spell and pronounce. On the other hand, let us beware of the fault of over-translation. *Titovka* is a better name than "Titus Apple," and, besides, it points directly to its origin, the hamlet of Titov, near Kaluga. *Borovinka* is a better name than "Mushroom"; *Arcad* better than "Arcadian," *Arabka* than "Arabian," *Anis* than "Anisette," and *Antonovka* perhaps better than "Anthony."

In conclusion, I will say, that if we are to have no more "Stumps of the World," or "Sucker States," then let us have no more "Vasilis Largest," or "Juicy Krimtarter," and let us have one way of spelling *Antonovka*, as we have now, more or less, one way of spelling *Shakespeare*.

I trust this Society will at once consider this matter, and give to these Russian Fruits the names they are to be known by on this Continent.

Sin  
been w  
experie  
not be  
an old  
never b  
ported  
But the  
its hist

It c  
man see  
an old E  
known  
wrought  
English

*The Winter St. Lawrence Apple.*

By R. W. SHEPHERD, JR., Montreal.

Since the Fifth Report of the Society was issued in 1879, not much has been written about this very promising variety. We have now had some experience in growing this apple, and remarks upon the tree and fruit will not be uninteresting. Whether the Winter St. Lawrence be, as reported, an old English apple or a Canadian seedling (like Fall St. Lawrence) may never be finally decided. Trees of this variety are said to have been imported from England over fifty years ago, under the name of *Manx Codlin*. But the apple is certainly not a *Manx Codlin*. It is probable, I think, that its history is rather confused, and may never be fully known.

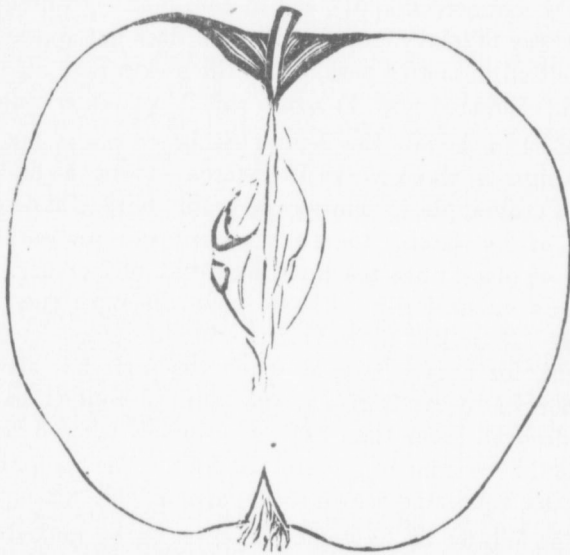


FIG.—WINTER ST. LAWRENCE.

It certainly shows such very near kinship to one or two of the Newman seedlings that I am inclined to claim it as a Canadian apple. If it be an old English variety, it is strange that such a fine fruit is not universally known in England; but perhaps the improvement in coloring and size, wrought by our Canadian climate, prevents its being recognized as an English apple.

B

There is no doubt, however, about its being a most valuable acquisition to our fruit list. The tree has proved to be quite hardy. On gravelly soil I have some thirty trees, planted about eleven years, not one of which shows the slightest disease or decay of any kind, while the Fall St. Lawrence in the same orchard, on the contrary, is not thriving satisfactorily.

The Winter St. Lawrence is a stout tree, having strong shoots of vigorous upright growth which ripen their terminal buds perfectly. I like a tree with a stout trunk; it has an appearance of longevity, which varieties of a slim growth have not. The tree does not require much pruning, a great advantage in this severe climate, for, in many cases, disease is the effect of pruning. It bears its fruit, as a rule, on the fruit spurs of the larger branches every year, but more heavily the alternate year.

The fruit drops less from the tree than any other variety I know of; this is owing no doubt to its stout trunk and branches which prevents the tree from swaying about in high winds, and to its short thick stalk which has a firm hold of the branches. This dropping of the fruit is a weak point in a commercial apple, and discounts any advantages that there may be in the way of heavy crops. The fruit does not appear to be much affected by the Codlin moth; perhaps its thick skin may account for this. Nevertheless as compared with Fameuse this is particularly noticeable.

When pulled in the fall, the Winter St. Lawrence is not good for eating, but a fortnight or three weeks afterwards—about the middle or end of November, as a table apple, it compares favorably with, if it does not surpass, most varieties of its season. Carefully picked and packed, the fruit will keep, in a proper place, until the middle or end of January. It will not export in barrels satisfactorily. I have made the experiment on two separate occasions. If packed in barrels, the heads ought not to be pressed down too tight, for I have noticed when the fruit has been too closely packed together, the decay begins at the point of contact, and it seems as if this apple decayed faster than any other when bruised by pressing in barrels. I should recommend packing the fruit in the Cochrane apple-case, which avoid the squeezing which seems unavoidable when put in barrels.

I think the Winter St. Lawrence deserves to be ranked as one of the leading varieties to be recommended for cultivation in this Province, both on account of its hardiness of tree and excellence of fruit. The fine appearance of the fruit commands a ready sale at high prices, and its superior quality is recommendation that its growing popularity as an early Winter fruit will not soon die out.

In  
of Pom  
When  
up the  
the po  
far as v  
in 1882  
school  
them in  
precedi  
orchard  
the que  
by rare  
work in

BAU  
beautifu  
The tree  
Rudolf  
his bea  
logie," d  
covered  
The fles  
very agr  
keeps un  
kind. T

\* The  
Rother Eis  
and those  
Lauche.



*The Hardy Fruits in Wurtemberg.\**

By CHARLES GIBB, Abbotsford, P. Q.

In Europe, Pomology is studied as a science, and men attend schools of Pomology, just as they attend schools of law or medicine in this country. When Prof. Budd and myself, in 1882, were on our way to Russia to look up the fruits of the cold climates of the old world, we stayed at several of the pomological schools, noted their opinions of their best fruits, and, as far as we could, formed our own. The late venerable Dr. Lucas, who died in 1882, made fruits the study of his life. He gathered, at his pomological school at Reutlingen, all the good varieties he could get hold of, tested them in his grounds, and recorded his opinion on them. The two winters preceding our visit had been unusually severe, and the Würtemberg orchards were seriously injured. What varieties had stood this test was the question we specially asked. Mr. Fritz Lucas had grown up surrounded by rare opportunities, and such opinions must help to guide experimental work into profitable channels.

APPLES.

*Late Winter Varieties.*

BAUMANN'S REINETTE.—Mr. Fritz Lucas describes this as a large and very beautiful and good fruit, in season from winter until the following summer. The tree is productive, and the fruit valuable for the market. Prof. Dr. Rudolf Stoll of the Pomological school at Klosterneuburg, near Vienna, in his beautifully illustrated work the "Österreichisch-Ungarische Pomologie," describes this fruit, a medium-sized, flattish conical apple, entirely covered with dark carmine, in which some darker stripes may be noticed. The flesh is yellowish-white, fine in grain and moderately juicy, with a very agreeable wine-like sugar flavor. The fruit ripens in December and keeps until mid-winter, and for market and home use is a most valuable kind. The tree thrives well on dry soils and in bleak exposures and more-

\* The cuts of Baumann's Reinette, Danziger Kantapfel, Purpurrother Cusinot, and Rother Eiserapfel are copied from the "Österreichisch-Ungarische Pomologie" by Dr. Stoll and those of Boikenapfel and Grosser Katzenkopf, from the "Deutsche Pomologie" of Mr. Lauche.

over bears early and abundantly. According to the "Illustrirtes Handbuch", by Lucas & Oberdieck, this variety should not be absent from any garden.

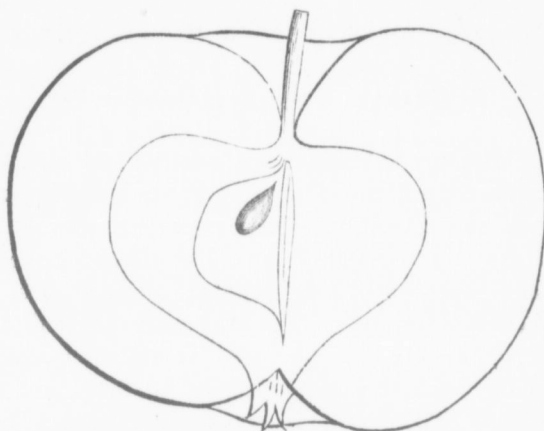


FIG. 1.—BAUMANN'S REINETTE.

Mr. W. Lauche, Royal Garden Inspector of Berlin, in the "Deutsche Pomologie," a work which gives full descriptions and beautiful colored plates of fifty of the best varieties of apples for Germany, describes this apple. It was grown by Van Mons, and named in honor of Napoleon Baumann, proprietor of the nursery in Bollweiler in Alsatia. At the Seventh Assembly of German Pomologists at Trier in 1874, it was named among the fifty best varieties, and at Potsdam, in 1877, included in the list of ten best varieties for cordon training. It deserves to be in general cultivation for its productiveness, beauty and quality. The flesh is yellowish-white, fine grained, very juicy, and of a peculiar vinous acid and spicy flavor, and is useful both for table and for cooking. It is in season in December and keeps till March. The tree is vigorous in growth, but not large. It is uncommonly fruitful, and flourishes in any good soil, and does not lack hardiness.

BOIKENAPFEL.—Mr. Lucas says that this is a remarkably fine fruit for kitchen or for table. The tree is a young and abundant bearer and bears well in unfavorable places. It is in season in January and keeps till summer. Mr. Lauche says that this is a common apple tree in the neighborhood of Bremen where it has been highly prized for a long time. It is said to have been named *Boiken* after a former official. Oberdieck called attention to it at Berlin in 1860, but it was for the first time included in the fifty best kinds at the meeting at Trier. In Germany it is not widely distributed as yet, but deserves to be. The flesh is snowy white, fine grained,

juicy, o  
January  
mer an  
exposur

Dr.  
He des  
sunny s  
Dr. Sto  
properl  
is diffic  
keeping  
every y  
rather c

BR  
and del  
ripens i

DA  
large, d  
from fa  
ville pr  
Flesh v  
cately f  
October

juicy, of an agreeable spicy vinous acid flavor. It ripens in the cellar in January and keeps till summer. A very good cooking apple and in summer an agreeable table fruit. It thrives in all kinds of soil and on every exposure. The tree is very healthy. It blossoms very late and bears well.



FIG. 2.—BOIKENAPFEL.

Dr. Stoll also gives a description and a beautiful Plate to this apple. He describes it as a clear yellow in color, with more or less blood-red on the sunny side. By the Plates given it seems to be a fruit of rather large size. Dr. Stoll's account of it agrees with that of Mr. Lauche, and says that if properly stored it will keep till the following summer. For the market, it is difficult to find a "better constructed" apple, and its quality and its long-keeping properties impart to it extraordinary value. The tree bears almost every year. It is not sensitive to bleak exposures, and grows well even in rather dry soils.

**BRETAGNER REINETTE.**—Mr. Lucas says that this is a very beautiful and delicate apple, a red reinette of large size and unusually fruitful. It ripens in November and keeps till March.

**DANZIGER KANTAPFEL.**—Mr. Lucas mentions this as an eminently large, dark-red apple, for table and kitchen use, a good bearer and in season from fall till winter. Dr. Stoll describes it as an apple "built on the Calville principle," with characteristic ridges running from calyx to stem. Flesh very fine grained, full of juice, and, as Oberdieck says, it has a delicately flavored, refined acid sugar favor. It ripens about the middle of October and keeps till February. When fully ripe, it is a very fine table

apple and one of the best for cooking, and Lucas recommends it strongly for fruit-wine. Although this delicate fruit bruises readily, these bruises are not apt to cause decay. The tree thrives well in bleak situations and in any good soil, and when well grown is very fruitful.



FIG. 3.—DANZIGER KANTAPFEL.

Mr. Lauche says that the origin of this apple is not known. It has been distributed for a long time under most diverse names in Holland and Germany, and was recommended for general cultivation at the first meeting of German Pomologists at Naumburg. Mr. Lauche's opinion agrees pretty much with that of Dr. Stoll. The colored plates represent this as a good sized apple mostly deep-red, such a fruit as would sell well anywhere.

GRAUER KURZSTIEL, (*Carbanter*).—The Grey Short-stem, Mr. Lucas says is a much prized apple either for table or cider and that the tree is very hardy and a good bearer. Season, winter. Dr. Stoll gives this as a synonym of the *Königlicher Kurzstiel* (or "Court pendu rouge"), which is pictured and described both by Dr. Stoll and Mr. Lauche as a medium-sized, flattish, attractive reddish-yellow apple "of noble, peculiar, spicy Reinette flavor." It is of fine quality and keeps till March. Mr. Lauche says it was described in 1613 and has been very widely distributed.

GROSSE CASSELER-REINETTE.—Mr. Lucas says that this is a large beautiful gold-reinette. This tree is unusually productive. The fruit very fine for table and for cider, and keeps for a year. Messrs. Simon-Louis describe it as rather large, roundish, stained and striped with crimson on

dull go  
flavor;  
spring;  
univer

Ko  
cent an  
tree is

Lu  
good y  
Season

GE  
beautif  
fruitfu  
Pepin  
crisp, v  
spring.  
"Pepin

PU  
keeper;  
is of G  
especial  
as an u  
time in

dull golden ground; flesh fine-grained, firm, sugary and of very agreeable flavor; of first quality for table or cooking. Season during winter and spring. The tree is vigorous, bears early, and is very fruitful. A variety universally appreciated.

**KONIGIN OLGA-APFEL** (*Queen Olga*).—Mr. Lucas says this is a magnificent and a very good and fruitful Borsdorf-Reinette from the Ukraine. The tree is a very strong grower, and hardy, and very much to be recommended.

**LUXEMBURGER REINETTE**.—Mr. Lucas says is a large, beautiful and good yellowish green Rambour-Reinette. Tree very hardy and fruitful. Season from winter till the following summer.

**CELKOFER PEPPING**.—According to Mr. Lucas a small, delicate, very beautiful winter apple. Tree of medium size and very hardy and very fruitful. Messrs. Simon-Louis in their "Guide Pratique" describe the Pepin d' Celkofen as a fruit like the Pepin d'or, but a little larger. Flesh crisp, very juicy, of first quality and ripens towards the end of winter and spring. Tree a slow grower, but very productive. I may add that this "Pepin d'or" is the *Pepin d'or de Bull*, that is "John Bull's Golden Pippin."

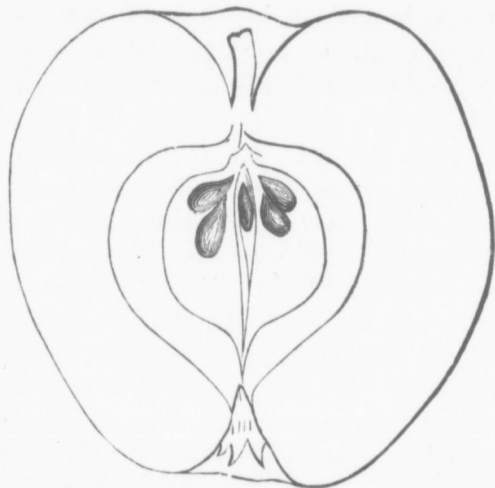


FIG. 4.—PURPURROTHER CUSINOT.

**PURPURROTHER CUSINOT**.—Mr. Lucas says, very valuable and a good keeper; tree strong, durable and very fruitful. Mr. Lauche says that this is of German origin, and that it is distributed under a great many names especially in Brandenburg and Hanover. Oberdieck drew attention to it as an unusually fruitful cooking apple at Gorlitz, but it was for the first time included in the fifty best kinds at the Seventh Assembly of German

Pomologists at Trier. The flesh is yellowish-white, often stained with red, fine grained, juicy and of a vinous-acid sugar flavor. An extra good cooking apple, also esteemed as a dessert fruit. It begins to ripen in the cellar in December and keeps till summer. The tree grows rapidly; it is unusually fruitful, flourishes in every kind of soil, and can be recommended for bleak exposures.

Dr. Stoll endorses its good qualities and speaks of it as a fruit for home use of the highest usefulness. Its great productiveness—bearing nearly every year—makes it a friend of inestimable worth to the countryman. The fruit, although not first class for the table, is first class as a market apple and for drying and cider. The fruit is sent every year into the markets of Prague, Breslau, Berlin, etc., by thousands of cwts. The tree is not sensitive to unfavorable climatic influences. As pictured by Dr. Stoll and by Mr. Lauche this is an unusually attractive dark-red apple and there seems to be no difference of opinion as to its general useful qualities.

ROTHER EISERAPFEL.—Mr. Lucas says a good medium-sized apple that keeps for one year. The tree is a strong grower and very hardy and fruitful. Mr. Lauche states that this is of German origin, and that as early as the sixteenth century it was extensively grown around Bamberg and Nur-

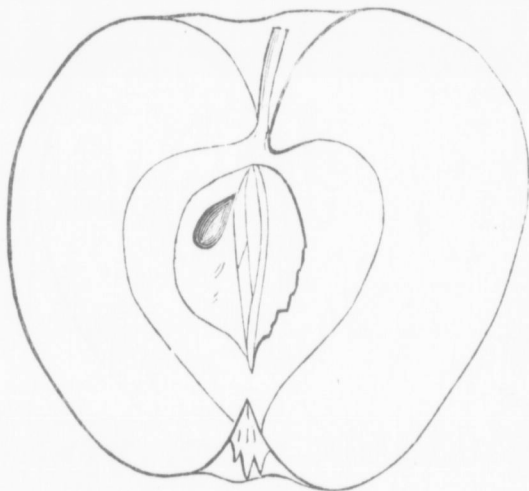


FIG. 5.—ROTHER EISERAPFEL.

emberg and that it is widely distributed through Germany. At the Second Assembly of German Pomologists at Gotha in 1857, it was recommended for general cultivation. The fruit has a yellow ground mostly covered with dull red, and in flavor is a somewhat sweetish vinous acid, first rate for cooking, and also "agreeable for raw enjoyment." It begins to ripen in

January  
hardly  
and in

Dr  
toward  
account  
desirab  
should  
mercian  
the "E  
"Court  
well on

Ro  
tioned  
size, ve  
this as  
variabl  
shade.

berry.  
modera  
soils.  
and say

W  
small ap  
ter. Dr  
quality  
for cide  
towards  
neither  
special

Zw  
Tree of  
ruary.  
Ognon.  
yellow.  
exceller

Th  
those th

January and, when properly stored, keeps through the entire summer, and hardly ever spoils. It bears very heavily, flourishes in bleak exposures, and in every kind of soil, provided it be not too dry.

Dr. Stoll also pictures and describes this fruit and says that it ripens towards Christmas, and keeps till harvest, but is rather mealy then. On account of its long keeping, it is a treasure to apple growers; but it is not desirable as a table fruit until all other kinds have become scarce. It should only be planted in damp soils, and then is one of the best commercial apples. Dr. Stoll says this is the apple described by Dr. Hogg in the "British Pomology" and in Downing's "American Pomology" as "Court pendu plat." I will add that an apple under this name has done well on the College Grounds at Ames, Iowa.

ROTHER WINTER HIMBEERAPFEL.—The Red Winter Raspberry is mentioned by Mr. Lucas as a noble large red Calville. The tree is of medium size, very fruitful and hardy in bleak exposures. Messrs. Simon-Louis give this as a synonym of *Calville Rouge d'Hiver*,—a fruit of rather large size, variable in form and ribbed, and almost entirely covered with red of one shade. Flesh stained with red, tender, with a perfume like the strawberry. Of first quality for table or kitchen. Season, winter. Tree moderately productive and vigorous, but does not do well in clayey or moist soils. Dr. Stoll also praises the Calville Rouge d'Hiver in very high terms and says it is specially suited to connoisseurs of fine dessert fruit.

WEISSER WINTER TAFFETAPFEL.—Mr. Lucas notes this as a beautiful small apple, pleasantly acid, very fruitful and in season from fall till winter. Dr. Stoll speaks of the beautiful wax-like skin of this apple, its fine quality and the high price it commands in the Vienna market, and its value for cider, drying, and preserves. It begins to lose its fine table qualities towards the beginning of the New Year. This apple, it would seem, has neither the size, nor deep color, nor keeping qualities to commend it for special trial in this country.

ZWIEBEL-BORSBORFER.—Mr. Lucas says a good apple for table or cider. Tree of middle size, hardy and fruitful. Season from November till February. Messrs. Simon-Louis state this to be a synonym of the *Borsdorf-Ognon*. Fruit, they say, small, the shape of an onion, a pale clear brilliant yellow. Flesh very fine, firm, mild, very sugary and of very fine flavor, excellent. It ripens during winter. A singular but beautiful fruit.

#### PEARS.

The question we asked about pears was: What are your *hardest* kinds, those that have stood the most trying winters without regard to quality?

The answer was given in the following list of nine varieties, the first four of which are dessert fruits, and the remaining five of use for cooking and cider only.

**MADAME FAVRE.**—Mr. Lucas says of this, a large roundish beautiful and fine fruit. Tree very stocky in growth and very fruitful. Messrs. Simon-Louis describe it as a rather large, rounded and ridged fruit; greenish yellow, stained with greyish red, and washed with vermilion. Flesh very fine, very juicy, very sugary and deliciously perfumed; of first quality. Ripens at the beginning of September. Tree vigorous and productive.

**TRIUMPH VON JODOIGNE.**—Mr. Lucas says a very large pear, clouded red. Season, winter. The tree is very vigorous in growth and is suited to moist soils. Messrs. Simon-Louis describe this in their list of "first series of merit." Fruit large or very large; pale greenish yellow, sometimes washed with red, half buttery, juicy, sugary and of agreeable perfume. Season, end of autumn. A very beautiful fruit of variable quality.

**WINDSORBIRN.**—Mr. Lucas says, a really good, rich, juicy, summer pear. The tree makes vigorous growth and bears young and abundantly. Dr. Robert Hogg in the "Fruit Manual" says that the Windsor (perhaps the above) is undoubtedly of foreign origin and that it is shipped in quantity to London from Oporto, and is a summer pear of fine quality.

**ULMER BUTTERBIRN.**—Mr. Lucas says, a delicate, medium-sized, egg-shaped, very beautiful pear. The tree is a handsome grower, hardy and abundant bearer. Season, October. Messrs. Simon-Louis state that they received this from Würtemberg. Fruit medium in size, egg-shaped, very pretty; of first quality. Season, October. Tree vigorous, hardy and very fruitful.

#### HARDEST PEARS FOR COOKING AND CIDER.

**BETZELSBIRN.**—Mr. Lucas says a very good pear for cooking and cider and preserves, nearly medium in size. Tree, a good grower and fruitful. Season, November and December. Messrs. Simon-Louis describe it as a roundish yellow fruit of medium size; for cooking and for cider. In season from January till April. Tree large and very hardy.

**GROSSER KATZENKOPF.**—Mr. Lucas says a very large, roundish, rusty spotted cooking pear. Tree very vigorous, hardy and very productive. Season, January to February. Mr. Lauche says that this pear had its origin in Germany and that it can be traced back to the sixteenth century. About 1590 it was propagated in the Bamberg nursery schools, and was brought by local dealers along with other varieties into Saxony, Thuringia,

Hanove  
whence

gists in  
general  
size; fle  
sweetne  
enjoyabl  
on the v  
suscepti



Hanover and Holland. Thence it was without doubt brought to Cadillac whence it received its name. At the First Assembly of German Pomolo

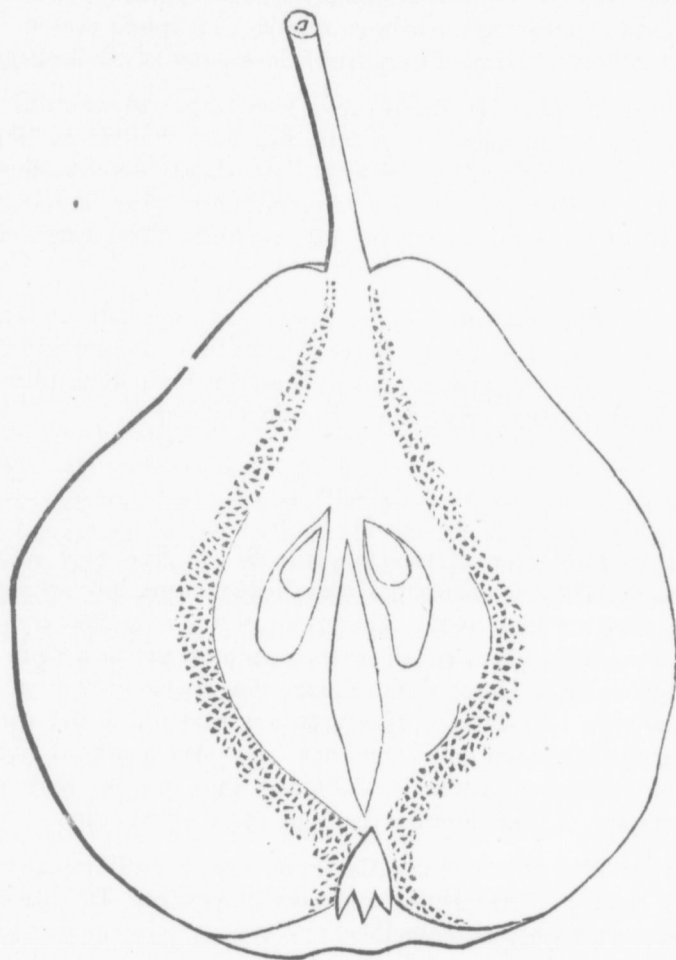


FIG. 6.—GROSSER KATZENKOPF.

gists in 1853 at Naumburg it was recommended as a commercial fruit for general cultivation. Dr. Stoll says that this fruit is often of enormous size; flesh firm, very coarsely granular, slightly astringent and without sweetness or aroma, but not bad after all, though sometimes absolutely unenjoyable. However in 1881, apart from its beety character of flesh, it was on the whole agreeable. Tree vigorous, very productive and seems little susceptible to soil and climate.

**GROSSE ROMMELTER.**—Mr. Lucas says, a medium-sized round green fruit, good for cider. Tree vigorous and an unusually heavy bearer, and thrives almost anywhere; season, October. Messrs. Simon-Louis say fruit of medium size, round green; of first quality for cider; season, October. Tree very vigorous, of extraordinary fruitfulness, and succeeds everywhere.

**OCHSENERZBIRN.**—Mr. Lucas says a very large and beautiful cooking pear. Tree large, very stocky in growth, and very fruitful in rich soils; season, October and November. Messrs. Simon-Louis describe this under the name of *Cœur-de-Bœuf*, as a very large pyriform pear, largely washed over with dull red. Season, autumn; use, cooking. Tree large, vigorous, and very fruitful.

**WEILER' SCHE MOSTBIRN.**—Mr. Lucas says a small greenish-grey roundish pear, very bitter, but up to the present time the best of all known pears for cider. The tree is an abundant bearer, is a vigorous grower, very hardy and thrives almost anywhere. Season, October.

#### PLUMS.

The plums of Western Europe as a rule do not give good satisfaction in our climate. They do sometimes bear heavy crops, but not regularly, and the trees are not long-lived. The prune plums, as a class, are noted in Western Europe as hardier than the ordinary plums, and in Eastern Europe in the cold climates of Moscow and Kazan, the plums grown are mostly of the prune type. In Europe these types are recognized and catalogues head their lists "Pflaumen und Zwetschen," and men plant out orchards of Pflaumen or Zwetschen, just as in California they set out their acres to raisins or grapes. I shall describe them in alphabetical order.

**ESSLINGER FRUHZWETSCH.**—Mr. Lucas says a medium-sized fruit of remarkable beauty. The earliest and best of prunes. Tree exceedingly fruitful and very highly recommended.

**FRANKFURTER PFIRSICH-ZWETSCH.**—Mr. Lucas says a remarkably beautiful prune for dessert. Tree very fruitful.

**FRUHE REINECLAUDE.**—Mr. Lucas says a beautiful fruit very similar to the Grosse Reineclaude, but ripens fourteen days earlier. Very productive. Season, middle of August. Messrs. Simon-Louis state this to be a synonym of the *Reineclaude Davion* which they describe as a medium-sized roundish fruit mostly rose-violet in color, and of first quality. Season, end of July. Tree a moderate grower, a young and abundant bearer.

GRAF ALTHANNS REINECLAUDE.—Mr. Lucas says a specially beautiful, clear-red plum. Extra good and very fruitful, a new variety; ripens beginning of September. Messrs. Simon-Louis speak in high praise of this variety. It originated in Bohemia, and is as yet rare. It is of the highest order, according to the reports we have of it, and its varied good qualities unite in declaring it without an equal among table plums. On account of the firmness of the skin and flesh it is specially fit for shipment.

GROSSE REINECLAUDE.—Mr. Lucas says the most prized and the best kind of plum. Very valuable for table or cooking. Season, end of August and beginning of September. Messrs. Simon-Louis state this to be a synonym of the well-known *Reineclaude*, which they say is, of all plums, the finest in quality, but variable as to yield and vigor of tree.

ITALIENISCHE ZWETCHE.—Mr. Lucas says a very large and a very fine plum for the table or for drying, in season from the middle to the last of September. The tree prefers rich moist soil. Messrs. Simon-Louis mention it as a precious variety for favorable localities, and not suited to cold soils.

KIRK.—Mr. Lucas says, a very large and a very good dark red plum, in season during the first half of September. Tree uncommonly fruitful. Messrs. Simon-Louis speak well of this variety. They say, fruit large, violet-black, juicy, very sugary and perfumed; ripens the end of August and beginning of September, a fine and excellent plum. Tree vigorous, hardy and fruitful. Dr. Stoll also describes and pictures this plum, and says fruit large to very large, holds well on to the stalk; dark violet, covered with light-blue bloom; flesh firm, overflowing with juice, sugary sweet, with a delicate aromatic flavor; a magnificent table and market fruit, which ripens during first ten days of September. Tree vigorous, very fruitful and not sensitive to soil and climate.

MONTFORT PFLAUME.—Mr. Lucas says, a large, blue-black, roundish-oval plum, very delicate. Tree very fruitful; season from middle to end of August. This is endorsed by Messrs. Simon-Louis.

SPATE MUSCATELLER PFLAUME.—Mr. Lucas says, a large oblong bluish black plum of fine quality. The tree is very productive; season middle of September. It is described much in the same way by Messrs. Simon-Louis.

SCHONE VON LOWEN (*Belle de Louvain*).—Mr. Lucas says a very large and beautiful reddish blue plum; egg-shaped. Tree very vigorous in growth. Season, September 1st. Messrs. Simon-Louis state it to be of pretty good quality for the table and first rate for cooking. It recommends itself on account of its beauty and its tendency to hold on firmly to the tree.

RIVER'S FRUHPFLAUME.—Mr. Lucas says a very early and good and medium-sized plum. Tree very hardy and fruitful. In season till the end

of July. Messrs. Simon-Louis say fruit small, almost round, reddish black; fine, juicy, sugary and agreeably perfumed. Ripens the middle of July. Tree vigorous when young, but comes early into bearing, and remains small. The best of the very early plums.

REINECLAUDE VON QUILLINS.—Mr. Lucas says a large, roundish, yellow, very good and beautiful fruit, as large as the Grosse Reineclaude and just as fine. Season middle of August.

WANGENHEIMS FRUHZWETSCHKE.—Mr. Lucas says a medium-sized, oval, dark violet prune. Tree very stocky in growth, hardy and very fruitful. Season, end of August and beginning of September. Messrs. Simon-Louis mention the vigor, early-bearing, hardiness and fruitfulness of this tree, and add that it is a variety of the common prune.

#### CHERRIES.

The cherry has been carefully classified by European authorities. Dr. Stoll divides them into ten groups; the Pomological Institute at Troja, in Bohemia into nine; and Dr. Hogg, of London, into eight groups. The Geans (*guignes*) and Bigarreaus. I shall not note, as they are not hardy here. The Dukes and Morellos are divided by these three authorities into the following four groups:—

I.—SUSSWEICHSELN (*Griottes douces* or *Black Dukes*).—Acid cherries with dark skin, and untinted juice, trees and foliage large, and resembling sweet cherries, such as Belle de Chatenay, Archduke, May Duke, etc.

II.—GLASKIRSCHEN (*Cerises transparentes* or *Red Dukes*).—Acid cherries with clear skin untinted flesh, and trees and foliage resembling sweet cherries, such as Reine Hortense, Belle de Choisy, Transparente d'Espagne, etc.

III.—WEICHSELN (*Griottes noirs* or *Black Morellos*).—Acid cherries with dark skin and tinted juice, leaves small and trees spindley, like that of the acid cherry, such as Ostheim, Brüssler braune, Double natte, Griotte du nord, Vladimir (of Russia), etc.

IV.—AMARELLEN (*Amarells* or *Griottes claires*, *Red Morellos* or *Kentish*).—Acid cherries with clear skin and untinted juices, and trees like Group III, such as Grosser Gobet, Schatten amarel, Kentish, Flemish, etc.

This grouping is very clear, and yet some varieties may be difficult to classify, e.g., the Kleparovka or Griotte de Kleparov is classed by the Troja Pomological School, as a *Sussweichsel* or *Black Duke*, and by Dr. Hogg, as a *Black Morello*. Some apply the term *Griotte* to all Dukes and Morellos, and others only to Group III, the Black Morellos. This is the group of

greatest promise of value to us, and yet I shall be surprised, if we do not find some of the Dukes valuable as well.

Dr. Stoll remarks that cherry-growing does not pay, often it hardly pays for the picking. This, however, is because they are often planted in soils that will produce nothing else. Yet, to be profitable, they should be planted in such quantity as to establish a business. Would that cherries here were so plentiful as to be hardly worth picking. I have already shown that in climates colder than our own, they are the food of the peasant. Then, why not here ?

DOPPELTE VON DER NATTE (*Double Natte*).—Mr. Lucas says a very good Weichsel, which ripens beginning of July. Messrs. Simon-Louis describe it as a fruit of medium size, almost round, brownish black; flesh soft, with a certain acidulated flavor, very agreeable to the taste of some people. Ripe, middle of July. A variety of Griotte.

GROSSER GOBET, (*Kurzstielige von Montmorency, or Short-stem of Montmorency*).—Mr. Lucas says, a very large and beautiful glass cherry. Unusually fruitful, and good for table or cooking. Dr. Stoll pictures and describes this fruit as large, or very large, flattened at each end, with a deep furrow on one side, dark red, transparent; flesh, not firm, juicy, acid and bitter, but when fully ripe, milder. It ripens during the fourth or fifth week of the cherry season. As a market fruit, valuable on account of its size, and its short stalk. Its cultivation is highly recommended, but only on favorable conditions of soil. In dry or poor soil the tree is quite unfruitful. Messrs. Simon-Louis speak of it as a fruit variable in quality, and the tree not a good bearer.

GROSSE LANGE LOTHKIRSCH (Doppelte Schattenmorelle).—Mr. Lucas says a very large, often roundish-oval, blackish-red, beautiful cherry for preserving. Messrs. Simon-Louis describe this under the name of *Griotte du nord*; a rather large, roundish fruit, with long stalk; flesh, a little firm, dark-purple, juicy, vinous, acidulated; ripens the end of July. Tree, very fruitful, and may be grown in any form, but its true place is as an espalier, when the fruit remains on late into autumn.

KONIGIN HORTENSIA (*Reine Hortense*).—This has been long known in this country; a fruit of fine quality, but the tree not as hardy as the Griottes or Morellos.

OSTHEIMER WEICHSEL (*Ostheim*).—Mr. Lucas says, a very fine, large dark-red cherry, for table or preserving. Messrs. Simon-Louis say, fruit of medium size, round, purplish black; flesh tender, very juicy, of first quality when fully ripe. Season, throughout July. Tree small, and of extraordinary fruitfulness.

This Ostheim cherry I have already described at length, in my report on Russian Fruits, in the Society's Eighth Report, and I may add that it and other German cherries of its type, are, so far, doing very well with me at Abbotsford.

ROTHE MAIKIRSCH (Anglaise native).—Mr. Lucas says, a medium-sized, roundish, very good and fruitful, sweet Weichsel. According to Messrs. Simon-Louis, this is a synonym of the *May Duke*.

In conclusion, let us remember that the winter temperature of Reutlingen is  $11^{\circ}$  milder than Toronto: not a Quebec climate by any means; yet, on the other hand, the orchards of Würtemberg run up the sides of the mountains, into bleak exposures, where the climate is very unlike the sheltered valleys below. It is therefore probable that these notes have their uses for this climate as well as for those who live farther south.

It is  
of land i  
clear the  
agents m  
foliage of  
trate and  
discrimin  
cultivate  
it is to fi  
the lawn  
of decay  
efforts m  
mischief  
Unfortun  
frustratin

The  
of some o

*Incu*  
years hav  
not come  
the follo  
the farm  
the neig  
maple w  
appearanc  
a short di  
the coun  
instead of

The  
cases for  
discs abo  
of these t  
it thrusts  
away, wo

*Insects Injurious to Ornamental Trees and Shrubs.*

By REV. THOMAS W. FYLES, South Quebec, P.Q.

It is wisely ordered that no particular kind of plant shall occupy a tract of land in perpetuity. Sooner or later, destructive agents will operate to clear the way that other plants may have a chance to live. Among such agents must be numbered certain insect tribes, some of which devour the foliage of the plants, while others drain their juices, and others, again, penetrate and mine their trunks and branches. That these destructive insects will discriminate between the trees of the uncared-for forest and those that are cultivated for ornament and use is not to be expected; and very unpleasant it is to find some goodly maple, or pine, or other highly prized ornament to the lawn or arboretum, assailed by a host of insect foes and giving tokens of decay. Frequently the enemy comes in such numbers as to defy the efforts made for its destruction, or the attack has been so insidious that the mischief has been accomplished before the cause of it has been discovered. Unfortunately, a preventive against such attacks, or an effectual method of frustrating them, cannot always be pointed out.

The space allowed to me in this report shall be devoted to brief notices of some of the more remarkable of the leaf-devouring insects.

*Incurvaria acerifoliella*, Haworth.—This is one of the insects that of late years have worked their way northward from the United States. It did not come under my observation until the year 1881. In that year and in the following, it was exceedingly abundant. I particularly noticed it on the farm of the Hon. G. B. Baker, M.P., and on that of Mr. G. F. Shufelt, in the neighbourhood of Sweetsburgh. The leaves throughout extensive maple woods were so skeletonized by it that they presented a scorched appearance that was very remarkable. Looking at the maple groves from a short distance, one might have thought that a hot blast had passed over the country, or that autumn had come before its time, and had browned, instead of crimsoning, the maple leaves.

The larvæ of the genus *Incurvaria* have the habit of constructing flat cases for themselves. The *Acerifoliella* larva bites from the maple leaves' discs about two-eighths of an inch or three-eighths in diameter. It joins two of these together, and takes up its domicile between them. When it feeds, it thrusts out its head and fore-legs and bites the parenchyma of the leaf away, working systematically from a centre. When full fed, it finds its way

to the ground, and turns to a pupa within its leafy covering. In the years I have mentioned, clouds of minute moths would rise from the foliage shaken by the intruders upon their haunts.

*Hyphantria textor*, Harris (Fall Web-worm).—This insect has a somewhat extended bill of fare. It feeds on the hickory, oak, ash, elm, black cherry, willow, birch, etc. The perfect insect, which is of a delicate spotless white, appears in June, and lays her eggs in a cluster near the end of a twig. As soon as the young caterpillars appear, they commence to spin a web, to enclose their feeding-ground, and to afford them shelter and defence. Their dwellings may be seen in August, as unsightly appendages to the branches of all the above-named trees; and, after the insects have vacated them, they still remain, to be shaken by the storms of winter, and to disfigure, with their blackened masses, the sparkling tracery of the leafless forest. The Fall Web-worm must not be mistaken for the Tent Caterpillar (*Clisiocampa Americana*).

The mode of dealing with the Web-worm is, as soon as possible, to clip off the sprays encumbered with the webs, and to trample them and their burdens under foot.

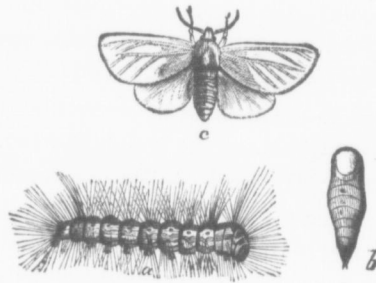


FIG.—HYPHANTRIA TEXTOR. a, larva; b, pupa; c, imago.

*Nematus Erichsonii*.—This insect is one of the saw-flies. It attacks the tamarack (*Larix Americana*). The first mention of its appearance in this country was made by myself at the meeting of the Ontario Entomological Society, in 1883. I had noticed the ravages made by the insect in the border townships, especially in the Townships of Bury and Lingwick, in that and the preceding year. In 1884, the insect extended its operations along the Beauce valley, and to the neighbourhood of Quebec, where the tamaracks were entirely stripped of their foliage by it. The perfect insect of *Nematus Erichsonii* is a handsome black fly, having an orange-red band round the middle of the abdomen. Its wings, which are black-veined, measure three-quarters of an inch from tip to tip. Its legs are black and yellow. The female has an arrangement of saws (such as the female of other species in

the fam  
name),  
shoots o  
double  
The hea  
are four  
habit of  
this atti  
strange  
and a q  
ground,  
spin ar  
undergo  
perfect

*Lop*  
(*Pinus s*  
colour,  
erable d

*A M*  
species o  
the cano  
Chaudiè  
creature  
to him.  
Society  
species t  
in the li  
are new  
ment th  
these lar

Len  
sixtent  
set with  
bead-like  
elongate  
lops bein  
last segm  
has the l  
fed" by  
forms a



the family possess—a circumstance which has given rise to the common name), "Saw-flies". With these she makes grooves in the young green shoots of the tamarack, as receptacles for her eggs which she deposits in a double row therein. The larvæ are light, bluish-green, spotted with black. The head and thoracic feet are black also. The larvæ, when they first appear, are found clinging in clustres round the terminal shoots. They have the habit of throwing up the hinder part of the body; and when they assume this attitude, which they do simultaneously when disturbed, they present a strange appearance. When they are full fed, they measure about an inch and a quarter in length. Having attained their growth, they fall to the ground, seek a fitting spot for hibernation, burrow into the earth, and then spin around themselves their brown, and closely-woven cocoons. They undergo the pupal change in the spring, and in the middle of June the perfect flies appear.

*Lophyrus Abbottii* (Leach) is a saw-fly which feeds upon the White Pine, (*Pinus strobus*). The full-grown larva is about an inch in length, whitish in colour, and marked with rows of oblong black spots. It often does considerable damage. The flies appear in June.

*A New Species of Saw-fly.*—During the past season the larvæ of another species of Saw-fly have been most abundant and destructive. They feed on the canoe birch (*Betula papyracea*). I found them in great numbers at the Chaudière, at Levis, and on the Island of Orleans. I sent specimens of these creatures to an eminent American Entomologist, but they were unknown to him. I exhibited like specimens at the meeting of the Entomological Society of Ontario; but none of the members present could tell to what species they belonged, nor could we find in the numerous works contained in the library of the Society any account of the creatures. They probably are new to science. Should the next season be favorable to their development they will become a serious pest. The following is a description of these larvæ:—

Length, one inch and one-fourth. Breadth at widest part, three-sixteenths of an inch. Body, flattened, and scalloped at the sides; sparsely set with black bristles; general color, yellow. Head, orange. Eyes, black, bead-like, in a black setting. Mandibles, brown. Three rows of black, elongated spots on the back; one row on each side—the spots on the scallops being much larger than the rest, two rows underneath the body. The last segment has no spots. Thoracic legs, long and projecting. The creature has the habit of carrying the last five or six segments sideways. It is "full fed" by the end of September. It descends the trees and buries itself. It forms a rather loose, white cocoon.

Trees infested with Saw-fly larvæ should be well sprinked with a mixture of London purple and water, in the proportion of one half-pound of the former to eighty or one hundred gallons of the latter.

*Selandrea rosea*, Harris (Rose Slug). This insect was first discovered by Harris. It makes its appearance on the leaves of the rose bushes early in June. It is green in colour, and has a yellowish head. It is of a gelatinous appearance. When full-grown, it descends into the earth, and forms a cell of particles of earth bound together by gummy, silken threads. There are two broods of the flies—one appearing in the end of May, and the other in August. The larvæ of the second brood form their cocoons, as above described, and hibernate in them, pupating in the Spring.

The remedy recommended by Harris against the attacks of these insects is that discovered by Mr. Haggerston, and described in the *Boston Courier* for June 25th, 1841, viz., 2 lbs. of whale oil soap, dissolved in water, and applied to the bushes with a watering-pot or syringe.

The perfect insect of *Selandrea rosea* is a shining black fly, with black and white legs and smoky wings.

I s  
of pro  
the old  
Annual  
an ama  
any pro  
suited  
over or  
less su  
much f  
and les  
and ins  
Hortic  
that so  
disease  
lay dov  
the vit  
adopte  
uniform  
loss to  
cised.  
stood t  
Hybrid  
Eumela  
Sweetv  
and be  
recent  
Early V  
wine),  
Demps  
Floren  
ington,  
Purity,  
latest),

*Resumé of Out-door Grape-culture in the Province of Quebec.*

By WM. MEAD PATTISON, Clarenceville, P. Q.

I shall be obliged to confine my report to recently introduced varieties of promise obtained for trial from the originators in the United States, as the older varieties are generally known to most readers of the Society's Annual Reports. I have cultivated the grape for over twenty-five years as an amateur, and have tried most of the seedlings and hybrids which give any promise of success in a climate imagined by some people to be unsuited to the grape. Yet out of over 130 varieties tested in that period, over one hundred are still under cultivation in my grounds with more or less success, some varieties succeeding better than in their original locality much farther south. This fact may be attributed to our dry atmosphere and less humidity in summer, exempting us from the diseases of the vine and insect enemies so prevalent in a lower latitude. From the reports of Horticultural Societies of most of the States of the Union at hand, I find that some varieties, which have never shown the least tendency to such diseases here, have suffered from mildew and rot. It is true that we have to lay down and cover our vines for winter protection, and for preservation of the vitality of buds, yet we observe that this practice is advised and adopted with advantage in some of the Middle States of America. The uniformity of Quebec winters and the natural covering of snow, render loss to the vines from frost very uncommon when reasonable care is exercised. Of the old varieties now considered to be standards, which have stood the test of years successfully may be named: Aminia, Allen's Hybrid, Agawam, Barry, Champion, Creveling, Concord, Delaware, Essex, Eumelan, Hartford, Martha, Northern Muscadine, Rogers' No. 30, White Sweetwater, (which always ripens out-doors, often attaining enormous size and beauty of bunch), Salem, Wordin, and Wilder. Of the new, or more recent varieties, most of which may in time fall into the above list, are Early Victor, Antoinette, Belinda, Croton, Challenge, Carlotta, Bacchus (for wine), Burnet, Brighton, Beauty, Burr's Early, Belvidere, Cottage, Duchess, Dempsey's No. 5, El Dorado, Early Auvergne, Frontinan (foreign), Faith, Florence, Frances Scott, Garber's New Seedling, Golden Gem, Lady Washington, Mary (the Catawba seedling), Mason's Seedling, Naomi, Owasso, Purity, Prentiss, Pocklington, Poughkeepsie Red, General Pope (Burr's latest), Peabody, Peter Wiley, Rockland Favorite, Ricketts No. 543, Senasqua,

Ulster Prolific, Undine, Underhill's Seedling, Vergennes, Wilder and Wyoming Red—all these have fruited here. This catalogue leaves a good number, some of which have fruited, but at present it is not safe to speak of them without further trial.

#### WHITE VARIETIES.

From my past season's experience, DUCHESS commands the first notice. It was ripe September 20th, and much improved upon former years; it bore well; clusters large and strong, and in every respect as fine as any I ever saw exhibited by Mr. Caywood its originator, residing seven degrees further south. The quality of the fruit was excellent, and was preserved plump and full flavored till December. This and some others to be mentioned have been more fully described in former reports.

POCKLINGTON was a success this year; it ripens at the same time, and the size of bunch and berry is much improved. When this vine becomes well established, I am inclined to think it will prove a profitable and showy market grape.

Of Mr. J. H. Rickett's new white grape, EL DORADO, is promising, large in berry and bunch, quite early, September 7th. It is a cross between Concord and Allen's Hybrid, partaking of the delicate high flavor of the latter and at present as strong and healthy as its other parent and somewhat larger. It may be a very valuable grape for this latitude. His LADY WASHINGTON of the same parentage, which has hitherto failed to ripen here and which I was about to discard, was ripe on October 1st, the bunches averaging nearly one pound, finely shouldered and most clusters double-shouldered; foliage healthy. It is a strong grower and inclined to overbear. To insure ripening here, it will require a large portion of its fruit to be thinned out early. The flavor of Concord seems to predominate in this cross. Mr. Rickett's UNDINE, noted for the first time, is a fine grape of fair size and long compact bunches, fruiting for the first year. It can only have a passing introduction. RICKETT'S No. 346, for fruiting, bears a long tapering bunch and small berry, rather late at present. His NAOMI, vastly improved over last year, is a Clinton hybridized with a Muscat variety, and forms the most attractive and showy clusters of any white grape in my collection. It is usually double-shouldered, attaining an enormous-sized compact bunch of medium-sized berries, ripening late and keeping well for weeks. The GOLDEN GEM thus far proves quite early, ripening September 12th; exceedingly prolific; in berry the size of Delaware, one of its parents, but in bunch much smaller at present. It is very short-jointed, with small leaf, and delicate though healthy foliage; from its small size it will probably

not be  
not yet  
J. G. Bu  
of it: "  
signs of  
bunch of  
medium  
the high  
MA  
seedling  
a trifle o  
keeper,  
Ro  
bunch a  
as ripe.  
GR  
peculiar  
has the  
PU  
year a g  
small, is  
flavor o  
ripened  
PE  
than De  
populan  
  
On  
duced g  
quite p  
year; w  
passes i  
well. M  
Salem,  
year it s  
do well  
the reds  
South, h  
It is lat

not be popular. **EMPIRE STATE**, now owned in Rochester, N. Y., has not yet fruited here, but gives evidence of great health and promise. Mr. J. G. Burrows, a disinterested observer, of long practical experience says of it: "I have known this grape from its infancy and have never seen any signs of weakness; it is a fine healthy grower, productive and hardy; bunch of large size, long, compact, usually with one heavy shoulder, berry medium, color white, of good quality, ripening early and must command the highest price in market and will no doubt be extensively planted."

**MASON'S SEEDLING** promises to be one of the best of the Concord's seedlings, fully as vigorous and productive, in quality of fruit very good; a trifle earlier thus far than the Concord, but not yet up to it in size; a good keeper, and may be a very profitable grape for Northern culture.

**ROMMEL'S JULY** (from Missouri), a seedling of Taylor, bears a small bunch and berry, exceedingly early but continues to drop its berry as soon as ripe.

**GREIN'S GOLDEN** (from Missouri), is a large grape, loose clusters and peculiar flavor of the Taylor seedlings; ripens middle of September, but has the fault of dropping its berry so far.

**PURITY**, a Delaware cross, partaking of its habit, is becoming every year a greater favorite, though slow at first in developing. Its berry, though small, is exceedingly fine, and when left on the vine till dead-ripe has the flavor of honey. It is worth a patient trial by every one; it has always ripened here fairly early, and repays good care and fertilizing.

**PETER WILEY**, is thus far prolific and hardy, very small, though larger than Delaware; ripened September 20th; fruit excellent; promises to be a popular variety.

#### NEW RED GRAPES.

On these I have little new to note. Mr. Caywood's recently introduced grapes, **ULSTER PROLIFIC** and **POUGHKEEPSIE RED**, prove early and quite productive and good so far. **GAERTNER** has gained some points this year; while nearly as early as Massasoit, and quite as productive, it surpasses it in beauty and perfection of clusters, always setting its berry well. **MARY**, (the Catawba seedling) noticed in last Report, closely resembles Salem, but surpasses it in health of foliage and productiveness. This year it set its berry imperfectly. **OWASSO**, a Michigan grape, continues to do well, it is highly appreciated for size, form and flavor, and is the latest of the reds. **VERGENNES**, though much condemned and disappointing in the South, bears a better character here. Uniformly healthy and very prolific. It is later than has been claimed; we rarely eat this grape till December,

when it mellows and improves in flavor, it will probably keep well much later, but our supply usually vanishes during the holidays. WOODRUFF'S RED looks promising, is claimed to be the largest red grown and a competitor with Lindley, which frequently sets its fruit badly.

#### NEW BLACK VARIETIES.

Of GARBER'S new seedling, the promising EARLY BLACK, we can speak more definitely this year; in some respects it closely resembles Cottage, with red peduncle and high-colored juice; berry medium, holding well to stem and improved by keeping, flavor fair, does not deteriorate like other extra early blacks, keeps without shrivelling till December; ripening this year September 5th, two days later than Champion, to which it is, thus far, quite equal in vigor and productiveness. Mr. Garber introduced a new grape some years since whose star soon set for ever, but this discovery promises enduring brilliancy.

PEABODY fruited for the first time and was fully up to its originator's description as follows: "Seedling of Clinton and a very fine grape, hardy in vine and fruit, and a first-class grape in every respect, bunch medium to large, quite compact, berry size and shape of Iona, black with blue bloom, flesh tender, juicy, rich and sprightly." It ripened here September 28th, but some bunches were edible some days earlier; very promising for its first fruiting; will in future probably ripen with or before Delaware: the fruit kept full and good till December 1st.

RICKETT'S No. 543 ripened September 20th for first fruiting. It indicates success as a very early variety; in flavor sprightly and good, if this grape has proved a success at Newburgh, N. Y., it may be now introduced under a name by him.

AUGUST GIANT, a very promising black Hamburg cross, can as yet only be noticed for its uncommon strength and health of foliage.

FLORENCE fruited for its second year quite early, September 5th, with a small bunch and medium berry; quality good; the berry shrivels up in a few days after being fully ripe.

EARLY VICTOR seems not to ripen as early here as in the south. It becomes ripe September 20th, yet it fully sustains its character as a good profitable grape. I would advise, in fall pruning, to cut to one fruit-bud, as it is a very short-jointed variety and its tendency is to form a mass of foliage low down, which should be checked by brushing off the superfluous canes when appearing, inducing the vine to spread. Mr. John Burr, its introducer, of Kansas, U. S., now hale and vigorous in his eighty-fifth year,

well much  
WOODRUFF'S  
and a com-

is about to give us two other varieties generally esteemed higher. These have not fruited sufficiently here to note.

HERBERT (*Rogers No. 44* of the old standards) deserves special mention before closing, it is well known to be a cross of one of the *Labrusca* and the famous Black Hamburg. Some of my other vines of this variety bore berries fully as large as Hamburg, showing what has been accomplished in improvements of out-door grapes of late years.

e can speak  
es Cottage,  
ng well to  
like other  
ening this  
s, thus far,  
ced a new  
discovery

originator's  
ape, hardy  
medium to  
ue bloom,  
nber 28th,  
ng for its  
ware: the

indicates  
this grape  
ced under

an as yet

5th, with  
vels up in

south. It  
as a good  
fruit-bud,  
a mass of  
perfluous  
Burr, its  
fifth year,

*Fruit-growing in the Province of Quebec, and the Effect of Last Winter on our Orchards.*

By J. M. FISK, Abbotsford, P. Q.

The growing of fruit in a climate subject to the extreme changes of temperature that we experience in this country, is an industry requiring careful consideration and forethought on the part of the cultivator, in order to attain success.

In the mixed husbandry that is usually adopted by most of the farmers in this country, there is hardly a farm in the Province that has not some portion of it adapted to fruit growing in some form; and this could be profitably introduced without materially interfering with other farm crops. Many an acre, which now yields its owner little or no profit, might be turned to advantage by planting orchards, and where this is not practicable, such fruits as plums, cherries, grapes, strawberries, gooseberries, currants, etc.; and in low boggy places the cranberry can be introduced from some neighboring marsh, and returns realized from ground that was an actual loss to the owner. I do not wish to suggest that where the apple can be grown, small fruits should be neglected, for most of these can be grown upon a variety of soils with profit, and among them some of our choicest delicacies are to be found; and no modern housewife considers her stock complete without a bountiful supply of canned fruits and jams. Still, the one fruit for the multitude, for rich and poor, is the apple. It stands preeminent in this province, and should be largely cultivated in every county that is adapted to it. The present facilities for acquiring a knowledge as to the varieties to plant, has been practically solved by the published reports of the Montreal Horticultural Society.

In the Seventh Report, 1881, (p. 145) are to be found the returns from some of the principal fruit growers from ten counties in this province, and from one grower in Vermont, in which twenty-five varieties enter for competition in "the five best varieties for profit." The results may be compared with those for 1876, when returns were made from seven counties, the same number of varieties entering the lists for competition:—

RESULTS OF COMPETITION.

1876.	1881.
1. Famense.	1. Famense.
2. St. Lawrence.	2. Duchess.
3. Red Astrachan.	3. Peach.
4. Alexander.	4. { Red Astrachan.
5. Peach.	{ St. Lawrence.
	5. Alexander.



By reference to these tables, it will be at once seen that each locality has its favorite varieties, which may be taken as a guide to planters, and that very few varieties seem to be universally adapted for general cultivation. This may be owing in part to the lack of testing different varieties in these localities, and as soon as new varieties are introduced and tested, this list will be subject to change. So far as hardiness of tree is concerned, there is no question that many of the new Russians will prove better adapted for general cultivation than most of our old varieties. But as to quality, we can only speak after we have fruited them. Great hopes are entertained that, from among these, we are to fill our blanks in the list of the late keepers, and find some good varieties for the export trade. It is to be hoped that the Society will soon publish its third list for profit, and that its returns will extend over a large portion of the Province; for, by a frequent revision of this list and general returns from all parts of the Province, the question, as to what is best to plant will be answered; not by the tree-pedlar or nurseryman, to whom the want of success is often attributed, but by those actually engaged in growing fruit in the Province.

There is a feeling among some of our fruit growers that the production of the apple is likely to be overdone, and that prices in the near future will run so low, that it will not pay to plant orchards. I think this idea is based on narrow views. There is a large percentage of country known as the "French Country," (clay flats) which is not adapted to growing the apple, and is peopled by a well-to-do class who annually consume large quantities. With our present railway facilities for reaching them, their demand is on the increase. Each year, as the populations of our cities and numerous towns and villages increase, so will the demand for fruit increase. Thousands of barrels are annually imported from Ontario and the neighboring States, to fill this, and the increasing demand for the export trade to Europe.

Owing to their high color and quality, our Canadian apples are appreciated in England, and command a good price. Then, again, is it not possible that in the near future a large demand is likely to open up in the Northwest; where it is a question if the apple can ever be grown to any extent? In which case, the surplus Ontario fruit, which is now sent East, will be likely to go West, and leave the Eastern Provinces to provide for their own consumption, and do what they can for the export demand.

If it will pay Ontario and the States to grow apples to send to us and to England, it will pay to grow them for ourselves, and to see that we have such varieties as will answer for the export trades, for our own demands, and for canning and evaporating processes, both in fruit and liquid forms,

by which means, if we should ever have an over-production, a large surplus of fruit can be utilized without much waste.

Last winter was unusually severe on our orchards. Many of the tender varieties being, in some localities, badly injured, and there were very few orchards that did not contain more or less dead wood this season. The early and severe frosts, with frequent thaws in December and January, without snow, were probably the cause of this. It was a season in which mulching would prove of value. In early spring, the varieties affected put out a sickly foliage, which in June began to wither and drop, while in many instances, the bark would split and cleave from the trunks of the trees. The varieties which suffered most were, Late Strawberry or Foundling, Newberry Sweeting, Bourassa Russet, Pomme Grise, Ben Davis, Canada Baldwin, and others of like hardiness; while none of Russian origin, except Red Astrachan, were affected.

Fruit growers of this Province have not only insect pests to contend with, which are numerous, and require constant vigilance, but also a climate so severe, that often our forest and shade trees, natives of our climate, are killed. Hence, the necessity for introducing and testing the hardiest varieties, and for having a thorough organization of societies to report annually their successes and failures, for the benefit of their members and the public at large.

The  
eral of  
best me  
hints in  
season,  
cultivat  
into hor

The  
grounds  
to test t  
the thic  
regards  
keepers  
in pack  
ter use  
inclined  
as they  
careful  
the dry  
layers o  
being cl  
will be  
danger  
for pack  
consiste  
nent pa  
be pack  
upperm  
piled so  
about t  
examin  
scissors  
vene, t  
temper

---

*Keeping Qualities and Use of Grapes during Winter.*

By WM. MEAD PATTISON, Clarenceville, P. Q.

The cultivation of out-door grapes for domestic use has become so general of late years that the subject of keeping them for winter use, and the best method to attain that object may profitably claim attention. A few hints in this direction may be of service to many who raise a surplus in the season, and may direct others in selecting varieties to plant, so that the cultivation and use of the healthiest of our native fruits may enter more into household economy.

The past season I selected, from over one hundred varieties in my grounds, forty in general cultivation, and some of very recent introduction, to test their keeping qualities. It is the generally received opinion that the thick-skinned native seedlings are the only keepers. This is correct as regards preserving flavor, but several hybrids of foreign blood are the best keepers known. Before giving results of this and former trials, instructions in packing may be of service. The varieties intended to be laid up for winter use should be those only which adhere well to the stem and are not inclined to shrivel. These should be allowed to remain on the vines as long as they are safe from frost. A clear dry day is necessary for picking, and careful handling and shallow baskets are important. The room selected for the drying process should be well ventilated, and the fruit laid out in single layers on tables or in baskets where the air circulates freely, the windows being closed at night and in damp weather. In about ten days, the stems will be dried out sufficiently to prevent moulding when laid away. When danger from this is over and the stems resemble those of raisins, the time for packing has arrived. In this, the point to be observed is to exclude air consistently with their tendency to mould. I have used baskets for permanent packing, but much prefer shallow trays or boxes of a uniform size to be packed on each other, so that each box forms a cover for the lower, the uppermost only needing one. Until very cold weather, the boxes can be piled so as to allow the remaining moisture to escape through a crevice about the width of a knife-blade. Before packing, each bunch should be examined, and all injured, cracked and rotten berries removed with suitable scissors. If two layers are packed in a box, a sheet of paper should intervene, the boxes must be kept in a dry cool room, or passage, at an even temperature. If the thermometer goes much below freezing point, a blanket

or newspapers can be thrown over them, to be removed in mild weather. Looking them over once in the winter and removing defective berries will suffice, the poorest keepers being placed accessible. Under this treatment the best keepers will be in good eatable order as late as February, after which they deteriorate. Before proceeding further I can say, from a basis of long observation, that no fruit is of greater benefit as an article of diet than the grape, and if it were more generally used, dyspepsia, and other disorders of the digestive organs, and consumption, would be less known.

The following is a list of the grapes worth noticing that have been tested for keeping :—

		DESCRIPTION.	LIST OF GRAPES TO BE RECOMMENDED.
		VARIETIES KEEPING WELL UNTIL—	Nov. 1st.
Dec. 1st.			Lady Washington, Peter Wiley, Mason's Seedling, Wordin, Senasqua, Romell's Superior, Rickett's No. 546, Concord, Delaware.
Jan. 1st.			Duchess, Essex, Barry, Rockland Favorite, Aminia, Garber's New Seedling, Massasoit, Dempsey's No. 5, Burnett, Undine, Allen's Hybrid, Agawam, Gen. Pope, Francis Scott.
Jan. 15th.			Salem, Vergennes, El Dorado.
Feb. 1st.			Wilder, Herbert, Peabody, Rogers No. 30, Gaertner, Mary and Owasso.

The new varieties, Empire State and Norwood, have not been tested here.

T  
proved  
encour  
annua  
T  
we are  
intend  
grow p  
courag  
T  
ture, is  
can be  
and bl  
necessa  
seeing  
des Ne  
ever se  
shape  
of the  
Th  
treatm  
which  
torily i  
a good  
after S  
Nor sho  
placed  
may no  
pot. T  
over th  
sionall  
give m  
only be  
Of

### *Window-Gardening.*

*By* JAS. MCKENNA, Montreal.

The taste for window-gardening in Montreal and its vicinity has improved very much within a few years, owing, no doubt, in a measure to encouragement given by the Horticultural Society in awarding premiums annually for the best displays.

Though improvement is noticeable, still it must be acknowledged that we are behind the age in the matter of displays of plants in windows. I intend to give a few hints to those who have the means and the desire to grow plants in their windows, but who, from frequent failures become discouraged.

The idea that only a few varieties of plants are suitable for house culture, is, in my opinion, erroneous to some extent. Almost any plant which can be satisfactorily grown and bloomed in a greenhouse can be grown and bloomed almost as well as in a window; provided, of course, that the necessary degrees of temperature and moisture are maintained. I remember seeing, some years ago, in the window of a poor cottager's dwelling in Cote des Neiges, about the end of February, one of the showiest objects I have ever seen. It was a single plant of *Verbena* "Defiance" upon a trellis in the shape of a fan; it covered about half the window, and was a perfect mass of the brightest scarlet.

The success of window-gardening depends more upon the summer treatment than upon anything else. It must be remembered that no plant which has been growing in the open border all summer will bloom satisfactorily in the window during winter. The all-important point is to have a good solid ball of roots, and in no case have them shifted into larger pots after September 1st; in fact that date is too late for some varieties. Nor should they be left plunged in soil after the above date: they should be placed on some clean, porous substance and often moved, so that the roots may not get down, nor worms get up through the hole in the bottom of the pot. They should receive abundant supply of water, both in the pot and over the foliage in clear weather; and also some weak manure water occasionally. When they are brought in doors, care should be taken not to give much water for a week or so, and all through the winter they should only be watered when dry.

Of course, for bulbs it will be understood that an altogether different

treatment is necessary. The proper treatment for bulbs is generally given in the bulb-merchant's catalogues. It would be a useless waste of space to attempt to give a list of all the plants suitable for window culture. The most suitable plants will depend entirely upon the conditions of sunlight, heat and moisture at command; for instance, in the window of a dry room, with a temperature of from 40° to 60° during winter, and facing east or even north-east, a good display may be had with Aloes, Cactus, Yuceas, etc.; and by choosing some of the free blooming Cactuses, a rich display can be had in spring, and with a little more heat and moisture in the same room, such plants as Palms, Pandanus, Dracænas, etc., and some varieties of Ferns may be kept nicely. But it is only in windows facing some point from south-east to south-west, that a display of blooming plants can be secured during the winter months. In such a window, with a temperature of from 50° to 65°, and a little higher when the sun shines, with a reasonable amount of moisture in the atmosphere, a very large variety of plants may be grown. I will mention a few of the popular plants of to-day from which a selection may be made to suit almost any taste:—

Palms, *Latamia barbonica*, etc., Dracæna, *terminalis*, Azaleas, Callas (dwarf) Begonias, *rubra*, *Saundersonii*, *metallica*, *rex*, etc., *Primula Sinensis*, *Prinsettia pulcherrima*, Cinerarias, Carnations, Tea Roses, *Fuchsia speciosa*, Chysanthemums, Double Bouvardia, Geranium, *Mrs. Pollock*, Double Geraniums, Lemon Geraniums, Lycopodiums, Heliotrope, etc., with Hyacinths, Crocuses, Narcissus. Two or three of each, should be brought in at a time for each window.

It is a popular belief that plants cannot be grown in a room where gas is burned; now I believe that the only effect the burning of gas in a room has upon plants is in drying the air. Of course, an escape of gas in a room is another matter, as it is a well-understood fact that coal gas is death to any kind of vegetation. But the dryness of a room may be overcome by some method similar to that which I shall suggest below. A good flower stand can be constructed as follows:—Take a strong plain table, the height of, or a few inches lower than, your window sill, and of a suitable length to fit in close to window, and about two feet wide. Upon this, erect a stage of three or four shelves, using good, clear pine, six inches wide, and one inch thick when dressed. The supports should be at both ends only, and as near the ends of the table as possible. Fasten them to the table with four 4-inch flat-iron brackets, to be placed on the inside of each support, to give the stage solidity. Then get a pan of zinc, or galvanized sheet-iron, the full width of the table, and long enough to fit in between the supports, about two inches shorter than the table, and about one and a half inch deep. Mount the table on four of the largest and freest-running castors, and you

will have  
of plan  
water sh  
water, w  
two or th  
when rec  
be fasten

In th  
turned r  
blooming  
Another  
from the

will have a complete flower-stand, on which you can grow almost any kind of plant in the driest sitting-room. From one to half an inch of warm water should be kept in the pan at all times. A simple way to warm the water, without removing it, is to put hot bricks into it; by having six bricks, two or three can be heating and the rest can be in the water, to be changed when required. To make the stand more ornamental, a heavy curtain may be fastened to the top shelf, by means of a rod and rings.

In the evening, when the room is lighted up, the flower-stand may be turned round, facing the room full; and, when well filled with healthy, blooming plants, will form an ornament to the most richly-furnished room. Another advantage that this stand will have is, that it can be drawn away from the window at night when there is fear of frost.

### Ornamental Trees.

By CHARLES GIBB, Abbotsford, P.Q.

I wrote at length on this subject in the Society's Seventh Report, and again in 1883 on the trees of northern Europe and Asia. I now wish to draw attention to certain varieties, not natives of our province and but little known, but which would add greatly to the beauty of our parks and gardens.

The winter of 1884-85 was unusually severe. "The most tingling winter that we have had at Abbotsford for ten years," were the words that greeted me on my return from the South in the spring. Prof. Chandler, of McGill College, has very kindly furnished me with data on this matter. From the table of temperatures herewith given, it may be observed, that we had, during the previous ten years, lower means for December and January, and in one case for each month a lower minimum; but that February and March of 1885 showed a much lower mean, and March a lower reading than any of the previous ten winters; and that the mean of these four months was no less than 6.18° colder than the mean of the previous ten years. The average temperatures for the three months recorded in the city of Quebec is 4.2° colder than that recorded by the more sheltered observatory in Montreal. It would be, therefore, quite safe to say that the cold of the winter of 1884-85 in Montreal was greater than it is on an average in the city of Quebec.

MEAN AND MINIMUM TEMPERATURES,  
AT MCGILL COLLEGE, MONTREAL.

WINTERS OF	DECEMBER.		JANUARY.		FEBRUARY.		MARCH.		Mean of the four months
	Mean.	Min.	Mean.	Min.	Mean.	Min.	Mean.	Min.	
1884-85	16.51	-23.5	12.13	-21.3	5.88	-16.3	13.25	-14.2	11.94
1883-84	16.61	-19.4	8.73	-16.5	18.11	-11.0	25.65	-9.4	17.27
1882-83	17.67	-5.3	5.67	-20.4	13.61	-12.1	16.68	-9.8	13.41
1881-82	28.47	-1.0	12.20	-26.0	21.04	-8.5	25.05	1.4	21.69
1880-81	15.70	-8.6	10.04	-13.6	17.62	-16.4	30.10	9.5	18.36
1879-80	15.82	-25.2	22.45	-9.5	18.89	-17.5	22.09	-11.2	19.81
1878-79	21.35	-1.2	12.74	-15.4	10.92	-14.5	24.96	-5.4	17.49
1877-78	27.26	7.3	13.14	-17.8	22.06	-2.0	31.67	0.1	23.53
1876-77	12.71	-21.8	9.67	-20.9	26.62	2.1	25.12	-7.7	18.53
1875-76	16.73	-22.5	17.73	-6.5	14.58	-15.4	24.56	-3.6	18.40
1874-75	14.68	-17.1	5.44	-13.2	9.02	-24.0	21.61	-10.3	12.69
Mean, 11 years.	18.50		11.81		16.21		23.70		17.56



I have, growing on my exposed hill-side at Abbotsford, about 145 varieties of trees, which are not natives of this Province. Some enjoyed the cold of last winter, laughed at it, if one may so speak; others were injured. These test winters furnish facts of great value.

MAPLE (*Acer*).—This is a group of great variation. Of the silver maples, Weir's Cut-leaved is a curiosity, an eccentric, wayward grower, as great a contrast to the compact growth, and dark, massive foliage of the Norway Maple, as a German Cut-leaved Birch is to a Grape-leaved Linden. The foliage of the young growth is so slender and so deeply slashed as to be scarcely recognized as a maple. I have seen people who were passing by take up a branch, look carefully at it, shrug their shoulders, and pass on. I have several trees of it, four or five of which must be twenty feet high, and I recommend it as a tree thoroughly suited to our climate. Of other varieties of the soft Maple, *Heterophyllum laciniatum*, a seedling of Ellwanger and Barry of Rochester is a strong upright grower, with long, deeply-lobed leaves, but strange to say, it is not quite hardy. When growing rapidly, it is almost sure to lose several inches of its terminal shoots. The variety *Ricii*, also, I believe, a seedling of Messrs. Ellewanger and Barry, has quite small leaves, and, though it has not succeeded with me like Weir's, is fairly hardy and worthy of trial.

My Ohio Negundos suffered severely last winter. The last year's growth was mostly killed. They did not leaf out until nearly three weeks after their usual time, but then grew rampantly, and their bright, green foliage throughout the summer was very ornamental. On the other hand, the Winnipeg form of this tree, the same as the Ash-leaved Maple of Iowa and Minnesota, is noted for its perfect hardiness and rapid growth in unsuitable soils. This tree is therefore becoming a favorite, but I would offer this caution, that it is a tree that attracts flies, and therefore should not be planted too near houses.

The Norway Maple, I find a very satisfactory tree. It is darker in foliage, more spreading, and more rapid in growth than our Sugar Maple. There is a fine young specimen in Victoria Square, and in the fall, when the Sugar Maples surrounding it were scarlet, this was still green, and after they had lost their foliage, its was still yellow. This European Maple has also sported in an odd way. The Cut-leaved (*dissectum*) has foliage so regularly and deeply cut as almost to divide the leaf into three parts. It is a very slow and crooked grower, and suited to small places. I have only seen one large tree of it, one in Vienna, and that had seen the growth of generations. This tree never received the slightest winter injury with me until the winter of '84-85, and then only in transplanted trees. *Lorbergii*, I believe, another variety of the

In.	Mean of the four months
4.2	11.94
9.4	17.27
9.8	13.41
1.4	21.69
9.5	18.36
1.2	19.81
5.4	17.49
9.1	23.53
7.7	18.53
1.6	18.40
9.3	12.69
	17.56

Platanoids Maple, is just as slow, though a straighter grower, and some of its leaves have so far strayed from their original type as to be scarcely recognizable by a botanist. If one were to gum half a dozen pieces of leaves at different angles upon the end of a stalk, it would be an approach to what some of its leaves are; most of the foliage is like that of the Cut-leaved. I have but one tree of this. It lost four inches of its leading shoots last winter, but as this is the only winter injury it has ever received, we may consider it hardy.

Schwerdler's Maple has its seasons of great attractiveness. The leaves as they unfold in the spring are a brilliant crimson, and continue a brilliant crimson, until full grown and a few days after. They then become a dull red and gradually change to a dark sombre green, darker than the ordinary Norway Maple. In midsummer the new growth starts with the same brilliant colors as in spring, like a lot of red roses peeping out of the dark contrasted green. Imagine an avenue of this maple on some prominent place leading to our mountain park, in its brilliant spring plumage; the whole city would see it, and for a few days in spring, hundreds would flock to it, just as, in London, thousands go to see the horse-chestnuts in bloom at Hampton Court. Reitenbach's is another German variety of the Platanoides. It lacks the brilliancy of color of Schwerdler's; at times, the upper side of the leaf is a sombre purple, while underneath it is pure green. My trees are small, but stood last winter without injury. Another curious variety is the Curl-leaved or *cucullatum*. The leaves curl into strange forms; and in the structure of the leaf, the way in which the veins radiate is remarkable, so that it is a botanic as well as an horticultural curiosity. My Tartarian Maple I received from Rochester. It has killed back an inch or two at times, but otherwise is hardy, but for some reason it has not those large clusters of blossom and seed which make this shrub maple such a favorite in the Russian Gardens.

ALDER (*Alnus*).—The Imperial Cut-leaved Alder, is a tree which I cannot compare with any other. "What an aerial tree!" exclaimed a friend. Its light feathery foliage, and dark, dull color, give it an expression peculiar to itself. It seems quite hardy with me, now that I have it planted on moist soil, and the trees I sent to McGill College are doing well there. I specially recommend this as a small tree for sheltered city gardens. Snow off roofs would break it all to pieces, so give it such care as its frail, delicate constitution requires. The Cut-leaved (*laciniata*) is more vigorous and becomes a larger tree, not like an alder, and well worthy of being planted.

JUNEBERRY (*Amelanchier*).—In my notes in 1882, I spoke of several dwarf varieties in the hands of Germans in the Western States. I have fruited

four varieties  
the little  
crop of berries  
flavor. I think  
being also  
not bear a  
tree in Ph  
across the  
road toward

BIRCH  
beauty, and  
Birch, which  
graces." The  
dense shade  
owing to  
summer in  
a Lombard  
sized tree  
ornamenta  
family than  
as a piece  
sheltered  
the place of  
grafted, it  
lived tree.  
cheap rate  
continent  
is Russian  
trees differ  
Russian se  
be from Sc  
birch on Y  
have but a  
green. I t  
some trees  
forests, and  
the round-  
Canoe Birch

CHEST  
as an ornan  
to the Can

four varieties, received from Iowa Agricultural College. Last summer the little bushes, from nine inches to two feet in eight, bore an abundant crop of berries, the size of the largest Saguenay blueberries, and richer in flavor. I think Grinnell was the finest in flavor, Green County and Gardener being also good fruits. The Alpinum of Mexico, though quite hardy, does not bear as large or as fine a flavored berry. There is a large Juneberry tree in Phillips Square, about thirty feet in height and at least eight inches across the stump. It is the second tree from the west corner, on the cross road towards town.

**BIRCH (*Betula*).**—The European birches excel our native species in beauty, and of these I know of no finer tree than the European Cut-leaved Birch, which Scott speaks of as “the acknowledged queen of all the airy graces.” I know of no tree I should prefer to plant especially where dense shade would be an objection. The Blood-leaved (*atropurpurea*) owing to the dark purplish red of its leaves during spring and early summer is well worth planting. The Fastigate Birch is as upright as a Lombardy Poplar or a Funereal Cypress, and, as we have no medium-sized tree of this form except it, it may be used to good advantage in ornamental planting. *Tristis* is the most slender and delicate of the birch family that I know of; the ends of its branches are nearly as slender as a piece of thread. This tree I should consider hardy enough for a sheltered city garden. Young’s Weeping is a tree that might well take the place of the Kilmarnock Willow for planting in our cemeteries. Top grafted, it is just as pendulous, and more graceful, and will prove a longer-lived tree. The European Birch, when grown from seed, is obtainable at cheap rates from nurserymen. A good deal of the seed which comes to this continent from Vilmorin, Andrieux and Co., of Paris, as noted by Mr. Budd, is Russian seed, as that house gets its supplies largely from Riga. These trees differ a good deal in habit of growth, whether grown from Scotch or Russian seed. I have planted out about eighty trees which, I believe to be from Scotch seed, for, towards the middle of November, when the canoe birch on Yamaska Mountain, and the white birch of the flat lands below have but a few remaining yellow leaves, these birches of mine are still green. I therefore believe them to be Scotch, although among them I find some trees with a triangular leaf, like the *Alba verrucosa* of the Russian forests, and like the native white birch of our low lands; and others, with the round-sided leaves, like the *pubescens* of Ehrhart, and like our native Canoe Birch.

**CHESTNUT (*Castanea*).**—I am now more hopeful of growing the chestnut as an ornamental tree than I was a few years ago. I had noted its approach to the Canada line on the Champlain valley, as mentioned by Dr. Hoskins,

and since then I have seen a fine young tree over twenty feet in height growing at Milton, in the county of Shefford, and young trees I have from Rochester are proving hardier than I expected. It is a beautiful tree and should certainly be tried in Montreal.

CATALPA.—I cannot say that I find this tree hardy, and yet I have some fine trees fully fifteen feet in height. I have also ten trees planted around a two-story summer house, from which I have counted the spires of sixteen villages, and from which I can see mountains which are one hundred and eighty, if not one hundred and ninety miles, apart. In this bleak exposure they are doing well, much better than some thirty trees which I have in a forest plantation and which are more sheltered. One specimen on my roadside bloomed beautifully last summer, though for some cause the blossom was not succeeded by those long slender pods which give the tree such a curious appearance during autumn. The young trees on the College grounds at Ames seem thoroughly adapted to that climate, and I feel that by getting the *Catalpa speciosa* from its farthest limits northward, we may yet get a surer and a hardier tree. I heartily recommend it for the sheltered gardens of Montreal.

NETTLE TREE (*Celtis*).—This tree is so little known here that it is sometimes met with and spoken of as *Bois inconnu*. On the river bank, alongside the Lower Lachine Road, a little beyond the residence of Mr. John Crawford, is an old tree with large branches starting near the ground. Mr. Somerville told us that some scientist, at the time of the British Association meeting, had seen this tree, and had pronounced it a Hackberry, and Mr. Somerville said he had several trees of it on his own farm which is not far distant. Mrs. Girdwood also sent me twigs and leaves of what is undoubtedly *Celtis*, and which is found on their island in the Ottawa, and on the Island of Montreal, hard by. From the description I have of some large trees at Sorel, I think they must be this same thing. At Fergus Falls, Minnesota, two hundred miles north-west of St. Paul, last summer, I found a number of young *Celtes*. Both in the East and West this tree runs well to the North. A specimen I have from Rochester, is apt to lose an inch or so of its tiny growth, otherwise it is hardy and promises to be a fine tree.

CHERRY (*Cerasus*).—I had a specimen of the Dwarf Weeping (*Pumilia pendula*), but last winter was too severe for it. However, the Top-grafted Caraganas, as soon as they are obtainable, will more than rival it in beauty, except during its time of blossoming, and these Caraganas will never dream of resigning during a cold winter.

YELLOW WOOD (*Cladastris*).—I have two specimens received from Rochester, which have proved quite hardy. It is in one of the finest of the

American  
tried in

BEE  
Copper I  
which h

ASH  
I find qu  
family an  
The Sing  
quite un  
and with  
mental.

of its yo  
grown as  
little shr  
The Auc  
Its leaves  
Like all v  
it is the

HON  
good gro  
I found  
variety fr

KEN  
have kill  
and there  
which sta  
for many  
are good  
this from

TUL  
feet in he  
two week  
specimens  
peculiar f  
sheltered

MUL  
you know  
rapid gro  
as growin

American flowering trees, and its hardiness with me should cause it to be tried in Montreal.

**BEECH** (*Fagus*).—After failing with about a dozen specimens of the Copper Beech, I find a young specimen at Mr. John Crawford's, at Verdun, which has stood the cold of some six or seven winters and is doing well.

**ASH** (*Fraxinus*).—The common ash of Northern Europe (*F. excelsior*) I find quite hardy, but the more curious and interesting of this Ash family are quite tender. The Gold-barked varieties were long ago condemned. The Single-leaved Ash (*monophylla*) and *M. laciniata* are strange looking trees, quite unlike ash, but they usually lose a few inches of growth each year, and without a yearly cutting off of this dead wood, would cease to be ornamental. The *Concavifolia variegata* is remarkable for the silvery bright tint of its young growth; very curious, but not at all hardy. It can only be grown as a shrub, and needs slight protection. *Scolopendrifolia* is a delicate little shrub, with leaves as slender as a blade of grass. It needs protection. The *Aucubifolia* is a variety of our native ash, and of course quite hardy. Its leaves are often as richly spotted with gold as some of the finer crotons. Like all variegated trees it loses its freshness during our hot summers, yet it is the finest variegated leaved tree I know of for our climate.

**HONEY LOCUST** (*Gleditschia*).—I find the variety known as *Caspica* a good grower, and just as hardy as the American ones I have. The Chinese I found quite tender, and I do not know of our having, as yet, a hardy variety from that country.

**KENTUCKY COFFEE TREE** (*Gymnocladus*).—My trees from Rochester, have killed back a few inches each year, and therefore make slow progress, and there is a tree on Dorchester Street, west of Mackay Street, in Montreal, which stands as a record of the number of inches of injury it has received for many years back. I have another tree which seems quite hardy. There are good specimens in Mount Royal Cemetery, and elsewhere, so let us grow this from hardy stock.

**TULIP TREE** (*Liriodendron*).—I have a fine young specimen about twelve feet in height, in a very exposed place. Last spring it did not leaf out till two weeks after its proper time, but then seemed none the worse. Smaller specimens which I had were affected in the same way. On account of the peculiar foliage and beautiful bloom of this tree, it should be tried in our sheltered city gardens.

**MULBERRY** (*Morus*).—In Farnham, last summer, a friend said to me: "Do you know the Russian Mulberry?" I answered, "Oh, yes! a very large and rapid growing timber tree." He replied that it was true. I described the fruit as growing as large as the end of my two thumbs. He assented. I further

added that its price was \$5.00 a pair. He hesitated and then said "Yes!" This is really too bad, but this Russian Mulberry has been sold by agents at Sweetsburg, Cowansville, Farnham, and that section of the country, at this outrageous price, and with these false statements of its value. Those who have bought it have evidently not read the reports of this Society. This Russian Mulberry, brought by Mennonites from near Azov, has been grown from seed, and differs much in the size of its fruit. I have seen it three-quarters inch long, and some trees have produced fruit still larger. The best will be sorted out and propagated from cuttings. It is not a timber tree, but only a scrub bush. The Mennonites use it largely in the west as a hedge-plant, and when planted closely, as in hedge form, it produces a large amount of fruit "for pies, for sauce, and for the birds," and for a "preferred fruit" for the birds and a protection to the cherries. A few plants I bought five years ago cost me but 25 cents each, and now plants may be had for even less.

I do not like to repeat what I have already said, but it is the duty of this Society to protect the people from frauds like this.

**PHELLODENDRON.**—Neither the Manchurian nor Japanese varieties of this tree are hardy with me. They might do in Montreal.

**PLATANUS.**—The Oriental Plane is proving much hardier than I had expected.

**POPLAR (*Populus*).**—There is a straight-trunked variety of the Silver Poplar (*Populus alba*) which I had noted as growing in the Botanic Garden at Kazan in Russia. I regret to say that I do not know of its having been imported. On the grounds of the Iowa Agricultural College, Prof. Budd has planted a large collection of the poplars of Eastern Europe. He has *Populus alba*, and its varieties, *nivea*, *acerifolia*, etc., from different sources. Some of these are very large and *acerifolia* in leaf, and decidedly *nivea*, but the trunks have a tendency to wobble; they are not straight as the mast of a vessel, like those I saw in Kazan.

**WHITE BEAM TREE (*Pyrus aria*).**—We saw large collections of this tree at Riga. They seemed to thrive there. They are, however, not doing as well as was expected at Ames, Iowa. The summer heat seems too great, but greater than it is here, so we must give them a fair trial.

**OAK (*Quercus*).**—I find the Chesnut Oak (*Q. castanea*) and the Scarlet Oak (*Q. coccinea*) both hardy so far, that is they have passed through about five winters without injury. The latter holds its leaves into winter, and they continue brilliant in color, when other trees have lost all their foliage. The Burr Oak of the West (*Q. macrocarpa*) I find just as fast a grower as our native Red Oak. I have them planted side by side in a timber plantation. The

Pin Oak  
ing, also

GIN  
kills bac  
its being  
much b

ELM  
elm. It  
has don  
The Car  
The elm

SPE  
green li  
and for  
it is our  
makes a  
green, p  
glaucou  
man's F  
is very  
of our V  
bluish.  
trees ar  
remarka  
as I saw  
native b  
(*A. polit*  
winters  
as pin  
*phylla*) a  
kept lav

PIN  
common  
They an  
transpl  
soil. T  
white  
relative

Pin Oak (*Q. palustris*), a straight trunked species valuable for avenue planting, also seems quite hardy.

GINKGO (*Salisburia*).—I have one solitary tree. It grows and sometimes kills back a little. It is a great curiosity, and is hardy enough to warrant its being planted in the sheltered gardens of Montreal, where it has done much better than with me.

ELM (*Ulmus*).—I have two fine young trees of the Purple-leaved English elm. Its name, *purple-leaved*, is quite misleading; but for some reason it has done well, while other English and Scotch elms have proved failures. The Camperdown Weeping Scotch elm has been twice severely injured. The elms of North-eastern Europe I have not tried.

#### EVERGREENS.

SPRUCE AND FIR (*Abies et Picea*).—For general planting there is no evergreen like the Norway Spruce. It is cheap, transplants easily, grows quickly, and forms a large and beautiful tree. For wind-breaks and shelter-belts it is our best evergreen; for hedges I prefer the native Arbor Vitæ, which makes a good hedge in less time. Engelmann's Spruce is a beautiful evergreen, perfectly at home in our climate. A specimen I have is remarkably glaucous. In spring it is the color of frosted silver, not green at all. Nordman's Fir is a beauty of a different type. Its long, dark, shining, rich foliage is very striking, but it is not hardy above the snow line. I have a variety of our White Spruce (*A. alba cærulea*) nearly as silvery as Englemann's, but bluish. It is a dwarf and has borne its second crop of seed though the trees are not more than three feet high. The Siberian Fir (*P. pichta*) is remarkable for its refreshing green color, and I may add that such specimens as I saw in Russia showed no signs of early decay, as is the case with our native balsam. Morinda, of course, died. The Tiger's Tail Spruce of Japan (*A. polita*) is, I think, hardy or nearly so. It has stood the test of about five winters but is small and often covered with snow. Its leaves are as sharp as pins. There is a dwarf form of our beautiful Hemlock (*Tsuga Can. macrophylla*) a foreign looking, compact shrub, just the thing to decorate a well-kept lawn with.

PINE (*Pinus*).—Of the foreign pines, the Scotch and Austrian are most commonly planted. They are grown from seed and may be bought cheap. They are as hardy as our native spruce, but I find them more difficult to transplant than the spruces. This has always been my experience on my soil. The Scotch is the faster grower but not as rapid in growth as our white pine. The Black Pine of Austria is a slow grower; I know their relative growth, for I have them all growing side by side in a trial timber

plantation of about 1,000 trees and twenty-five species. The Swiss Stone Pine (*P. cembra Helvetica*) is a five-leaved pine, not rough and bristly like the Scotch and Austrian, but soft and silky, far more so than our own white pine. It is a slower grower than any I have yet mentioned. The Manchurian Stone Pine (*P. cembra Mantchurica*) has unusually broad leaves for a five-leaved pine. It is a lovely grass-green in color and seems quite hardy, a beautiful tree well worthy of trial. The Himalayan Pine (*P. excelsa*) I had two specimens of, which seemed hardy, but they were killed by a borer which has done no injury to any other kind I have. The Cluster Pine (*P. pinaster*), though not satisfactory in the Eastern States, seems hardy so far with me. The Mugho Pine is a dwarf mountain form. It will never make a saw-log, but is a dense compact little shrub, a curiosity in its way. Mine are not more than a foot in height and have been planted five years. The silvery form of the White Pine (*P. strobus nivea*) is interesting on account of its bright color,—a color, however, not as striking as my Engelmann or Cærulea Spruces. The Pondorosa I now have, growing from seed sent to me by Dr. George M. Dawson, from the Kootanie Valley in British Columbia; and coming from that region, I hope it will prove hardy.

Of other evergreens, allow me to draw your attention to a very ornamental tree or shrub, almost unknown, and yet a native of some parts of our own Province. I mean the Red Cedar (*Juniperus Virginiana*). When grown from Northern seed, it is of course quite hardy, and some of its glaucous forms highly ornamental, and quite unlike anything else we grow. Peabody's Golden Arbor Vitæ, a variety of our own so called "White Cedar" is very bright in color. The beautiful *Retinospora plumosa aurea* I find hardy, that is, hardy enough to be highly ornamental. It may look blue in winter, especially when not covered with snow, but in spring it forgets its past troubles. It is of dense habit of growth, feathery, and its outer branches tipped with lively yellow, which color it maintains throughout the season. In spring it has a sparkling brightness. What great contrasts in color we find among evergreens!

In conclusion, let me impress upon your attention the peculiar beauties of some of these hardy European trees—trees in many ways quite unlike our own. The beauty and variety of our native forest trees has caused us to plant them too exclusively; and far more varied and beautiful would be our parks and streets and gardens to day, had we planted, in greater quantity, some of the more beautiful and suitable trees of the old world.

Ever  
have wo  
tivated  
raspberr  
take the  
excellen  
dry soil  
room th  
trellis fo  
prune in  
tens and  
plants a  
made fr  
for in a  
long, m  
formed  
ture of a  
old Law  
as its na  
immens  
Wachus  
cultivat  
trial, as  
I cannot  
winter.  
immens  
berry d  
makes t  
to gathe  
sometim  
Th  
"Dewb  
propens  
lent qu  
among  
ing wh  
more fa



### *The Blackberry.*

By ANNIE L. JACK, Chateauguay, P. Q.

Ever since I was a child, I have felt sympathy for blackberries, and have wondered very much of late years that they are not more largely cultivated for the Montreal market. They are certainly as easily grown as raspberries, and come in as a table fruit when there is need for something to take the place of the earlier fruits. As a conserve and cordial they are excellent and much in demand as a pleasant astringent. In cultivating, a dry soil is best, it does not require to be rich, but the plants require more room than the raspberries, the rows being at least six feet apart. A cheap trellis for these tall growing canes facilitates picking, and it is better to prune in the fall after the fruit is gathered. To do this, strong leather mittens and a pair of shears with long handles are a great help. The best plants are raised by root-cuttings, and a very large number of plants can be made from the roots of one good stool. If a variety is scarce, it can be cared for in a propagating house by cutting the root into pieces less than an inch long, mixing with sand, and keeping in moderate heat. When the callus is formed, place in fine earth composed of leaf mould and sand in a temperature of about 80°. They can be potted singly when six inches long. The old Lawton has been replaced by Kittatumy and Wilson's Early, the latter, as its name implies, is an early variety as is also the Snyder, which is immensely productive, and hardy, but the fruit small though sweet. Wachusett Thornless we have discarded, after a fair trial, as unworthy of cultivation, but Taylor's Prolific, a late, medium-sized berry, is worth a trial, as is also a new fine variety called "Early Harvest," which, however, I cannot speak of as yet with certainty, until it has stood the test of another winter. I have also received a plant for trial of Minnewaska that made immense canes last season, but has not yet fruited. For profit, the blackberry does not stand so high as the raspberry, but often the yield per acre makes the returns average higher. Pickers do not, as a rule, agree so readily to gather them as other fruit, on account of the fierce scratches that they sometimes give, and the rents that are made in clothes.

There is a running blackberry, (*R. Canadensis*) popularly known as "Dewberry," to which tidy horticulturists object, on account of its straggling propensities. But the fruit is large, ripens early, lasts long and is of excellent quality. My own experience goes to prove that it is the Concord among the blackberries, and not to be despised, and I think the time is coming when this fruit, in its finest varieties, will be better known and find more favor in our markets.

*Garden Roses.*

By ANNIE L. JACK, Chateauguay, P.Q.

Writers have been so much occupied in praising the loveliness of the rose, that they have failed to testify as to its early history and culture. It seems strange that, though all agree as to its beauty, it is a flower that is not successfully cultivated by all amateurs, insects and disease having dominion over it, if not carefully watched and tended. The old Cabbage or Province Rose, once seen in nearly every cottage garden in this Province, is fast dying out, although it certainly exceeds many others in its rich fragrance, and peculiar grace. The curving inward of its petals is close and cabbage-like, a quality few roses possess. The Hybrid Perpetuals are a cross between the Hybrid China rose, and the Bourbons or Teas, thereby improving the blooming qualities of the roses, without impairing their vigor. They are the most valuable of this class of flowers, for their full bloom in June and succession of flowers through the summer, in limited quantity, of course, but sufficient to sustain their reputation. Some gardeners believe in cutting back after the summer flowering, but my experience has proved that, if well cultivated and manured, with a mulch around the roots, they go on giving us their loveliest buds and flowers until the hard frosts of October or November. I picked a large, half-developed bud of La Reine, on our Thanksgiving Day this season, and many buds of Salet, a pink Perpetual Moss-rose, were frozen on the stems. The Jacquiminot, with its strong scent, that seems like a whiff of Otto of Roses, is the richest in color and beauty, blooming well out of doors; thrifty and strong in stem, and in hardiness unequalled with us. Nor would I be without the Sweet Briar, with its perfumed leaves, unlike anything else that we grow, and its wild flower of beauty, though there are now several varieties with double flowers. The hardy Yellow Rose is allied to this family, and is very beautiful, though its flowers are short-lived. The Lord Macartney (*R. bracteata*) is a half-climber, and lives out of doors with the protection we give it. Of the newer hybrids, both Baroness Rothschilds, in her pink satin gown, and Mabel Morrison in the same of white, did not survive the winter, though protected as all my roses, when they are in full bloom.

My method of cultivation is very simple. The rose-walk is between two rows of apple-trees, 12 feet apart, and kept cultivated early in the season with a one-horse plough. After the July blooming, the ground is once more thoroughly stirred, and a mulch put on, and allowed to remain. It is a favorite promenade, and has many beauties, for between the roses

grow cl  
flush of  
plants.  
soap-sud  
thorough  
also enc  
is a com  
their yo

Wh  
require t  
berries,  
earth ov  
the crow  
some in  
the next  
is of gre  
are kept  
does not  
protectio

Our  
afforded  
unprote  
was fir  
some tin  
shrubs i  
glossy, r  
from te  
flower a  
is perfec  
where s  
that of  
and Lar  
bush.

Mi  
last sur  
it. We  
around  
the infe  
Let no  
With a  
one gro

grow clumps of *Lilium longiflorum*, that come into bloom first after the first flush of roses is over. Early in the season, the aphides often trouble the plants. Our remedy for this is to mix a little kerosene in milk, and add soap-suds to dilute it. With this we water the plants, and after two thorough applications, if given early, the pest generally disappears. We also encourage the small, yellow birds, and the domestic grey birds; and it is a common thing for these little creatures to build their nests and care for their young, among the branches of our choicest roses.

When laying them down for winter protection in this climate they require the same treatment as that given to choice strawberries and raspberries, which, with the latter, is to peg down and then throw a furrow of earth over them. If, at this time, soot is scattered among the shoots and on the crowns, it prevents the attacks of field mice that are often very troublesome in winter, and is said to enhance in richness the coloring of the flowers the next season. Liquid manure, twice a week during the growing season, is of great benefit, and it is only by this rich feeding that Hybrid Perpetuals are kept in bloom. The white rose, Madame Plantier, is quite hardy and does not require pegging down, but all varieties are the better for a little protection in case of a winter of severe snow.

Our climate is considered severe for many things, but the protection afforded by snow enables us to winter safely many things that do not live unprotected in New York. A new species of rose (*R. rugosa*), from Japan, was first sent to this country by Commodore Perry in 1855. It has taken some time to be nated as it deserves, but is really one of the handsomest shrubs in cultivation and a great acquisition. The foliage is dark green and glossy, resembling that of the rose, and the flowers are in terminal clusters from ten to twenty, crimson or white, and very fragrant, continuing in flower all summer, and into the late autumn, if the season is not too dry. It is perfectly hardy, and stood without protection last winter on a terrace where snow did not lodge at all. The flowers are single, and the fragrance that of sweet briar. Another satisfactory but old-fashioned rose, is the York and Lancaster, producing white, red, and often striped flowers on the same bush. It needs room to grow, as the bush becomes very large.

Mildew has never troubled our out-door roses until the latter part of last summer, when Giant de Battles and Magna Charta were attacked by it. We attributed it to the very damp season, and the close growth of trees around the rose walk, that prevented the free circulation of air. To cut off the infected shoots and dust the plants with sulphur is the only remedy. Let no amateur be discouraged from cultivating roses in good garden soil. With a little care and good feeding, no plant better repays attention, and one grows to love them as dear friends.

*Grape Culture in Northern Latitudes, with special attention to Quality rather than Quantity.*

By WM. GRAHAM, Montreal.

The popular delusion that Eastern Ontario and the St. Lawrence valley possess a climate too rigorous and severe for the successful cultivation of the finer varieties of the grape—varieties that were considered “tender” fifteen years ago—is, thanks to the zeal and untiring efforts of a few of our devoted horticulturists and the growing intimacy of many of our people with its culture, becoming gradually dispelled. Although Providence has bountifully supplied our country with many varieties of the Frost and Fox grape, these being found in their wild state everywhere in Canada, except in the Muskoka and Parry Sound districts; it is surprising how slow we have been in the Province of Quebec in taking advantage of our inheritance in this respect. It is true that our climate in winter has a famous reputation for severity. It is severe, and we neither can nor care to deny the fact, or apologize for it. According to Lieut. Ash, however, Quebec, in the season of vegetation, enjoys the inestimable benefit of 4,200 degrees centigrade of heat, being some 1,200 degrees more than Germany—the northern limit of grape culture. This great wealth of heat, however, although slightly inconvenient to the human race, is just what is necessary for the maturing of the grape.

Count de Gasperin, an undoubted European authority on the vine, says “that the climate most favorable to the vine is that where the duration of the season of vegetation is the shortest, and where, during such season, the total heat is the most elevated; where the difference between the solar heat and the minimum heat is the greatest, and where, consequently, vegetation proceeds by *shocks* and not by a uniform march.” This description by de Gasperin, so applicable to our climate, should convince those who delight in depreciating it of their error.

Quebec has never been able to compete successfully with Western Ontario in the produce of the vine. Wherever Quebec exhibits of grapes have been brought into competition with those from Ontario, any casual observer can detect the inferiority of the former in size and maturity. They have an unfinished appearance. Why is this? It cannot be owing entirely to the more genial climate of the west, nor to our want of enterprise in experimenting with the newer varieties. For the last ten years, Ottawa, in

the extreme  
favorable  
grapes c  
awards o  
Associati  
short-con

The g  
ing; and  
constant  
place the  
good en  
take its c  
unsucces  
their effo  
in putting

“Th  
one of ou  
in wood,  
will be p  
adhered  
and vine  
ment to  
subsoil.  
open soil  
and east  
barnyard  
standard  
the vines  
to S. E. a

The  
ciously  
easily re  
cannot g  
ciation o  
My pract  
week du

the extreme East of Ontario, and possessing a climate in no respect more favorable than our own, has thoroughly demonstrated the fact, that as fine grapes can be grown there as anywhere in Ontario. A perusal of the awards of the Ontario Provincial Exhibition and the Industrial and Arts Association of Toronto will prove this. We must, therefore, attribute our short-comings only to careless planting, culture, and pruning.

#### PLANTING.

The great art of vine-culture consists altogether in planting and pruning; and proficiency can only be acquired by experience, and success by constant vigilance. Too many people, when planting out a few vines, place them in that portion of their garden which they consider not quite good enough for root crops, and after planting them, allow nature to take its course. Such people are generally very much disheartened at the unsuccessful issue of their venture, and invariably attribute the failure of their efforts to the ungenial climate and the imposition of the "tree pedlar" in putting off tender and unsuitable varieties on them.

"The vigour of the vegetation of the vine," says Mr. J. M. de Courtney, one of our Provincial authorities, "if allowed to run wild, will expend itself in wood, branches and leaves; and if kept low and short, the same effect will be produced." Two general rules for planting should be zealously adhered to: (1) That a cold clay soil is not a suitable one for vine growing, and vines planted in a soil of this character will only end in disappointment to the grower; and (2) That it is absolutely necessary to have a dry subsoil. A strong warm gravel, a shaley soil, a sandy loam or any free open soil with a dry subsoil, a southern slope and sheltered from the north and east—when made thrifty with a liberal application of well rotted barnyard manure or wood ashes—will grow any of the recognized American standard varieties of grapes satisfactorily and profitably. In our climate, the vines should be planted in rows ten feet apart and running from N. W. to S. E. and trained on trellises.

#### CULTURE.

There is one golden rule that every horticulturist should keep conspicuously before him, and there being only one word in it, it can be the more easily remembered. That is "cultivate." Grape vines, like other plants, cannot get too much cultivation, and no fruit plants will show their appreciation of it more, or reward the cultivator more substantially with results. My practise is to run a horse hoe or scuffler up and down the rows once a week during the growing season and hoe by hand under the vines, keeping

the weeds under complete subjection, and the soil soft and susceptible to both heat and moisture. This cultivation stops only when the fruit begins to color, for then it is desirable to suspend it.

#### PRUNING.

Judicious but fearless pruning is really the only art to be mastered in vine culture, and is one that is practised carelessly and without method or system by many. It is an art that cannot be taught by theory, neither can any cast-iron rule be laid down for anyone's guidance. There are between four and five hundred systems of vine-dressing practised throughout the world, and every vine-grower soon becomes aware of the capabilities and habits of the different varieties under his care, and the necessity of giving some varieties more latitude than others. In order then, to thoroughly understand the art of pruning, one must prune first. Pruning the vine is made pleasant and easy by the use of pruning scissors, although a tedious and irritating operation with a pruning knife, both for the operator and the vines. The scissors make clean and close cuts, and splitting and gashing are obviated. No one having a few vines should be without a pair, when they can be purchased at any seed store for one dollar.

The system of pruning that I adopted in Ottawa some twelve years ago, and which I have adhered to with satisfaction, is a strict renewal one. I had never seen the system practised by anyone, nor have I heard of anyone who has adopted or imitated it; but, after twelve years' experience, I have no hesitation in recommending it as an easy and practical method of training, and one that will not impair the health or diminish the vigour of the vine—one that will give the best results, if not in the quantity of fruit, at least in its quality and perfection, and one peculiarly well adapted to our climate, where the laying down and covering up of the vine for winter protection is indispensable.

In 1875, when grapes grown as far north as Ottawa, competed successfully for the first time at an Ontario Provincial Exhibition—seventeen first prizes having been awarded them against the exhibits of the best growers from the Niagara district, Hamilton, and Toronto—Mr. D. W. Beadle, of St. Catherine's, an Ontario horticultural authority, affirmed at that time, that my system of pruning was butchery, and that the vines were being cropped so heavily and pruned so rigidly that their allotted time on earth would not exceed three years. At the same time, he admitted the excellence of the fruit and its earliness. Undismayed at his grave forebodings, however, I persisted in the system and held the vines in complete subjection, and they have borne a uniform crop annually; to-day they are more vigorous

than they  
of better  
tious one

The  
No dead  
by the jo  
and dise

Fig.  
the latera  
the leadi  
to a stake



Fig. 2  
canes hav  
I

than they were then, and the season of 1885 saw them bear a heavier crop of better grapes than ever they did, although the season was an unpropitious one.

The following short description may induce some to try the system. No dead spurs are left on the vines: the pruning and cutting is done clean by the joint, so as to leave no "dead members" or harborage for insects and disease.

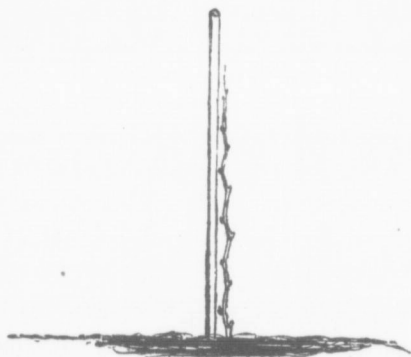


FIG. 1.

Fig. 1 represents the vine at the close of the first season after planting, the lateral shoots being pinched back to one leaf through the summer, and the leading cane which has been allowed to "spread itself," and is tied to a stake, is in the fall cut back to two eyes.

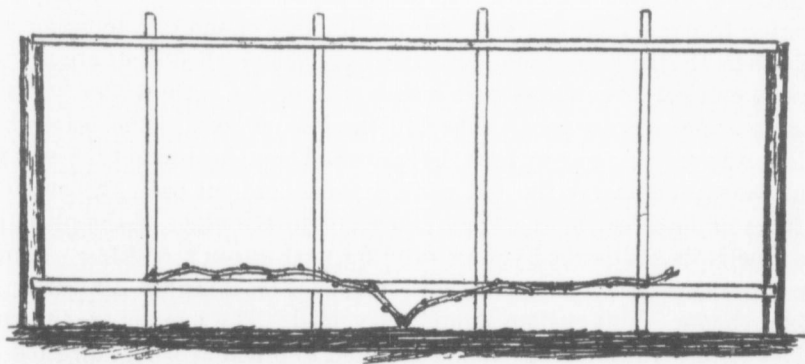


FIG. 2.

Fig. 2 shews the vine at the end of the second season, after the leading canes have been cut back to four feet each side of the stool, and which are

now to form the permanent horizontal canes of the bearing vine. These two canes have been allowed to grow throughout the season, no pinching having been done, except keeping the lateral shoots and sub-laterals back to one leaf. This style of trellis also, made of cedar posts and sawed pine scantlings and pickets, is cheap, neat, and more satisfactory in more ways than one, than wire stretched on posts. Wire is continually contracting and expanding, and in a short time sags, so as to become unsightly.

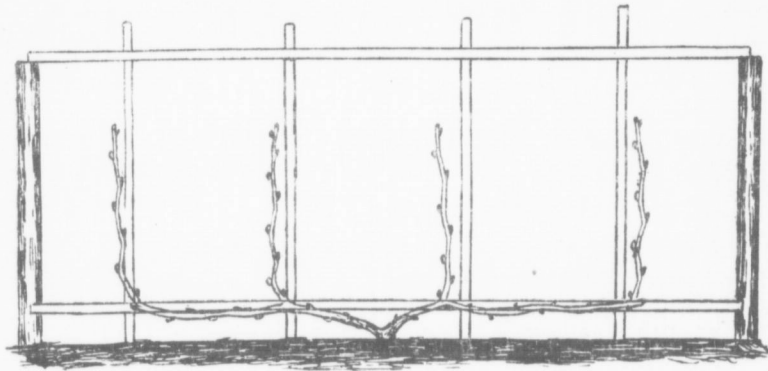


FIG. 3.

Fig. 3 is the vine at the end of the third season, after receiving its fall dressing, the vertical canes being the bearing wood for the ensuing year, and the renewal system simply consists in replacing these upright canes every season with new ones from their junction (or as near it as possible) with the horizontal branches. In the spring, when the young shoots are pushing forward, these canes are selected from them and tied to the pickets, and when the fruit blossoms appear on the young shoots, all are pinched back to one leaf over the second bunch of blossoms, except the four new leading canes in question. Then in the Fall, as soon as the leaves have fallen, cut everything away from the horizontal branches, except the new vertical canes; cut away the old vertical canes, and cut back the new ones to three or four feet, more or less, according to the vigor of the plant, and the vine is then all strong young wood for next season's fruiting. A number of growers follow the pernicious custom of breaking off altogether the lateral shoots. This custom should be avoided. The laterals are the safety valves of the vine and care should be taken to pinch as before directed. It is sometimes necessary to leave more than one leaf on the sub-laterals, if the vine is vigorous.

It will thus be seen that the fruit is nearly all produced on new wood

of the p  
and best  
ripened,  
themselv  
out stron  
good woo

The  
and well  
dividuals  
ing with  
Rev. Fath  
and exper  
had been  
species, b  
but few  
European  
our nativ  
mission i  
plant the  
sometime  
to mildev  
Commissi  
planting  
experimen  
prove a fa

Some  
the Niag  
None of t  
their bein  
modern t  
introduci  
the old rel  
Concord, I  
varieties, i  
quality th  
stand by t  
trary, I r  
seem to ha



of the preceding year's growth, and new wood produces the largest and best clusters of fruit, provided that the wood is strong and well ripened; and, when only four new canes to the vine are allowed to develop themselves, the chances are that the wood will be strong and good. Without strong well-ripened wood, good fruit cannot be expected, and to have good wood should be the constant aim of the grower.

#### VARIETIES.

The popular desire for novelty has led to a very general neglect of old and well-known varieties. Perhaps no individual or allied number of individuals has displayed so much enterprise in introducing and experimenting with the European varieties (*Vitis vinifera*) of grapes in Canada, as the Rev. Fathers of the Montreal College on the Cote des Neiges Road, Montreal, and experience now shows that if the same amount of capital and energy had been devoted to the culture of hybrids of the *labrusca* and *cordifolia* species, better results would have rewarded their efforts. So far, in Canada, but few satisfactory results have attended any efforts to acclimatize the European grape and their main value here is for purposes of crossing with our native hybrids. In his evidence before the Ontario Agricultural Commission in 1881, Mr. Beadle says: "Many attempts have been made to plant the European grapes in Canada. The vines will grow for a while, sometimes they will bear a crop or two, but in the end they will succumb to mildew. During the winter, an inquiry was made, emanating from the Commissioner of Agriculture, about some parties abroad bringing in and planting European grapes. I replied that it was utterly useless; that the experiment had been tried and proved a failure, and that it would always prove a failure."

Some of the recently introduced varieties possess great merit, notably the Niagara, Brighton and Prentiss, all hybrids of the *labrusca* class. None of them, however, have been long enough in cultivation to warrant their being planted extensively. But, when the long array of novelties of modern times have been fairly tested, each of them, we are told on their introduction, being the "best in cultivation," we must return to some of the old reliable sorts for sure and profitable crops—such as the Delaware, Concord, Hartford Prolific, Agawam, Lindley, Merrimac and Salem. These varieties, in our Province, with cultivation and care will yield fruit of a quality that will satisfy the most fastidious. The reader must not understand by this, that I deprecate experiments with new varieties—on the contrary, I recommend such, and from year to year I try such new sorts as seem to have merit.

It is very much to be regretted that the variety known as the Champion, Beaconsfield or Tallman, has been so extensively planted in the district of Montreal. Earliness is its only virtue. The fruit of this variety has tended more than any other, to lower the price of black grapes, regardless of their merits. The public seem to have come to the conclusion that, because the Champion is bad, no other black variety can be good, whereas, in reality, many of the finest flavored varieties in cultivation are black. The Champion has contributed in a marked degree to prejudicing many of the people against the quality of all varieties of our native sorts.

The DELAWARE of unknown species, is, in my opinion, second to none of the standard varieties and, if grown and treated under proper conditions, will not fail to ripen. Although not so productive as some other varieties, it is the most popular to-day with the consumer, commands the highest price, and the market is never glutted with it. Good for table or wine-making.

The CONCORD is probably the most profitable grape grown; but although it has seldom failed to mature with me, it requires to be grown under favorable conditions, as to soil and exposure, to insure its ripening satisfactorily in our climate.

The MERRIMAC, (Rogers' Hybrid, No. 19), AGAWAM (Rogers, No. 15) and LINDLEY (Rogers, No. 9) are all thoroughly reliable varieties. Last season, I cut nearly 60 lbs of perfect and well-ripened clusters of the former variety from one vine. It never fails and is an abundant cropper. From a vine of the latter, 30 lbs of delicious grapes were cut, many of the clusters weighing one pound and a half each. The Barry, Massasoit, Herman, Gærtner, Creveling, Martha, Wilder and Israella are also varieties that will give satisfaction, and will amply repay careful cultivation.

This  
vince of  
Britain a  
leaving i  
supply t  
variety, a  
mentione

ME  
or Buddi  
growth f

Root-  
away in  
graft is b  
together,  
good join  
Mix four  
with a ra

Cleft-  
limb that  
the middl  
open; th  
of the sci  
You then

Budd  
month.  
begin to f  
and a sma  
bud is the  
off the bar  
beneath th  
to connect  
of the bud

### *Apple Culture.*

By R. BRODIE, JR., St. Henri de Montreal, P. Q.

This is a question of great importance to the fruit growers of the Province of Quebec. While there is an increasing demand for apples in Great Britain and Ireland and a new market opening up in the Northwest, we are leaving it to our neighbours in the States and our brothers in Ontario to supply the demand, while the apples we grow, though not so large a variety, are equal, if not superior in quality, to those grown in the above mentioned places.

#### APPLE CULTURE.

**MEANS OF PROPAGATION.**—Apple trees are propagated by Root-grafting or Budding on stalks grown from seed. I prefer Budding, as one year's growth from Budding is equal to two years' growth from the Root-graft.

*Root-grafting* may be done in the winter months and the plants packed away in moss or damp sawdust for spring planting. The way to root-graft is by tongue or whip-grafting, that is, splicing the scion and stalk together, taking care to keep the edges of the bark together, to make a good join, and to cover the splice with grafting wax made as follows:— Mix four parts resin, three parts beeswax, three parts lard. Tie this round with a rag to keep it from melting with the heat of the sun.

*Cleft-grafting* is more used in top-grafting seedling trees. Saw off the limb that you mean to graft with a fine sharp saw; split the limb through the middle with a large knife; use an iron or steel wedge to keep the split open; then cut the scion wedge-shape to fit it, being sure to join the bark of the scion and branch together; after this, the wedge may be withdrawn. You then cover up with wax.

*Budding* may be done from the middle of August to the end of the month. As long as the bark peels freely and as soon as the terminal buds begin to form, an incision is made lengthwise through the bark of the stalk, and a small cut made at right angles at the top resembling the letter **T**. A bud is then taken from a branch of the present year's growth by shaving off the bark an inch and a half in length with a small part of the wood beneath the bud; then remove the wood, for it gives more surface of bark to connect with the stalk. The leaf should be cut off to within half an inch of the bud as the evaporation destroys its vitality. Raise the edges of the

bark at the incision, and push the bud downward under the bark; then bandage up with basswood bark, covering all but the bud. In about three weeks, the basswood binding may be removed.

ORCHARD LAND.—Land for an orchard needs to be thoroughly underdrained or to have good natural drainage. The best I find are stone drains; we have some on our farm that have lasted for over sixty years. It is a good plan to get rid of the stones. I have seen a good young orchard of two hundred trees on stiff clay soil. There was a stone drain under each row of trees and the owner put a flat stone under each tree to prevent the tap-root from penetrating into the cold ground, and he grew magnificent apples.

TRANSPLANTING should be done as soon as the land is ready in spring. Trees should be taken up very carefully. You must not injure the roots with the spade or leave them exposed to the air and sun. Those roots that are injured should be cut off with a sharp knife and the branches should be cut off in proportion, for the roots of a tree extend in every direction as far as the branches. They should be set out to the same depth as in the nursery, the roots should be dipped in a pail of water immediately before they are put in the hole, the roots being spread with the hand and covered with the surface mould after it has been well pulverized, and it will adhere at once to the wet roots. Then put in the rest of the earth, and tread down well with the feet. It takes two to plant—one to hold the tree upright, while the other is putting in the earth. The tree should be inclined a little towards the west, for if planted straight, the high winds from the above quarter prevail in this country, and make them grow with an inclination towards the east.

DISTANCE APART.—One of my orchards is set out with the trees twenty-four feet apart, but now the trees are nearly touching; if I had to plant over again I would set them out thirty-six feet apart with Fameuse, St. Lawrence and other large growing trees, and plant Yellow Transparent, Duchess of Oldenburgh, Red Astrachan, in between. The last-named varieties bear very young and early in the season, but are slow growers, and as soon as the orchard gets crowded, these should be dug out and will have paid very well by that time. As soon as the trees are planted they should be mulched the size of a cart wheel with strawy manure around each tree and one foot in depth. This prevents the drought from penetrating to the roots. If it is a very dry season, go with your water-cart and put a pailful of water to each tree. Trees that do not come out in leaf in the spring very often leaf out in August.

PRUNING should be done in the winter or before the sap flows in the spring. Use a sharp fine-toothed handsaw and a sharp knife. Trees should

have atten  
crowded l  
should be  
is to rub o  
save the  
Large bra  
are atten  
Young or  
old. Care  
ploughing  
not manu  
manured  
I know so  
leave it r  
manure c  
fertilizer;

MEAS  
mic: from  
round ea  
to dry, so  
trees with  
believe P  
myself.  
the bloss  
would be  
used to d  
the rings  
in summe  
beginning

PACK  
apples ca  
Use nice  
the press  
get bask  
tree befor  
this way.  
bud along  
or two, tu  
rapidly.  
spread or

have attention at a year old, the centre of the tree being kept open and not crowded like a haw tree. The branches and shoots that are to be removed, should be cut off close to the main limb. The best way with young trees is to rub off the buds that you want removed with the hand; this will save the trouble and injury of making a wound with a knife later on. Large branches, when cut, should receive a coat of shellac; but if trees are attended to every year, there should be no large branches to cut off. Young orchards do better under a hoed crop till they are about ten years old. Care should be taken not to injure the trees with the whipple-trees when ploughing, and not to plough too deep near the roots. Orchards are often not manured much after they are seeded down in grass, but trees should be manured at least every two years, a Scotch cart-load for every three trees. I know some apple-growers who do not save the hay in these orchards, but leave it rot, to act as a manure, but it is a very expensive fertilizer where manure can be had for the buying. Hard-wood ashes are a very valuable fertilizer; for apple trees, it improves the quality of the fruit very much.

MEASURES OF PREVENTION AGAINST MICE, MOTHS, ETC.—To prevent mice from girdling young trees in winter and spring, tie tar-felt papers round each tree every fall; let the felt be exposed to the air and sun to dry, so that it will not injure the trees. To destroy bark-lice, wash the trees with a strong solution of soft soap. To destroy the Codling Moth, I believe Paris green is used in the States and Ontario. I have not tried it myself. One table-spoonful to a pail of water, and syringe the trees when the blossoms begins to fall. It needs to be used carefully, for an overdose would be apt to destroy the fruit and leaves. I believe Paris green is also used to destroy the caterpillar, instead of the old-fashioned way of picking the rings in winter, and killing the caterpillar by rubbing with the hand in summer. For the Tent Caterpillar, I cut the branches off when they are beginning to propagate, and burn them.

PACKING APPLES FOR MARKET.—The principal thing is how to pack apples carefully and tastefully, so as to command the best market price. Use nice new barrels with hard-wood heads; soft-wood heads cannot stand the pressure. Have light step-ladders that will reach the side of the tree, get baskets with hooks of stout wire or wood, begin by pulling round the tree before climbing into it. You are not likely to shake so many down in this way. Instead of pulling the apple off with a jerk, and breaking off the bud along with the apple so that you will not have fruit for the next year or two, turn the apple up and it breaks off quite easily, and you can do it rapidly. Put the apples gently in the basket and empty them on a sheet spread on the ground, and put the windfalls in another pile. Have two

barrels placed on a plank, one for first, and the other for second choice; choose well-coloured specimens for the head of the barrel, putting them stem downward. Have a basket that will reach the bottom of the barrel, so as not to bruise the fruit by tumbling them in; put the pale-coloured and slightly spotted fruit in the second choice, the culls may be sold for jelly or cider; in filling up the barrel, shake it very little, while it shakes better on the plank and keeps the head of the barrel clean; fill the barrels level with the top, put in the head with a lever or screw-press. Keep the barrels always on the roll till they are ready for use: when they are upright, the pressure on the apples in the bottom is considerable, especially for tender varieties like *Fameuse*. In procuring trees, avoid getting from that greatest of nuisance, the tree pedlar. Send for a catalogue or circular to reliable nurserymen, and, in a climate like our own, do not bring plants from South to the North.

#### VARIETIES SUITABLE TO OUR CLIMATE.

**SUMMER VARIETIES.**—*Yellow Transparent* (Russian). This is the earliest to ripen that we have, is fit for the table by July 27th, promises to be a good bearer, and is very hardy. *Red Astrachan* is a very handsome apple, with a nice, acid flavour and commands the highest price on the market; but the trees are not long-lived. *White Astrachan* is much hardier than the red, but the apple does not sell well, on account of its colour and small size. *Duchess of Oldenburg* is the favourite with most fruit-growers, on account of its hardiness of tree, and handsome and saleable fruit. It is an early and heavy bearer. *Montreal Peach* is as hardy as *Duchess* and better in quality, but the fruit is so soft and tender that it will not carry long distances to market.

**FALL APPLES.**—*St. Lawrence* is one of our best annual bearers of large delicious fruit fit for the table or cooking. The only drawback is that it takes a long time to come into bearing. It commands a good price in the Quebec market. *Alexander* is the largest apple we grow. It sells well, on account of its size and cooking qualities. *Golden White* (New Russian) I have had these seven years planted, and they promise to be an acquisition to our list of fall apples. The trees are as hardy as the *Duchess* and bear as well. The fruit is nearly as large as the *Alexander*, but better in quality, being good both for table and cooking. Our markets are generally glutted with fall fruit from the West, and unless we grow something extra good and well coloured, we cannot command a good price.

**EARLY WINTER VARIETIES.**—*Fameuse* still takes the lead for profit amongst all our apples. *Wealthy* is reckoned the hardiest tree we have. In Renfrew, Ontario, where even the *Duchess* was killed with our severe

winter of  
bearer and  
the opinio  
*rence*, in ap  
shape, of g  
Peppins, b  
is very go

LATE  
this well-  
trees heav  
mises to b  
were as so  
me and ar  
their fine  
command  
winter app  
not a heav

In a y  
and new  
good keep

winter of 1885, the Wealthy came through successfully. The tree is a heavy bearer and bears young; the apple is nearly as large as the St. Lawrence. In the opinion of some, the quality as good as Fameuse. The *Winter St. Lawrence*, in appearance, is like the St. Lawrence, but slightly more conical in shape, of good quality. *Ciline* is a very fine English variety, resembling the Peppins, but the fruit runs larger and the tree makes a stronger growth. It is very good for cooking.

LATE WINTER VARIETIES.—*American Golden Russet*. I need not describe this well-known variety. It is said to be a shy bearer, but I have seen trees heavily laden in some orchards round our mountain. *Ben Davis* promises to be a profitable sort. I kept over a barrel to June 1st, and they were as sound as on the day they were put in. The trees are young with me and are good bearers, quality medium, good cooking, but on account of their fine appearance and keeping to a season when fruit is scarce, they command the highest price. *Blue Pearmain* is one of our most beautiful winter apples. Its size is large with a rich bloom over its surface. It is not a heavy bearer, but of good quality.

In a year or two we hope to find amongst the many Russian varieties and new seedlings from our own province that are coming to light, some good keepers that will pay us to propagate.

---



---

*How to Grow and Flower Chrysanthemums.*

By JOHN DOYLE, Montreal.

Cuttings are usually taken in December, and on until April, from the tips of healthy shoots. They are three or four inches long, and are planted close to the sides of the pots, in light sandy soil, or all sand. Put them in a box or anything convenient, and, if covered with a sheet of glass or paper, they will generally be well rooted in three weeks. As soon as rooted, they should be potted singly in small pots in light soil. As soon as the pots are full of roots, repot them; they require three or four shifts from the cutting pots to the blooming pots.

In order to give the plants every advantage, they must never be allowed to be root-bound, or to flag from drought. These evils are avoided by plunging the pots in the ground and watering the plants regularly in warm weather, two or three times a day. The soil best suited is good, rich, turfy loam, and rotten manure, with as much sand as will keep the soil porous. Before the buds form, and up to the time of flowering, the plants are greatly improved by liquid manure twice a week. The chrysanthemum produces terminal flowers, and has a tendency to send up one leading stem. It therefore requires training to form a handsome plant. As soon as the cuttings are potted and commence growth they are stopped; and continue to stop them at three or four eyes, until there is a sufficient number of shoots. If they are crowded, cut out those not required; cease pinching the large varieties about the middle of July. The Daisy Pompones may be grown in much smaller pots than the larger varieties, and may be topped two or three weeks longer. The plants must be put under cover early in October, and this is the most critical period of their growth. They must not be crowded together, but have plenty of light and air; otherwise the leaves will grow damp, turn yellow, and be picked off, leaving the plants very unsightly objects. When grown to perfection, the chrysanthemum is deservedly a very popular flower in the greenhouse, or as a window plant for those who cannot attend to grow them. The market gardeners generally keep all varieties, and can supply them at all times, from the cutting flowering, at very reasonable prices.

The varieties of chrysanthema are most numerous, but it is very evident that the Japanese are now the favorites. This year I grew amongst others

the follow  
low), Cull

Reflex  
of. Incurv  
ance, such  
white), Pr

Anem  
around w  
perfect.

Daisy  
with all t



---

the following Japanese: Elaine (pure white), Peter the Great (golden yellow), Culling-fordi (a fiery chesnut), and I shall certainly grow them again.

Reflexed flowers mark the old varieties, and are not so much thought of. Incurved flowers fold the petal inward, and give a nice cup-like appearance, such as Jardin des Plants (yellow), Queen of England (creamy white), Prince of Teck, and Mrs. Haliburton, all very fine in their class.

Anemone flowered has a centre of short petals arranged in a globe form, around which are the petals. They are very handsome, but not always perfect. Cedo Nulli is a good type.

Daisy Pompones are very useful, always favorites and easily managed, with all the shades of colour possessed by the larger ones.

*First Winter Meeting.*

The first of the annual winter meetings of the Montreal Horticultural Society and Fruit Growers' Association of the Province of Quebec, was held on Thursday, February 11th, 1886. There were two sessions.

The afternoon session opened at 3 o'clock in the Natural History Society's rooms, with Dr. T. Sterry Hunt, President in the Chair.

INTRODUCTORY REMARKS.

THE PRESIDENT said:—You are aware of the special object which calls us together to-day. As you know, our Society is something more than a local Horticultural Society, since it represents the fruit-growers of the Province of Quebec, and that we have, for several years, been endeavouring to give some practical shape to our interest in fruit culture. In various ways we have taken steps in this direction, and recently we have arranged and prepared a collection of fruit which is to be sent to represent the Province of Quebec, at the Colonial Exhibition. I am glad to see that we have here to-day an important representation of gentlemen from different parts of the Province, interested in fruit culture. I need hardly impress upon you the necessity that there is for giving thorough study to questions connected with the cultivation of the hardy fruits, adapted to our climate; and in other parts of the Dominion, this interest has been growing of late.

In Ontario, a very active society has been engaged in publishing information and distributing different varieties of fruit, and which has done a great deal to advance this important industry. In the United States, the Federal Government and the Local Governments of the different States, also, have expended money in collecting suitable fruits from different parts of the world, and, to a large extent, distributing them gratuitously. Some States have even gone so far as to send commissioners into different parts of the world to select the varieties of fruits suitable to the climates of the respective districts. We have as yet not done much in Canada, but within the last two or three years, some gentlemen connected with our Society, have displayed great zeal and intelligence in introducing varieties of apples suitable to our soil and climate. One of our most honored members, Mr. Charles Gibb—by his travels in Russia—has collected a vast number of rare and precious varieties of the apple; and he has opened up correspondence and business relations between these countries and Canada, which are likely to become most beneficial. This afternoon it is proposed, more especially, to occupy ourselves with a discussion on Grape Cultivation, a

subject v  
tion. Yo  
the grape  
interestin  
moment.  
species en  
species of  
from the  
only on t  
thing like  
pean grap  
studies of  
thirty ye  
to the soi  
through l  
terrean  
taken cen  
to obtain  
periments  
pressed v  
fruit, exc  
found fro  
is the no  
grape cul  
this prec  
and sellin  
about a g  
send app  
and other

It w  
read the  
sudden  
has often  
120 varie  
Prof  
A. L. JAC

The  
specially

subject which is becoming more and more worthy our serious consideration. You are aware what progress has been made in the cultivation of the grape here, and the whole history of the grape in North America is so interesting, that I may be pardoned for calling your attention to it for a moment. Almost all are doubtless aware that the European grape is a species entirely distinct from the grapes of this continent. We have several species of native grapes which flourish to the east of the Rocky Mountains from the shores of the St. Lawrence down as far as the Gulf States. It was only on the western coast that the European grape was able to get anything like fair foothold, for diseases were very likely to apply to the European grape in the whole region east of the Rocky Mountains. The careful studies of cultivators in the United States, within the last twenty-five or thirty years, have given us many varieties of grapes, valuable, and suitable to the soil. We should remember, before we are discouraged, that in Europe, through France, Italy, Spain, Germany, and along the shores of the Mediterranean, nearly every district has its almost peculiar grape, and that it has taken centuries and centuries of study and experiment in those old countries to obtain suitable varieties. Only for twenty years have we been making experiments in grape culture in North America, and one cannot fail to be impressed with the wonderful progress made. Grapes bearing abundant fruit, excellent in flavor, and suitable for the manufacture of wine, are now found from the Island of Montreal, perhaps as far west as Manitoba, which is the northern limit of the grape, and the whole result of the history of grape culture in Canada, is such as to give us great hope for the future of this precious fruit. Another important question for us, is the marketing and selling of our fruit. The improved methods of storage have brought about a great change, and it is probable that not only shall we be able to send apples to the less favored climate of Great Britain, but also grapes and other delicate fruits.

It was expected that Mr. W. Mead Pattison, of Clarenceville, would read the opening paper on out-door grapes, but he was absent owing to the sudden illness of a friend. Mr. Pattison is our largest experimenter and has often exhibited collection of 65 varieties. He has had under trial over 120 varieties and reports his successes and failures each year.

Professor Penhallow then read the following paper contributed by Mrs. A. L. JACK, of Chateauguay Basin, P.Q., on

#### THE GRAPES OF A SEASON.

The children often sing snatches of a hymn that seems to have been specially written to suit the vineyardist, for the refrain begins and ends,

"Go work in My vineyard, there's *plenty to do*." And to be successful in this branch of horticulture, one must work and watch, and often *wait*, when spring frosts destroy our hopes of a harvest, by blighting the newly formed buds. The season of 1885 was favorable for the growth and ripening of outdoor grapes, though the September frosts found us hardly through the beautiful harvest in our vineyard at Chateauguay Basin. The land is a gravelly loam, that has a gradual slope south and east, and the earliest grapes of all varieties are those that have best exposure to the rays of the *morning* sun. This has been proved by many years' experience. The first ripe grapes were picked the last week of August, from a small, sweet, dark grape called *Early Dawn*, and a three-year old plant of Lady bore a few branches that were perfectly ripe a fortnight before those on the old vine could be eaten. The Lady succeeds well with us, it is a thrifty grower, an even bearer, and fruit of first-class quality. Hartford and Moore's Early do not ripen before Concord, but Duchess, our sweet, pale-green grape, was a few days earlier, only on account of its clear, green colour, no one suspected it of nearness to ripeness, and the branches did not tempt the novice in search of early fruit.

I have not mentioned Champion, which has been foisted on the public under another name or two for the sake of experiments. But the memory of some of our hard-working French Canadian neighbours, who were tempted to invest in this fraud to a large extent, by unreliable agents, puts it beyond the pale of horticultural mention.

A vine of the Worden ripened before Concord, and Hartford, which latter we at last have, true to name, after several trials. These are early and prolific with us, in fact, the main crop.

Ripening with our principal crop, the Concord, of which we sold about 3000 lbs., were Agawan, Croton, Martha, Brant, and that queen of grapes for flavor, the Brighton. The Salem, Vergennes, Wilder and Herbert, ripened the past season, but I fear would not do so in a later year. We had a few bunches of Jessica, that were small and of poor flavor. Our Niagaras ripened with the Concord, and were of very fine quality. The vines were young, but were loaded with large, well-formed bunches. It was quite a picture when the gathering time came; and at the first touch of frost to the leaves, some kindly neighbors came to help our over-burdened hands. It was a common remark to hear them say, "Well, I never believed it true before, and thought they only grew like this in pictures." The Pocklington did not ripen, nor the Prentiss, and for the first time, that rich frost-proof grape, Othello, mildewed with us.

A neighbor's discriminating cow, managed to destroy our Lady Washington, by cropping down roots and branch, when it was first coming into

bearing, b  
well, but  
some othe  
other grov  
the latter  
possess. E  
retains its  
insipid. T  
liable to d  
even past  
which we  
all yet in  
on galvan  
2½ and 4½

Our r  
vines are  
large, bet  
dressing o  
food. Th  
baskets be  
of horticu  
and can b  
bunches, f  
ren can ti  
in getting  
munities  
this season  
state of th  
what vari  
ket is onc  
and Herbe  
among wh  
is of inter  
end in vie  
may be in  
selling at  
All things  
than grap  
forth a per  
fascination

bearing, but I fear it, too, is late for our section of country. Delaware ripens well, but having been disappointed three times by nurserymen sending us some other varieties, I can only judge from those that have been ripened by other growers. I would here speak a good word for *white* and *red* grapes, the latter having keeping qualities that many of the black ones do not possess. Eumelan, however, is perhaps the finest flavored grape of all, and retains its rich, dark color and sprightliness, after many others have become insipid. The white grape Duchess is the best keeper of that color, and is not liable to drop from the stem, being fresh and firm until the holidays, and even past the New Year, if kept in a cool room, without any extra care, which we have done for several seasons. Our three acres of vineyard, not all yet in bearing, are set twelve feet apart each way. The vines are trained on galvanized wire No. 12, the supports being cedar posts. The wires are  $2\frac{1}{2}$  and  $4\frac{1}{2}$  feet from the ground.

Our method of cultivation is to keep the ground clean, and while the vines are young, we admit one row of crop that will not spread, or grow large, between them. Besides barn-yard manure we give, when possible, a dressing of black muck, in which the vine seems to revel, as its natural food. The work of harvesting is pleasant, and not very arduous. The baskets being light, and holding from eight to fifteen pounds. It is a part of horticulture for women and children that is health-giving and profitable and can be learned without any effort, except to distinguish fully ripened bunches, for it is seldom a vine can be cleared at the first cutting. Children can ticket and cover with very little practice and there is no difficulty in getting all the help required at very reasonable rates in most rural communities for harvesting this luscious and favorite fruit. The prices varied this season from five to fifteen cents per pound, according to quality and the state of the market. What grape growers want is a better knowledge as to what varieties can be grown with profit, that may be held back, if the market is once stocked. From my experience I could best recommend Eumelan and Herbert for black, Agawam and Delaware for red, and Duchess is peerless among white grapes for late keeping. We want grapes all winter, and it is of interest to every horticulturist to test the different varieties with that end in view, and to give their willing support to any practical method that may be introduced for supplying our tables in winter with this fruit, and selling at more remunerative prices after the glut in the market is past. All things considered, there is no department of horticulture more attractive than grape growing. The vines in blossom during later May time give forth a perfume that is unlike any other in its subtle fragrance, while the fascinations of a vineyard laden with clusters of ripened fruit must be

experienced to be appreciated. But work and constant vigilance are required, with intelligent care, if one expects to reap the harvest.

Mr. HUGH McCOLL, of St. Joseph du Lac, read the following paper on

#### GRAPE CULTURE.

Owing to the shortness of the summer season in the Province of Quebec, to be successful in grape growing, it is necessary to adopt the following rules in order to promote a rapid growth of vine and early maturing of fruit and thus escape the early frosts which are so destructive to tender fruits.

The first thing to be done after the ground has been thoroughly cleaned and pulverized, is to draw the line of trellis so that the sun will bear on one side in the morning and the other in the afternoon. To ascertain the right direction, place a pole in a perpendicular position in the southern part of the field and at 12 o'clock noon run a line parallel with the shadow of said pole. This will be the base line and from it subsequent lines should be measured off ten feet apart, parallel with the first: these will be the lines of trellis.

Plant good two-year-old vines, five feet apart, in line with the trellis (as they require little care during the first summer, vegetables may be cultivated between the trellises to keep the ground free from weeds), and in the latter part of October care must be taken in pruning the young plants which are to remain in shape and position for all time, summer and winter. Choose the two best canes on each plant, removing all others, and cut the two chosen ones back to two feet six inches in length, lay one to the right and the other to the left in line with the trellis. This being done with each plant, cover to the depth of six inches with earth taken from between the trellis.

In spring do not uncover too early, as the spring frosts injure the tender bud. Remove the earth or covering by hand, being careful not to injure or break off the bud. Return the earth to its original position; keep the vine in its horizontal position, train the young and tender laterals on the trellis, tying them to the bars as they grow, and when they have reached the fourth and last bar, pinch off the end of lateral to stop its growth and thus allow the whole strength of the plant to flow towards nourishing and maturing the fruit. Pinching should be attended to weekly. In the latter part of October, cut all the laterals or trim off the season's growth back to one bud, which will allow from twelve to fourteen vines to each plant the following season. Apply fertilizers in a liquid state. To fifty gallons of water add five gallons of dropping from hen-roosts and apply

with a w  
A top-dr  
spring.  
in growin

Mr. I

*Ambro*  
its fruit a  
earlier th  
of median  
spicy and

*Augu*  
Bunches  
oblong; f  
gathered

*Jeffer*  
recommen

*Duche*  
planting f  
small, but

*Brigh*  
year, and

*Prent*  
time, and  
good to ea

*Jessic*  
them mis

I hav  
Herbert, V

Mr. C  
He had fr  
him:—i. I  
(Rogers N  
Aminia (R  
F

with a watering can every two or three days while the vines are in bloom. A top-dressing of unleached, hard-wood ashes should be applied every spring. By following the above few simple rules, I have been successful in growing several varieties of grapes, fully matured, at St. Joseph du Lac.

Mr. R. BENNY, of Montreal, gave the following as his experience with

#### SUCCESSFUL VARIETIES.

*Amber Queen*.—It has fruited with me the last two seasons. It ripened its fruit about September 10th, being the earliest I have—about a week earlier than the Northern Muscadine. The bunches and berries are of medium size; color a reddish purple; quality superior; flavor rich and spicy and a good keeper. Vine healthy, productive and vigorous.

*August Giant*.—It fruited with me last season for the first time. Bunches large; berries black, very large and handsome and somewhat oblong; flavor good, tender and rich; should be eaten soon after being gathered as they are apt to lose their flavor.

*Jefferson*.—Is one of the most delicious grapes I have, but would not recommend it, as it is rather late in ripening.

*Duchess*.—A white grape of good, fine flavor. The three first years after planting found it a very slow grower; and the two first years the fruit was small, but as the vine gets older the berries improve in size.

*Brighton, Salem* and *Wilder* generally ripen their fruit with me every year, and I consider them good varieties for this neighbourhood.

*Prentiss* and *Lady Washington* fruited with me last year for the first time, and on October 3rd they were not quite fully ripe, but were fairly good to eat; I consider them rather late.

*Jessica*.—I planted two vines of this variety two years ago and find them miserable growers, having made only about a foot of wood.

I have planted Niagara, Empire State, Lady, Amenia, Massasoit, Herbert, Vergennes, and Early Victor. They have not fruited yet.

Mr. CHARLES GIBB, of Abbotsford, then read a paper on out-door grapes. He had fruited 47 varieties. The following had been most successful with him:—i. Delaware, ii. Brighton, iii. Lindley (Rogers No. 9) or Massasoit (Rogers No. 3), iv. Duchess, v. Worden or Herbert (Rogers No. 44) or Amenia (Rogers No. 39).

## DISCUSSION ON THE ADIRONDACK, ETC.

Mr. N. C. FISK :—I would agree with Mr. Gibb if he put the Adirondack on his list. Certainly that grape is what the Fameuse is amongst the apples, and I am surprised to see it omitted. It bears well and even better than the Delaware. The Duchess is a fine grape, but it is new with us and I prefer the Adirondack.

Mr. DOYLE :—Is it white or black?

Mr. N. C. FISK :—It is a dark grape.

Mr. DOYLE :—It is the best grape grown on the Island of Montreal. It does not fall off when ripe and the fruit is excellent.

Mr. BRODIE :—What are its faults? Does it not drop off the vine?

Mr. FISK :—No; I have had them for several years, and during that time I have never known it to drop.

THE CHAIRMAN :—It is very interesting to me to hear this about the Adirondack. I believe it was brought here by John W. Bailey, of Plattsburg, N. Y., and the Rev. Mr. Villeneuve grew some of them. I think it was at first recommended for the silver medal, but since then I have found it blamed, and on the other hand I have heard high praise of it. The late Major Campbell, of St. Hilaire, once told me it was the best grape he had.

Mr. GIBB :—The fact is that in naming those varieties, I forgot the Adirondack. If I owned Mr. Fisk's garden, I certainly would be loud in my praises of the Adirondack, but I have none growing such bunches as his. It is of that type of grape which will not drop from the bunch.

A MEMBER :—Is it a good keeper?

Mr. GIBB :—Yes, it is a good keeper. It keeps with care until January, and I have friends who have kept it until the middle of March. It has a pleasant aroma, a good flavor and a friend of mine told me he preferred it to the Black Hamburg. If I could grow the Adirondack as Mr. Fisk does, I certainly would put it at the top of the list.

THE CHAIRMAN :—How many pure natives have you and how many foreigners? The Adirondack is a pure native and the Delaware also, but the Duchess is more or less a foreign fruit.

Mr. GIBB :—That would be a difficult question to answer at a moment's notice. Worden is a native, a pure labrusca, or fox grape. Adirondack belongs to what is sometimes called a southern labrusca group, and may be classed with Isabella and Catawba grapes, with fair keeping qualities, and not inclined to drop from the bunch. Rogers' Hybrids are the offspring of a labrusca polenized with Black Hamburg and Rose Chasselas. Brighton and Duchess are crosses between such hybrids and native grapes.

TR  
Adirond  
parentag  
Mr.  
ripens w  
Mr.  
enough  
Mr.  
by Mr. C  
Mr.  
much in  
I do not  
is becaus  
are fully  
Mr.  
Mr.  
bone and  
grapes, b  
mercial  
for our o  
with oth  
ton and  
Mr.  
Mr.  
market o  
in places  
Mr.  
such qua  
ority in t  
HON.  
Mr.  
Mr. I  
country.  
Mr.  
Mr. J  
quality.  
I cannot s  
country n



THE CHAIRMAN:—I asked Mr. Bailey many years ago regarding the Adirondack, and he said it was a chance seedling, and he did not know its parentage.

MR. R. W. SHEPHERD, JR.:—I should like to ask Mr. Gibb if Worden ripens well?

MR. GIBB:—I have fruited it for three or four years, and it ripens early enough to leave no doubt as to its value.

MR. BROWN asked, Was different treatment given to the Adirondack by Mr. Gibb and Mr. Fisk?

MR. FISK:—There is no difference in the treatment; neither is there much in the soil, both are gravelly, but Mr. Gibb's is a closer gravel, and I do not see that this would make much difference. Mr. Gibb says that it is because they are sheltered on the north by the house, but none of them are fully exposed to the north wind.

MR. BROWN:—The difference must be in the cultivation.

MR. FISK:—My cultivation is nothing more than ordinary. I use some bone and farmyard manure. There are some people very sanguine about grapes, but we must throw a little cold water on their hopes. From a commercial point of view we cannot succeed in grape culture. We may grow for our own use; but if we were to go into the market, we could not compete with other parts of the country. I would suggest that the Delaware, Brighton and Adirondack are the most suitable grapes.

MR. BROWN:—You might add Lindley and Agawam.

MR. O'HARA:—What is the reason, Mr. Fisk, that you say we cannot market our grapes? The facilities for getting to market are better here than in places further away.

MR. FISK:—I admit we are nearer the market, but we cannot grow such quantities per vine as they do in the Windsor country, and the superiority in the quality of the fruit will not make up for the difference.

HON. MR. BEAUBIEN:—Has your land a southern aspect?

MR. FISK:—It rather leans to the west.

MR. R. JACK:—My grapes are just as large as they are in the Windsor country.

MR. N. C. FISK:—I cannot raise them for ten cents per pound.

MR. J. M. FISK:—Then you had better go in for a hardy grape of lower quality. I can go into the market and realize a profit on grapes, but of course I cannot sell the higher quality to the *habitants*. If you want a grape for the country market, grow a larger grape than the Adirondack or the Delaware.

Mr. O'HARA:—Ship your grapes to Montreal, the transit is just as cheap, and you get a higher price than you would in the St. Hyacinthe market.

Mr. SHEPHERD said that Mr. John Fisk had raised a very important point.

Mr. O'HARA:—If you don't ship your grapes to the proper market, you cannot ship them at a profit.

Mr. N. C. FISK:—I have got Champion grapes as well as Adirondacks, and the Adirondacks beat them every time.

Mr. BROWN said that he preferred a ripe little Delaware to any other.

Mr. N. C. FISK:—The Delaware cannot be beaten for flavor, but the Adirondack is very close to it, even in this respect.

Mr. SHEPHERD:—I would like to ask Mr. Fisk if he has cultivated the Lindley at all?

Mr. FISK:—I have had it as long as the Adirondack. It bears well, but the bunches are not so compact as the Adirondack, for there are so many of them.

Mr. BRODIE said he would like to hear about the pruning and cultivation of grapes.

Mr. N. C. FISK then explained his mode of

#### PLANTING AND PRUNING.

My mode of pruning and training the grape is what is called the fan form.

(1.) Procure your vines from good and reliable nurserymen. Good, strong, one year old, vines are the most desirable. When ready to transplant, cut the vine back to two buds.

(2.) Transplanting is effected most perfectly by making a broad hole and rounding up the central portion of the bottom to such a height as will bring the top root of the plant, when planted, to within three inches of the surface of the earth. The stem being cut down to two buds, the plant is placed with the centre on the round surface of the earth; then spread the roots out in every direction, fill the hole with fine pulverized earth and the job is done.

(3.) The vine should not be allowed to fruit before the third year, and the following mode should be adopted, always bearing in mind that the fruit is obtained from the canes of the previous year's growth.

1ST YEAR TREATMENT.—The plant having been cut back to two eyes.

when set out, the strongest eye is allowed to grow (the other being rubbed off), and should be trained to a stake, and in the autumn cut back to two or three eyes, then cover the vine with about six inches of earth.

2ND YEAR.—Grow two canes in the same manner as in the first year, until they reach a height of about four feet, then pinch off the tips, occasionally thereby rendering the shoots and buds stronger, and the wood will ripen better in the autumn. If you have obtained good, strong canes, say about  $\frac{1}{2}$  inch in diameter, and wish to fruit them next year, trim off all laterals and lay them carefully on the ground and cover them with six inches of earth for winter protection.

3RD YEAR.—You will require a trellis, of which there are various forms. When the spring is well advanced and all danger of heavy frost is over, uncover your vines and tie them to your trellis in the shape of a fan. From each eye of these canes there will spring a shoot; when the desired number of these shoots have formed five or six sets of leaves, and properly set for fruit, the tips should be nipped off and all unnecessary growth of laterals or buds rubbed off or pinched back as soon as noticed, throwing as much as possible the strength of the vine into the fruit. It will be necessary to grow two or more canes (according to the strength of the vine) for next year's fruit, starting them from the base of the vine and training them on the trellis, and pinching them back as directed in second year's treatment. In the autumn, after the leaf has fallen, cut off the canes that have borne fruit this year near the base of the vine, trim off all laterals on the canes you have grown this year, cutting them back to the desired length and lay them down and cover for winter.

The viticulturist should bear in mind that if the vine is allowed to set too heavily for fruit, the grapes will be small, the bunches not compact, and the fruit will not ripen well.

Hence judgment is required to let only the required number of shoots grow, and the number of bunches form, that the strength of the vine may grow and ripen well. Most vines will send from one to three shoots from each eye on the cane. In no case should there be more than one shoot allowed to grow to each eye and not more than three bunches to each shoot.

A cheap trellis is made by planting a stake on east and west side of vine, about four feet apart, inclining to the north and nailing a few slats thereon. There are various opinions as to the distance vines should be set, I should think eight feet would be about the right distance.

Mr. O'HARA said that he believed the spur system of pruning was undoubtedly the best in the country. He had tried it successfully for twenty-five years.

REV. R. HAMILTON :—Do your remarks refer to out-door vines as well as in-door ?

Mr. O'HARA.—To both. My experience is that there is no difference as far as pruning is concerned.

Mr. JACK asked for Mr. Smith's experience in grape culture.

Mr. SMITH said that he could not agree with Mr. Fisk's plan. If the cane was good, what was the use of cutting it away after fruiting it one year ? I grow on the cane two, three, and five years ; and the fruit is better all the time.

Mr. FISK said that this was new to him.

Mr. SMITH said that they would fruit for eight or nine years. He grew both the Adirondack and the Champion by this system of "caning" and he fruited the Adirondack as frequently as the Champion.

THE CHAIRMAN :—You all seem to agree that the Adirondack is quite as good a bearer as the Champion.

Mr. SMITH :—I like the Champion, because it fruits a few weeks earlier than the others. I can assure you that a good Champion is not a bad grape.

Mr. N. C. FISK :—A man grows a Champion when he cannot grow anything else.

Mr. J. FISK :—I have known a Champion to grow where no other grape would grow.

Mr. BAKER EDWARDS asked for an expression of opinion on the Agawam.

Mr. BENNY said that he had grown the Amber Queen and the August Giant and found them satisfactory.

Mr. MCCOLL said that he always tried to keep his vines to the west, which he found better than the south or the east. He had planted them ten feet apart.

Mr. JACK asked Mr. Fisk how many pounds of grapes he got from a vine by his mode of treatment ?

Mr. FISK said he did not exactly remember how many pounds, but it was somewhere about eight or nine.

Mr. TOMKINS said that he grew forty pounds of grapes on his old Champion vines.

Mr. SMITH said that he found it a successful plan to mulch with cow's manure.

REV. R. HAMILTON said that he had twenty-seven vines and he was fully satisfied that he took 300 pounds off them.

PROF.  
ment, judg  
forced the  
was this w  
canes.

Mr. F  
and he fou

The d  
L'Islet, rea

I neve  
ture to so

If Mr.  
not know al  
wants me

Many  
in a locality  
is not rich,  
tural Socie  
done by th  
varieties of  
and I have  
proved mo

We ha  
veteran ho  
Duchess in

I also  
merit of th  
of the Pro  
Society wo  
known as t  
the north a  
Quebec, as

The or  
are planted  
sells at pr  
and its goo

The go  
being alwa

PROF. D. P. PENHALLOW explained that in Mr. Smith's plan of treatment, judging from what had been said, by excessive pruning Mr. Smith forced the development of adventitious buds. It appeared to him that it was this which Mr. Smith depends on for the formation of his new fruit canes.

Mr. FISK said that he did not mulch his vines until the end of July and he found from experience that this was the proper time.

The discussion on grapes then ended, and Mr. AUGUSTE DUPUIS, of L'Islet, read the following paper on

#### PLUM CULTURE.

I never expected that I would be called to read a paper on fruit culture to so distinguished a meeting of Horticulturists.

If Mr. Henry Evans had invited me to contribute a paper on *what I do not know* about plum culture, I could have to read a big book ; but as he wants me to tell you *what I know* it will be a short paper.

Many of you are aware that I reside seventy miles northeast of Quebec, in a locality where fruit trees are cultivated at a great disadvantage. The soil is not rich, the climate is very severe. Since its organization the Horticultural Society of L'Islet County has watched, with great interest, the work done by the Montreal Horticultural Society. We have planted most of the varieties of fruit trees recommended as hardy and valuable by your Society, and I have the pleasure to inform you that many of these varieties have proved most suitable to our soil and climate.

We have on trial several varieties of Russian apples, suggested by our veteran horticulturist, Mr. Charles Gibb, which promise to rival the Duchess in hardiness.

I also acknowledge our indebtedness to your Society, which has the merit of the slow but effective progress going on in our less favored section of the Province. By intercourse with the leading members of this Society we have learned to appreciate the value of our plums generally known as the blue and white "Orleans," which are grown extensively on the north and south shores, and on the Islands of the St. Lawrence, below Quebec, as far down as Rimouski.

The orchards, heretofore neglected, receive more attention, new ones are planted and a large percentage of the plums comes to your market and sells at profitable prices. Dealers admit that the flavor of the Orleans and its good keeping qualities are not surpassed.

The good qualities of these plums being admitted, and the demand being always greater than the quantity offered, practical men will ask if

the culture is profitable? To this I can answer positively, that, with very little expense and care, farmers have realized much more money with plums than with any other crop; and the prospect for the future is better than ever, if we may judge of it by the great sales in Montreal of Ontario plums of inferior quality, at \$1.25 to \$1.50 per basket of a quarter bushel, in September last.

Most of the plum orchards around and below Quebec, are on sandy soil; the grass growing under the trees is not disturbed and generally no fertilizer is applied. The trees make a slow growth, and form wood always mature, which is not injured by the greatest cold, nor by sudden and extreme changes of temperature. They produce fruit early and continue to do so every second year.

The same trees, cultivated more carefully, with the soil dug and heavily manured, in a sheltered part of my garden, make a fine growth, but after the second year they were frozen to death. Though the starving of the trees, to procure sound wood, is very easy and not expensive, the method was not approved by the members of L'Islet Horticultural Society and some of them now moderately cover the ground with manure in spring all around the trees; but they do not disturb the sod. A good and sound growth is the result; the trees bear more abundantly, and the fruit is larger and better. In the month of August, in very dry seasons, a thick covering of straw, old hay or litter, is put under the trees laden with fruit. Trees thus treated show by their dark-green foliage that they are not exhausted by the crop.

A few years ago I remarked that Mr. Durand's Orleans plum trees were heavily laden with fruit, and there were no plums elsewhere that year. The proprietor was superstitious; he told me that the old horseshoes which he put in his trees brought him the luck. His orchard lies at the foot of a hill, on wet, rich, sandy soil; shoots four feet in length of one year's growth, were common on his trees. Mr. Durand told me that his father's method, which he followed, was to bend, in July, all fast-growing shoots and keep them bent by old horseshoes.

The bending broke the tissues of the wood sufficiently to stop the sap, securing an early cessation and ripening of wood growth. What success Mr. Durand attributes to the virtue of the horseshoes, was due only to the bending of the branches, but he does not believe it.

The two principal varieties of plums grown in our section, known as "Orleans" in the Quebec market, are the Damas and Imperial, both blue. The Damas is of medium size, oval, flesh juicy, not adhering to the stone, tree a great bearer. The Imperial is larger, round, delicious, tree not so

productive,  
grown und  
and appear

Mr. Ve  
in 1884, ele  
most of wh  
(now decea  
study of th  
prove super  
Society wil

I have  
great many  
ted. I have  
Claude, bu  
hardier and  
the trees br  
Orleans; th  
plums are r  
are the Brad  
grafted on

Black K  
stroying it,  
pillars and p  
do considera

I will c  
ning. The p  
ging and tr  
Several mos  
growth; the  
two or there  
in the fall w

Our Soc  
every farmer  
tree growing  
ports transla  
of Horticultu  
ties. The R  
ture, well  
Agriculture.

productive, but large and strong. A great many seedlings of these are now grown under the same names, resembling the parent more or less in quality and appearance.

Mr. Verreault, the Secretary of L'Islet Horticultural Society, exhibited, in 1884, eleven varieties of the blue Orleans from his orchard of 300 trees, most of which are from eighty to one hundred years old. Mr. A. Morin (now deceased) had nine varieties grafted on the same tree. By a careful study of the points of merit of these numerous seedlings, some of them may prove superior to the parents if possible, and be worth propagating. Our Society will not neglect this question.

I have not yet mentioned the White Orleans. Under this name a great many seedlings of the Reine Claude of Montmorency are cultivated. I have not met with a seedling yet, which was as good as the Reine Claude, but a great number of the seedlings produce fruits which are hardier and less affected in transport than the Reine Claude. Most of the trees branch low, spread, and never attain the height of the Blue Orleans; they are early and abundant bearers, and very hardy. Foreign plums are not much grown near Quebec. The most promising varieties are the Bradshaw, Lombard, Imperial Gage, Green Gage, Smith's Orleans, grafted on hardy plum stock.

Black Knot has made its appearance lately. We hope to succeed in destroying it, before it extends its ravages on the south shore. Ants, caterpillars and plant lice, of late years, have been more abundant, and sometimes do considerable injury to the trees and fruits.

I will end, gentlemen, by what I should have written in the beginning. The propagation of the plum is done generally, in our section, by digging and transplanting the shoots sent up from the roots of the trees. Several most careful gardeners use the shoots of the previous season's growth; they peg them them down flat in the spring and cover them with two or three inches of earth. Each bud produces a shoot, generally rooted in the fall well enough to be separated and transplanted.

Our Society is earnestly desirous to join you in the endeavor to engage every farmer and owner of land, in the agreeable pursuit of fruit and forest tree growing. To obtain this end, we ask you to have your annual Reports translated and published in French for free distribution to members of Horticultural and Agricultural Societies in the French Canadian Counties. The Reports contain practical and scientific methods in Horticulture, well worthy of a place in the Reports of the Department of Agriculture. In using your influence with the Government, you would,

no doubt, obtain the favor of having the work done at public expense, and the free distribution of it, would help us who need it the most.

The Reports of the Society, which you have sent us have been utilized by only eight members—who, when they meddle with English, make as poor a figure as I do now. We also solicit your influence to have the Government grant County Societies \$150 each for the greater encouragement of fruit culture; for purchase of plants, books and periodicals; to give better prizes for fruits, flowers, collections of injurious insects, birds, etc. Mr. Gibb, being now a member of the Council of Agriculture, will, no doubt, use his influence in this direction. I am sorry to inform you that the grant to our Society for 1885 has not yet been paid, though we held an Exhibition in September last. Would it not be better for our County Societies to receive their grants direct from Government?

This was succeeded by a paper by Mr. CHARLES GIBB, entitled—

#### PLUMS FOR COLD CLIMATES.

I now succeed in having a crop of plums every year. In the spring of '73, I planted a number of root-grafts, grafted upon the wild plum of Wisconsin. Where the graft did not take, I allowed the root to grow, and I soon had a number of trees which bore me five crops in succession, took a year's rest, and bore a heavy crop on the succeeding year. These plums differed somewhat in quality. The poor ones I cut out, the good ones are of medium size, red, very juicy, rich and nice for eating, provided you do not chew the skin too well. Two varieties which I have named the *Leonard* and the *Anna* I think a great deal of. These plums are good for cooking, but after they have been canned for some months, the astringency of the skin and stone becomes very *prononcé*.

Another type of plum that I have is the *Miner*, a variety of the *Chickasaw*, a good-sized, dull, dark red plum, with a flavor like a musk melon, ripening about the first of October, and may be kept till November. It is nice for eating or for cooking, and if one takes the trouble to peel it, would pass for a really high class plum. I have sometimes exhibited it in a good sized basket, with a notice "take one," and I find they are generally well liked.

The plums of Western Europe have not done well with me. In this climate they need some specially favorable place to bear regularly. Lombard has done best, and about three years ago was loaded with fine fruit, and the second and third years afterwards, bore a few. I have a tree which I believe to be *Washington*, which bears lightly, nearly every year, a fruit of the finest imaginable quality. *McLaughlin* has borne lightly, so has

Bradshaw.  
Golden Drop  
like Quacker  
as most of the  
been pronounced  
had to cut it  
pean plums  
short-lived, a  
sian Plums w  
the *Prunus* S  
Pomme Gris.  
The plums v  
varieties of t  
brought to ne  
quality, have  
medium-sized  
It has been fr  
saw it fruitin  
mer, a small c  
for a native p  
about the skin  
even than Mo  
of the Rocky  
inggrounds.  
Chickasaws v  
the Iowa Coll  
very delicate,  
us of a wond  
which bears  
you to unders  
except Rolling  
of the Volga,  
beautiful brig  
But of all the  
a rampant gro  
but moderately  
season when I  
western plums

I have not  
been troubled



Bradshaw. I might say the same of a high-qualified plum, just like Coe's Golden Drop. I have also a blue plum of the largest size, and fine quality like Quackenboss, which has borne lightly. Of many kinds I am in doubt, as most of the trees I bought were wrongly labelled. Moore's Arctic has been pronounced extra hardy, and proof against Black Knot, but I have had to cut it all to pieces, to cut off its black knots. Although these European plums have given me a certain amount of fine fruit, yet they are often short-lived, and their bearing quite unsatisfactory. I have also a few Russian Plums which seem hardy, but are not old enough to bear. I have also the *Prunus Simonii* of China, a tree very unlike a plum, and fruit flat like a Pomme Gris. This tree seems about as hardy as Lombard or Washington. The plums we need for planting in open exposure are the improved varieties of the native plums of the West. Many of these have been brought to notice, and for their heavy bearings, hardiness, and good, fair quality, have made friends. Of these, De Sota is very well spoken of, a medium-sized red plum, a shade better in quality than my best Wisconsin. It has been fruited at Como. Mooreman is a plum I think a great deal of. I saw it fruiting on the grounds of Iowa Agricultural College last summer, a small deep-red plum with a small pit, and of unusually good quality for a native plum, and it seemed almost lacking in anything of astringency about the skin. Rolling Stone is said by Prof. Budd to be a better plum even than Mooreman. It is blue and does not belong to any species east of the Rocky Mountains. It and De Sota are both found near Indian camping grounds. Maquoketa is pronounced by Prof. Budd to be the best of the Chickasaws which he has tasted. I saw it in bearing on the grounds of the Iowa Collage last summer—a large purplish red, but moderately juicy, very delicate, but not equal in quality to Mooreman. Accounts also reach us of a wonderful dwarf variety grown by a Mr. Barker, near Ames, Iowa, which bears lots of fruit when only 10 inches high. Gentlemen, I wish you to understand clearly that I have not seen this plum. All the others, except Rolling Stone, I have seen and tasted; but I have seen, on the banks of the Volga, little trees of the *Prunus spinosa*, bearing a gallon or two of beautiful bright blue fruit, and yet not more than eighteen inches in height. But of all the Northwestern plums, the one that struck me most was Wolf, a rampant grower, with large heavy foliage—a large, red, free-stone plum, but moderately juicy, and seemingly of good quality, though rather past season when I tasted it. Pronounced by Prof. Budd, the king of all these western plums.

I have not spoken of any insect pests, for I can hardly say that I have been troubled by any. My European plums are planted in my hen yard,

and I have had no curculio; and my Wisconsin and Chickasaw and other western plums, are not easily injured by it.

In conclusion, I would say that while I look with interest to the introduction of those fine plums which we saw growing in such quantity in the coldest fruit, growing regions of Russia, yet, I expect greater and more extended usefulness from these hardy wildings of our own Continent.

Mr. JAMES BROWN, of Montreal, next contributed the following paper on

#### THE BEST VARIETIES OF PLUM.

Having been requested to read a paper on plums, I must preface my remarks by stating that they are those of an amateur, not a professional, and if they provoke discussion, it is likely that we shall all gain information valuable and helpful to our Society. In the first report of the Montreal Agricultural and Horticultural Society, published ten years ago, we read: "Any one making a list of plums must do so with great hesitation." This remark made then by our worthy and energetic worker, Mr. C. Gibb, is equally applicable to any one making a list to-day, for different localities, situations, stocks, training, etc., will give varying results.

My garden is not more than one-quarter of an acre, so I can only cultivate to a limited extent, but this drawback in space I have endeavoured to counterbalance by good selections, comprising twenty varieties, viz., sixteen seedlings and four grafted or budded trees. The following is my list:—

- |                           |                                |
|---------------------------|--------------------------------|
| 1. Briton.                | 12. Early Pink Dawson.         |
| 2. Corse's Nota Bene.     | 13. Greyling Sauvageon.        |
| 3. " Admiral.             | 14. Marchmount.                |
| 4. " Golden Cluster.      | 15. Large Blue Dawson.         |
| 5. " Great Bearer.        | 16. Lombardy. (Seedlings.)     |
| 6. Unnamed.               | 17. Brandy Gage.               |
| 7. Peach Plum.            | 18. Bradshaw.                  |
| 8. Bolmer's Washington.   | 19. English Large Yellow Gage. |
| 9. Large Greengage.       | 20. Corse's Dictator.          |
| 10. Medium Blue Dictator. | 21. " Sauvageon. (Grafts.)     |
| 11. Pond's Seedling.      |                                |

I have not arranged them according to quality; the taste and judgment of different individuals will require separate classifications.

1. *The Briton Seedling*.—This, in my opinion, is the finest of all my varieties. A very vigorous grower, hardy and long-lived. Fruit about 1½ inches in diameter. Color, darkest blue, rich bloom; flesh, greenish, firm and very juicy; taste, sweet and pleasant. Like the Delaware among grapes, this plum stands alone. But it has this disadvantage, it is the

shyest bearer.  
Fruit never  
"it is like a

2. *Corse's*  
very short-lived  
light purple,  
flavor, very fine  
shower of rain  
of the Admiralty  
this variety,  
September.

3. *Corse's*  
serving of it  
supported. I  
might be mis-

4. I now  
inches in diameter  
when fully  
plum is a very  
the bark red  
we have to  
fruiting every  
member, when  
stalk, and no  
man, after several  
grafted with

5. I now  
*Unnamed*. This  
grows upright  
than by saying  
ton, only one  
nificant plum

6. *The A*  
grower, and  
is a good bearer.  
Color, dark  
rich. It ripens

7. *Pink*  
bearer. Fruit  
soft and per-

shyest bearer of all my varieties. It ripens in the middle of October. Fruit never falls. A member of your Society, when tasting it, remarked, "it is like a mouthful of honey."

2. *Corse's Nota Bene*.—A very fine plum, stout, vigorous grower, but very short-lived. Fruit, about  $1\frac{1}{2}$  inches in diameter, round shaped. Color, light purple, and spotted, when fully ripe. Flesh, light red and very soft; flavor, very fine, and sweet. Fruit falls when fully ripe, and bursts after a shower of rain. None of my trees have attained to more than half the size of the Admiral or Briton; no one wishing a fine plum should be without this variety, as it bears both early and heavily, ripening in middle of September.

3. *Corse's Great Bearer*.—This is a smaller plum than the Nota Bene, deserving of its cognomen, for in a plum season its branches require to be supported. I pass over this fine plum, only remarking that some of its fruit might be mistaken for this Nota Bene, except in size.

4. I now come to a valuable seedling, the *Golden Cluster*. Fruit,  $1\frac{1}{2}$  inches in diameter, and egg-shaped. Color, deep gold, tinged with brown when fully ripe. Flesh, firm and very pleasant, and fine quality. This plum is a very slow grower, with long straggling joints, and the color of the bark red cherry. I have no plum so productive, and almost every year we have to support it, or the branches would break, it is such a bearer, fruiting every year. The fruit hangs in clusters (as some of you may remember, who saw some branches at our exhibition); it adheres firmly to the stalk, and never falls. It is a beautiful sight when loaded, and a gentleman, after seeing and tasting them, remarked, "I'll have all my plums grafted with it." Its fruit ripens so gradually that it lasts for weeks.

5. I now come to a new seedling, which I will only describe as *Unnamed*. The wood is the most tender of all the varieties I know. It grows upright, compact and large leaved. The fruit I cannot better describe than by saying it is the same color, shape and flavor, as Bolmer's Washington, only one-half larger, very near as large as the Admiral. It is a magnificent plum, requiring a sheltered position.

6. *The Admiral*.—This is another of Corse's seedlings, a strong, vigorous grower, and two or three of my trees are eighteen to twenty feet high. It is a good bearer, and hardy. Fruit  $1\frac{3}{8}$  inches in diameter and oval-shaped. Color, dark blue and fine bloom. Flesh, greenish yellow, firm, sweet and rich. It ripens September 10th to 15th a magnificent plum.

7. *Pink Damson*.—A slow grower, long thin branches, and an unfailing bearer. Fruit one inch in diameter. Color, pinky red. Flesh, light pink, soft and perishable, flavor, not first-rate, but it has recommendations of

value. It is ripe in middle of August, long before other plums, it bears every year, and to such an extent that we have to support it perpendicularly, and also horizontally, by attaching an upright pole to the centre of the tree. The fruit falls as it ripens, and, like the Golden Cluster, it takes two or three weeks to mature its crop. This, in these two varieties, is a great recommendation—the Damson ripening as early as August 15th, and Golden Cluster extending into October.

8. *The Dictator* (Corse's)—Is an upright, short-jointed grower, hardy, but not so heavy a bearer as the Admiral. Fruit, egg-shaped, very large, round ends. Color, reddish blue; flesh, reddish, firm, rich, sweet, and highly flavoured. It ripens middle of September, a magnificent plum.

9. *Sauvageon* (Corse's).—Strong, vigorous, hardy, long-lived variety, and very productive. Fruit, dark-blue; flesh, reddish, firm; taste, sweet and pleasant. It is a late plum, ripening middle to end of October.

I pass over the remaining seedlings, only remarking that I do not desire to recommend the above nine varieties as desirable or suited to every taste and locality. In regard to cultivation, if possible, allow the grass to grow under the trees, and when this is impossible, avoid disturbing the roots. Throw some light manure round the trees. Test this on one or two trees, and then adopt or reject the process. Never allow dead wood to remain on your trees: off with it, spring or summer. In planting, spring is the preferable time. The trees have then everything in their favor, genial, fine, warm rains and weather to assist them taking hold in the ground. It is a question whether budded and grafted are preferable to natural trees. I prefer the latter for Quebec. One advantage certainly is, that every shoot or sucker will be true to its parent, and a succession of desirable varieties secured. A few words as to the enemies of our trees.

*Curculio*.—Gather up every fallen plum from the size of a pea up, and burn them. You will find on many of these fallen plums a small dark pin-point-like spot; open it, and with a glass you will find the egg which the curculio has deposited. You only need to gather them every four or five days.

*Black Knot*.—Take up the tree and burn it.

*The English Sparrow*.—This is another pest imported into the country, and a first-rate judge of plums: it goes invariably for the best. Sparrows belong to the freemason order and will not be easily exterminated.

In conclusion, while most of our fine plum trees are comparatively short-lived, would it not be most desirable to graft or bud these finer fruits upon the Orleans of Quebec, as I believe that hardy tree has attained, in many instances, to the age of sixty to eighty years?

The so  
Hunt. Th  
in Horticult

The fir

The q  
to grow ap  
question w  
perience so  
Province.  
to, or remo  
the best of  
difficulties  
rived from  
all sections  
information  
orcharding  
to plant ou  
to set out o  
Let him be  
to succeed  
account, in  
mended for  
points in a  
considerati  
keep a corn  
himself, be  
they will s  
realize an i  
callings in  
is only the  
a climate li

My op  
only. I ho  
some of the  
only during

*Evening Session.*

The society met at eight o'clock, under the presidency of Dr. T. Sterry Hunt. There was a large attendance of citizens and persons interested in Horticulture. The evening was devoted to Apple-culture.

The first paper read was by Mr. R. W. SHEPHERD, JR., entitled :

## BEST VARIETIES OF APPLES FOR PROFIT.

The question naturally arises in the minds of all persons who desire to grow apples for profit, "What are the best varieties to plant? It is a question which cannot be satisfactorily answered by any cultivator of experience so as to apply, generally, to all the apple-growing sections of the Province. The difference of soil, exposure, protection, drainage, proximity to, or remoteness from market, cost of transportation of fruit, (even with the best of cultivation) are factors which effect results, and multiply the difficulties of answering the question; and hence the advantages to be derived from such a meeting as this, where representative orchardists, from all sections of the Province, are gathered together for discussion and mutual information on this important question. A beginner in the business of orcharding ought to be satisfied to progress slowly at first. He ought not to plant out too many trees at once, nor too many varieties. He ought not to set out one tree, unless he has carefully prepared his ground beforehand. Let him begin by setting out only those varieties which have been known to succeed well in his locality. But he ought to experiment on his own account, in a small way, by planting out other varieties which are recommended for hardiness, productiveness and fine appearance, the three great points in a commercial apple,—quality, seemingly, being only a secondary consideration with the general public. I recommend every orchardist to keep a corner of his orchard in which to test new varieties, and to satisfy himself, before setting out a large number of trees of any new variety, that they will succeed in his locality, as by this means only can he expect to realize an interest on his capital commensurate with that of other modest callings in life. One must not be rash in this business of orcharding; it is only the cautious, calculating, observant cultivator, who can succeed in a climate like ours.

My opinion as to the best varieties for profit is that of a beginner only. I hope to have the pleasure of hearing this evening the opinions of some of those here who are "old in the business." I may say that it is only during the last four years that my orchards have begun to bear.

I planted my first orchard of about 100 trees, in 1874, and for six successive springs set out 200 to 250 trees annually; therefore only about one-third of my trees are bearing sufficient to yield a small profit—the number coming into bearing increasing each year.

I have been careful to keep a strict account of the receipts and expenditures in connection with the orchards, as well as the number of bushels sold, and I am able to say what varieties have paid me best, so far.

In ten years hence, perhaps, my list will be much altered; for a tree may be only a moderate bearer, but long-lived, which, in a given number of years, may be more profitable per tree than a heavy bearer, of short life.

From the results of sales of fruit in three years, I place the best "varieties for profit" in the following order:—

1. Fameuse	} Yielded in 3 years, (net, deducting cost of picking fruit, packages, freight)	} Per tree. \$4.40 4.20 4.00 3.10 2.05
2. Duchess		
3. Canada Baldwin		
4. Winter St. Lawrence		
5. Fall St. Lawrence		

But when we consider the above varieties in point of productiveness, we find the order somewhat changed, viz.:—

1. Duchess.....	3.07 bushels per tree.
2. Fameuse.....	3.04 " "
3. Winter St. Lawrence.....	3.00 " "
4. Canada Baldwin.....	2.75 " "
5. Fall St. Lawrence.....	2.16 " "

As to profit and productiveness, therefore, Fameuse and Duchess are very nearly equal. Winter St. Lawrence is a little more productive than Canada Baldwin, but not so profitable per tree. The latter, being a late winter fruit, sells later in the season and at higher prices per bushel than the former. Fall St. Lawrence is the least productive of the list; in fact, I doubt if it can be classed as a profitable tree. Fameuse finds a competitor for first place in the Wealthy.

Taking the sales for one year (1884), I find the order as follows:—

1. Wealthy.....	\$1.90 per tree.
2. Fameuse.....	1.46 "
3. Duchess.....	1.40 "
4. Canada Baldwin.....	1.33 "
5. Winter St. Lawrence.....	1.00 "

These Wealthy trees were set out in 1879. I believe I am safe in say-

ing that w  
time that

The v  
troubled i  
bearing an  
Both have  
their seas  
name is t  
hardiness,  
where the

I hop  
Transparen  
yet been p  
respectivel  
marketabl  
looking ap  
to comman

I hav  
any exten  
seem to be

I hav  
good price  
The only  
The tree b  
on the fal  
proved qu  
All my tre  
regret tha  
for profit.  
hardiness,  
Golden R  
Winter is  
and scarc  
be profitab  
some but

Our g  
found am  
was the W

ing that when the fruit was sold here in the fall of 1884, it was the first time that variety had been marketed in this city or Province.

The weak point in Fameuse is its spotting, but I have not been troubled in that way so far; and the weak point in Wealthy, is its over-bearing and consequent dropping of fruit, before maturity, in high winds. Both have strong points, being, in my opinion, the best table apples of their season. The ladies of my family select the Wealthy (of course the name is taking) in preference to Fameuse, when they can get it. As to hardiness, Wealthy is much superior to Fameuse, the former will grow where the latter will die.

I hope to increase the list of my commercial apples by adding Yellow Transparent (Russian) and Brockville Beauty, these two apples have not yet been put on this market. Being hardy and productive, and ripening, respectively, just before and after Duchess, they fill a gap in my list of marketable varieties. The Brockville Beauty is one of the most attractive looking apples, and its quality is *very good*; marketed in baskets, it ought to command high prices.

I have not cultivated the Montreal Peach or Montreal Strawberry to any extent, because, Montreal being my principal market, these varieties seem to be too plentiful and too cheap.

I have not found Red Astrachan a profitable apple, the fruit sells at good prices, but the tree is such a shy bearer that I cannot recommend it. The only winter apple on my commercial list so far is Canada Baldwin. The tree bears well, fruit of fair size and handsome (specimens are exhibited on the table this evening) and is not subject to spotting. The tree has proved quite hardy. It has the reputation of succeeding well in clay soil. All my trees are growing in gravelly soil and look exceedingly healthy. I regret that I cannot recommend any other late winter variety to cultivate for profit. I have tested a number, but none come up to the standard of hardiness, productiveness and appearance required in a commercial apple. Golden Russet is not sufficiently hardy to plant out in quantity. Scott's Winter is too small. Pewaukee and Blue Pearmain are rather shy bearers and scarcely late-keepers. But I have some hopes that Ben Davis will be profitable, if hardy enough. The tree bears well and the fruit is handsome but of poor quality.

Our great want is a profitable late winter apple. Whether it will be found among the Russians, or among our own seedlings, or hybridized, as was the Wealthy, by that genius among experimentalists, Peter Gideon, of

Minnesota, one thing is certain : it will be heartily welcomed by orchardists of this Province.

Mr. WESTOVER, of Frelighsburg, Missisquoi, opening the discussion on apples, said that he believed the Red Astrachan was a little early.

Mr. HUGH McCALL, of St. Joseph du Lac, said that in his garden he had forty trees of Montreal Peach in a row, and not one of them had been renewed. He could not say this for any other variety. They gave four barrels to the tree.

Mr. N. C. FISK :—What about the Red Astrachan ?

Mr. McCALL :—I cannot say so much for it.

Mr. N. C. FISK :—Have you tried the Duchess of Oldenburg ?

Mr. McCALL :—I have, but they are only beginning to bear.

Mr. FISK :—The Duchess is far ahead of the Red Astrachan.

Mr. WESTOVER :—The Red Astrachan only takes third place as to price, although a good apple.

Mr. McBRIDE said that the Red Astrachan was not wanted in the market at all, whereas in Montreal they could not get enough Duchess.

Mr. NEWMAN said that he agreed with Mr. Fisk. His experience was that he could not get any apple to equal the Duchess.

Mr. N. C. FISK said that the tree was hardy, and would grow nearly anywhere. We have no tree equal to it.

Mr. J. M. FISK said that the Fameuse was a tree that would adapt itself to any soil, light or heavy. The Canada Baldwin, on the other hand, would not grow on every soil. The variety that would adapt itself to universal cultivation was the one they should endeavor to cultivate.

Mr. FISK said that the gentlemen present should not class a Duchess with a Fameuse. The Duchess was a summer apple, and was ready for use long before the Fameuse was ready to be picked. It was probably the best apple that could be cultivated in the Province to suit the market generally.

THE PRESIDENT said that a great deal of the quality of the apple depended on the soil.

Mr. S. S. BAIN said that his experience proved that there was a great deal more in the nature of the soil than some people imagined. Some people thought that, if they planted a Fameuse on a rock or in a valley, it would

all be t  
fruit-cul  
made un  
informat

Mr.  
disease ?

Mr.  
A le  
in answe  
little tin  
limited

He

1. J  
fairly in  
less wa  
well an  
it first f

2. J  
grown n  
for profi

3. J  
the off  
never sp  
fit for a

4. J  
well. I  
older, se  
pruning  
still it c  
trees clo  
much at

5. J  
merly.  
not prod  
hardy a



all be the same thing. The amount of ignorance in this country about fruit-culture was shocking. They should remember that apple trees were made under ground and not above ground. He should like to hear some information about the black smut among apple trees.

Mr. R. BRODIE, JR. :—Where on the Island will you find trees with that disease?

Mr. S. S. BAIN :—Go round the mountain and you will find them.

A letter was then read by Prof. Penhallow from CAPTAIN R. T. RAYNES, in answer to one from Mr. Chas. Gibb. The writer regretted that he had little time to give to the subject, but would offer a few remarks upon a limited number of

#### VARIETIES OF APPLES.

He would speak of them in their order of merit.

1. *Emperor Alexander*.—Bears freely every second year, and occasionally fairly in off years. It is hardy, requires very little pruning, and there is less waste in gathering the crop than in any other tree I know. It sells well and readily, is little affected by the codlin moth, and, therefore, I put it first for profit.

2. *Fameuse*.—Though there are 50 or 100 more trees of this variety grown now for one that was grown twenty-five years ago, I put it second for profit, even at the very low price it is selling for.

3. *Peach of Montreal*.—Bears heavily every second year, seldom or ever the off year; is hardy, requires judicious, not heavy, annual pruning; never spots with me, little affected by codlin moth; sells well, but is only fit for a very near market; requires very careful and tender handling.

4. *Red Astrachan*.—This has not done as well as formerly, but sells well. I do not think this variety is long-lived, as the trees, as they grow older, seem more tender and the fruit smaller. It requires considerable pruning annually. Its ripening its fruit so unevenly is a great drawback; still it commands a good price in market, and where there are a good many trees close together (which saves running about) it is a profitable apple, not much affected by codlin moth.

5. *Duchess*.—I cannot say so much in this variety's favor now as formerly. I thought a great deal of it at one time, but the last few years it has not produced well, and is terribly affected by the codlin moth. The tree is hardy and requires very little pruning. I may be able to report more

favorably of this variety at some future time, as I have not given it as much attention as it requires.

The above five varieties of apples are all I would grow for a near market. I will add some remarks about a few others:—

*Cellini*.—I look upon this apple as by far the most profitable I have grown. It bears heavily every second year; the fruit is always fair, and sells for a good price. I do not think the tree is very long-lived, but as I have very few trees (proper) most of them top-grafted, I may be mistaken, and hope I am.

*Golden Russet* (of Western New York).—This is a fine, hardy tree, making a deal of wood annually, which necessitates very careful pruning. Bears well every second year and fairly in off years, but winter apples I do not consider profitable, unless kept over till spring, which entails a great deal of trouble and risk. Pretty free from codlin moth.

*Jonathan*.—I only grow for my own use. The tree is a slow grower, but bears pretty early, and eventually heavily, every second year; requires similar pruning to Golden Russets; quality first rate, and keeps well; have not noticed its being affected by codlin moth at all.

*Northern Spy*.—Grows well, but will not bear.

*Blue Pearmain*.—Does well in every respect, but does not keep well.

Mr. O'HARA opened the discussion that followed by saying that he did not know a better apple than the Cellini. He knew of some trees which were fifty years old.

Mr. WESTOVER said that the Alexander was a profitable apple, and its flavor was decidedly good. The Canadian market was not good for them, however, but they could be shipped with profit. Last year there was a very large crop of the Alexander.

Mr. O'HARA said that some people on the Island called the Cellini the King of the Pippins. He wished to correct this mistake, because they were two different varieties.

A MEMBER:—Can you distinguish them?

Mr. O'HARA:—There is as much difference between them as there is between a turnip and a beet.

Mr. WESTOVER:—Can any one recommend the Bethel?

Mr. N. C. FISK said that he had a favorable experience of them. How-

ever, w  
apple.  
varieties  
kind.

Mr.  
and Wi  
looked u  
and Gol  
Baldwin  
in qual  
blight.

Mr.  
a very  
Provinc  
Society,  
the app

I.—

SUMMER—

1. Y
2. C
3. T
4. R
5. D
6. P

FALL—

7. S
8. A
9. F

II.—

1. F
2. D
3. Y

III.

SUMMER—

1. Y
2. D

FALL—

3. S

ever, what they should try to cultivate was the most profitable kind of apple. It was all very well for a man to say that he had a great many varieties, but the best thing to say was that he had the most profitable kind.

Mr. O'HARA gave, as his best varieties, St. Lawrence, Alexander, Wealthy, and Winter St. Lawrence. Wealthy was considered a winter apple, but he looked upon it as a fall apple. Of the winter apples—Fameuse, Ben Davis and Golden Russet—he considered the Ben Davis the best. The Canada Baldwin was a hardy tree, and it was a pretty apple, although not so good in quality. The tree was one of the first to leaf, but it was subject to blight. If the soil was open and the frost got over, it would do well.

Mr. JOHN M. FISK said that if he were going to plant, he would select a very few varieties. Probably a list of fifteen would cover the whole Province, but, as was shown by the report of the Montreal Horticultural Society, each locality had its own variety. Mr. Fisk then proceeded to read the appended list :—

#### APPLES FOR CULTIVATION IN THE PROVINCE OF QUEBEC.

##### I.—Fifteen best varieties in order of ripening :

###### SUMMER—

1. Yellow Transparent.
2. Charlottenthaler.
3. Tetofsky,
4. Red Astrachan.
5. Duchess of Oldenburg.
6. Peach.

###### FALL—

7. St. Lawrence.
8. Alexander.
9. Foundling.

###### EARLY WINTER—

10. Wealthy.
11. Fameuse.
12. Winter St. Lawrence.

###### LATE WINTER—

13. Canada Baldwin.
14. Golden Russet.
15. Ben Davis.

##### II.—Five best varieties for profit :

1. Fameuse.
2. Duchess of Oldenburg.
3. Yellow Transparent.

4. Wealthy.
5. Alexander.

##### III.—Five best varieties for family use, named in order of ripening :

###### SUMMER—

1. Yellow Transparent, or Charlottenthaler, equal.
2. Duchess of Oldenburg.

###### FALL—

3. St. Lawrence.

###### EARLY WINTER—

4. Fameuse.

###### LATE WINTER—

5. Golden Russet.

In submitting this list of fifteen varieties for the Province, I am well aware that there are a few not wholly satisfactory for general cultivation, notably Foundling, Canada Baldwin, Ben Davis, and Red Astrachan, which do well in some parts of the Province, while in others they are short-lived and unsatisfactory. The weak point in our fruit list is in the long-keepers, and it is to be hoped that among the new Russians we shall find something to fill these blanks.

Mr. N. C. FISK :—Fifteen varieties are too many to plant into orchard for profit.

Mr. J. M. FISK :—I do not recommend the fifteen varieties to be planted into orchard by one individual, but simply as a list adapted to different parts of the Province, which varies considerably as to soils and latitudes in its southern and northern portions.

HON. Mr. BEAUBIEN asked if any discussion had taken place about the dark spots on apple trees?

THE PRESIDENT said that they had not discussed the question yet.

Mr. SHEPHERD said that, in reference to the remark that the Wealthy was a fall apple, he wished to say that he had kept it into March without trouble. The Winter St. Lawrence was one of the finest in the world.

Mr. FISK said that his experience was that it was an early winter apple, and for the last few years it had failed to keep as long as the Fameuse. He thought that even the Wealthy was earlier than the Fameuse.

Mr. SHEPHERD said that what was wanted in the Province was a profitable, late winter apple.

Mr. GIBB was of opinion that Russian apples were the best for cold winter climates, such as Wisconsin, Minnesota, Iowa. There were about ninety varieties of Russian apples now being cultivated around Abbotsford.

THE PRESIDENT remarked that, in the proper cultivation of suitable varieties of apples, great research and labor were required. It was a fortunate thing for the Society and for the country that Mr. Gibb, who was so well acquainted with the question, took an interest in it, and that he was so well seconded by gentlemen at Abbotsford. He trusted that Mr. Fisk would tell the meeting something of his experience in Russian apples.

Mr. N. C. FISK :—I have had Russian apples for a short time—late varieties. I can scarcely say anything of them, except that they are growing and doing apparently well. None of them have, however, fruited yet.

Mr. F. White? ever, the Alexander

Mr. F.

REV.

lent appl or two, n not very feet high, ties Engl Pippin is it was no

THE

with reg

Mr. C.

Russians in bark b growing as in Car than they was a fin they had to ask M ticular p

REV.

read later

THE

climates the Rhod Utah, wh It was an

Mr.

resemblin tasted the found it

Mr.

in some

Mr. BRODIE asked : Has any gentleman had experience of the Golden White? He said that he had it fruiting for six years. Last year, however, the crop was not so good as formerly. It was almost the size of the Alexander, and far better in quality.

Mr. FISK said that the Yellow Transparent stood next to the Duchess.

REV. R. HAMILTON agreed that the Yellow Transparent was an excellent apple, and came into bearing very early. He had succeeded with one or two, namely, the Switzer. They were about the size of the Fameuse, and not very unlike it in appearance. In two years the trees were about nine feet high, and fairly well developed. I should name amongst my good varieties Englishman's Pippin, Longfield and Good Peasant. The Englishman's Pippin is a Russian apple, although its name would lead one to think that it was not.

THE PRESIDENT asked Mr. Gibb what his experience in Russia was with regard to late winter apples?

Mr. GIBB said that there were lots of late croppers in Russia, but the Russians kept their apples better than we do in Canada. They put them in bark bags instead of barrels, and this was a better process. In the apple-growing districts up to latitude  $54^{\circ}$ , their summer heat was not so great as in Canada. The apples kept better in the shorter Russian summers than they did here. The Wealthy was a good keeper. The Good Peasant was a fine apple, but it was so much like the Longfield that he thought they had made a mistake in the classification in Russia. He would like to ask Mr. Hamilton whether the trees he mentioned were killed in a particular part of the orchard?

REV. R. HAMILTON said he had a paper on the subject which he would read later on.

THE PRESIDENT agreed with Mr. Gibb that apples grown in different climates were better keepers in one place than in another. For instance, the Rhode Island Greening kept into November in passable condition in Utah, where it was largely grown, but this was not the case in New York. It was an apple of very fine flavor.

Mr. N. C. FISK said that the Charlemagne was an excellent apple, resembling the Duchess in appearance, and quite as beautiful. He had tasted the apple, however, and he was disappointed in the flavor, as he found it very stringent.

Mr. SHEPHERD said that Mr. Gibb and he, eight years ago, invested in some Russian varieties, and they had come to the conclusion that the

Count Orloff was nothing more than the White Astrachan. He had not seen any really good apples from that lot yet.

MR. BRODIE said that the Antonofka made a very fine growth with him last season.

REV. R. HAMILTON said that during the winter he had lost a number of trees, and on making investigation he found that the roots were frozen in the ground. He lost Fameuse, St. Lawrence and Golden Russet, but it was remarkable that the trees were not killed where the snow lay on the ground. Some Wealthies and some Duchesses were carried off too. The Cellini came out splendidly, and he always looked upon it as an excellent apple. He should be glad if his experience was any help to those who were attempting to plant fruit trees.

MR. JACK asked what kind of soil it was?

REV. R. HAMILTON said the soil was granitic, with a little humus and not cold in winter. The sub-soil was dry.

#### HARDINESS IN FRUIT TREES.

REV. R. HAMILTON read the following paper:—

What is hardiness? Different views are held on this subject. Some would appear to mean by hardiness, power to endure any amount of neglect; for many, who plant trees carelessly and neglect them ever after, complain that their trees are not hardy. And there are other views. My own view of what constitutes hardiness in a fruit tree, is the power to withstand and survive the coldest weather in the Province of Quebec, while producing a fair crop of good fruit and making a reasonable amount of wood growth. The power of endurance that I would call hardiness is not unconditional. I do not look for a tree capable of resisting 50 or even 40 below zero, but for one that, with a good covering of snow upon the ground, or something to take its place, will bear 30 to 35 below zero, without injury to either wood or fruit buds.

We call our Sugar Maples and Red Oaks hardy trees, and so they are, when growing in the shelter of woods, or when they have attained a sufficient size for their roots to penetrate deeply into the grounds, but, last year, seedlings of Red Oak and Sugar Maple were killed to the ground, and many of them killed outright, when deprived of their natural shelter and a sufficient covering of snow. That is to say, that seedlings or young plants of our hardiest forest trees, when denied the shelter of woods or a deep covering of snow, are as tender as our ordinary fruit trees. Last winter proved

fatal to the apple trees, infer from tenderer, and that inasmuch it is unwisdom winters will say that you shelter and

For some early winter have had wintered by pie under such

Many stand, but be due to the to the artific also to more trees enjoy trees by and the lo their influ young fruit the open ground bar On the oth in the mid unaffected "Ironclad" —and it se vitality lov destroys th ches are an with snow will surviv considered

I have only partly these, the

fatal to thousands of young Fameuse, St. Lawrence and Golden Russet apple trees, but it also proved fatal to young forest trees. Now, I do not infer from all this, that our winters are becoming severer and our trees tenderer, and that we must give up in despair; but, what I do infer, is, that inasmuch as young forest trees require shelter in their earlier growth, it is unwise to expect our young fruit trees to endure the severity of our winters without a reasonable amount of protection; and to hold and to say that young fruit trees are not hardy, while denying them necessary shelter and protection, is to act contrary to the dictates of common sense.

For some few years past, the snow-fall has been uncertain, especially in early winter. When we might naturally have expected snow-falls, we have had very heavy rain, followed by sudden and intense frost accompanied by piercing north-east winds. That young fruit trees should succumb under such circumstances is not to be wondered at.

Many sorts of fruit trees, that utterly fail in the open country, not only stand, but bear well in city gardens and orchards. This success is said to be due to the higher temperature in the city and neighbourhood, and also to the artificial protection furnished by buildings, fences, etc., and perhaps, also to more perfect drainage. All these things are advantages that city trees enjoy. No account seems to be taken of the protection to the roots of trees by such things as currant and gooseberry bushes, raspberries, and the low shrubbery and plants that abound in these gardens, and to their influence in keeping an even coat of snow upon the ground. Give young fruit trees the higher temperature of the city, but expose them in the open field to the bitter winds that carry off the snow and leave the ground bare, and the hardiest of them will lose their hardiness and succumb. On the other hand, some of those that are not the hardiest, when growing in the midst of small fruits, currants, etc., that hold the snow, seem to be unaffected by the coldest weather. They are *hardy*. Fruit trees, those called "Ironclad" not excepted, when grown in ground where the snow blows off—and it seems impossible quite to replace it by any substitute—have their vitality lowered even when they survive, and a second winter generally destroys them. A tree that kills to the snow-line, or whose young branches are annually more or less injured when the ground is well covered with snow, should be regarded as tender and be rejected, while one that will survive under similar circumstances and bear fair fruit, ought to be considered hardy.

I have endeavored to show that the hardiness of fruit trees depends only partly upon the tree and partly on other conditions, and the chief of these, the protection afforded by a heavy covering of snow to the roots.

If, as I surmise, hardiness is in part inherent and in part dependent on certain conditions, then we may be able to answer the question: Is the necessary degree of hardiness attainable?

It is needless to say that we cannot influence the snow-fall, but while we cannot increase the quantity that falls, we can, in some measure at least, prevent what falls being carried off by winds, and we can also furnish protection, which, while it cannot wholly take the place of snow, may suffice for a time. We may not be able to give to the Golden Russet the hardiness of the Duchess, but we may so help it as to enable it to defy the severity of the weather, and maintain its annual growth and bearing. I repeat here what I have said, in a former paper, that the Duchess, which is called "Ironclad," if planted where the snow habitually blows off and leaves the ground naked, will die down as often as it may be replanted, and that the Fameuse, although much less hardy, planted in such a situation that the snow may be collected and retained about its roots, will grow and bear well.

I will now in a few words answer the question: By what means can we attain this necessary degree of hardiness? In effect, this question is partly answered. If we could insure a good covering of snow from the end of November till the beginning of April, there would be nothing further to be desired, but we cannot, and must consequently have recourse to means within our reach. Most writers on this subject recommend shelter belts of forest trees, evergreens, etc., and doubtless a perfect windbreak might be made by that means. There is one serious objection, however, to such a shelter and that is, that of late years, since the advent of the disease called blight or fire-blight, it seems that orchards, so protected, are much more subject to it than are those orchards that are exposed to a free current of air that cannot be had where windbreaks of forest trees occur. Windbreaks that may be had by planting, to be really useful, i. e., to be serviceable and not harmful, must be not higher than the trees they protect. Hedges, in fact, are what is wanted and in orchards of considerable extent they might be planted at intervals of, say, every fifth row, or the same end might be reached by plantations of small fruits, currants, gooseberries and raspberries; these would collect the snow, as well as afford a good degree of protection to the ground. Hedges might be rendered harmful if made of plants that would harbour caterpillars and other vermin. Probably nothing better than cedar can be found for the purpose.

THE PRESIDENT was glad that Mr. Hamilton had shown the question of hardiness in its true light. It was well known that snow was a great

protection in  
and currant

Mr. BAIN  
trees, there w  
to plant an o  
exposed in w  
cultivation.  
always affect  
early spring  
hardy in Can  
found to ansv  
their houses,  
mistake.

PROFESS  
practical exp  
culture. He  
beneath the  
ture. Altho  
ilton, he did  
future, when  
especially as  
coming pres  
localities. It  
ous food, as  
growth of p  
with excess  
ciency in the  
those repro  
Correspondin  
tion in repro  
tuents in the  
moted early  
they came to  
solve many  
rists. While  
of fruit trees  
Northern Ne  
were set in J  
seriously wi  
He found th



protection in winter, and he also found that plants and rows of gooseberry and currant bushes between the trees were valuable as protectors.

Mr. BAIN said that, in connection with the question of hardiness in fruit trees, there was a great deal to be considered. When a man commenced to plant an orchard, he should first select a suitable place which was not exposed in winter. In the hardiness of a tree a great deal depended on the cultivation. Several years ago he found that what was called sun-scald always affected the tree on the southern side where the sun struck it in early spring after the snow had melted. Many of the trees not considered hardy in Canada, if grown in suitable places and suitable soil, would be found to answer the climate well. Most farmers planted the trees near their houses, whether the situation was suitable or not, and this was a great mistake.

PROFESSOR PENHALLOW was sure that the remarks, made by a man of practical experience like Mr. Bain, promised well for the future of orchard culture. He was convinced with Mr. Bain that they would have to look beneath the soil for a great many of the difficulties in the way of fruit culture. Although the matter of protection had been discussed by Mr. Hamilton, he did not think that it touched the bottom of the question. In future, when they came to deal with more rational methods of cultivation, especially as regarded nutrition, they would reach the desired goal in overcoming present difficulties and rendering our trees more hardy in certain localities. It was a well-known law in vegetable physiology that nitrogenous food, as compared with mineral food, had different value in promoting growth of plants. Nitrogenous food, for instance, stimulated vegetation, with excess of wood and leaf development, and as a result there was deficiency in the natural reproductive powers of the plant, and it was upon those reproductive functions that the development of the fruit depended. Corresponding to the excess of vegetation, there was a combined diminution in reproduction. If there were a relative excess of mineral constituents in the food supply, the reverse of this occurred. Mineral food promoted early ripening of the fruit and greater abundance. He thought, if they came to consider the food supply of trees in this relation, they would solve many of the difficulties which now seemed to perplex horticulturists. While he was in Japan, the Government imported large numbers of fruit trees from the United States. The latitude there corresponded with Northern New England from which the trees came, but when the trees were set in Japan they made a very rapid growth and each year were very seriously winter-killed. His attention was officially directed to the fact. He found that the trees attained enormous growth in many cases up to

December 1st, and then, as is usual in northern Japan with a sudden fall of snow, there was a sharp change of temperature and the trees were killed. The Professor recommended a decrease in the supply of nitrogenous food and an increase of mineral food. The result of the practical carrying out of this treatment was most satisfactory, and the trees did well afterwards.

The following communication from Mr. R. D. MACPHERSON, addressed to the President, was then read, containing an account of

#### A CURIOUS CIRCUMSTANCE.

I have been advised by Mr. Evans to call your attention, in view of next meeting of the Montreal Horticultural Society, to the following matter:—

Some fifteen or sixteen years ago I got from Messrs. Evans a young St. Lawrence apple tree, to plant in my garden (366 St. Antoine Street). The tree flourished and grew, is now 25 or 30 feet high, yet has never borne any fruit till last season. One apple of medium size and one small, wilted apple, bore testimony as to its being a fruit bearer! For years we had spoken of cutting it down as useless, but had felt loath to do so, as we had seen it from its infancy grow up luxuriantly to its present proportions, and when Mr. Evans stated that it was really a valuable tree, we thought that it would be well to bring the matter before your Association, it being a curious matter that a native of this Island should refuse to bear fruit, as is so abundantly done by all others of its kind. There must be a reason, which, lest it should happen again, the Society would know how to deal with.

Mr. Evans kindly invited me to attend the meeting on the 11th inst., but it will be out of my power to do so.

Of course, as the ground is covered with snow, nothing can be seen now but a tree with its usual leafless branches, but it can be viewed at any time.

PROFESSOR PENHALLOW said that he knew another case in point where the fruit trees attained a splendid growth of leaf but did not bear fruit at all. The garden in which they were was used for asparagus and other vegetables, and consequently was heavily manured.

Mr. BRODIE said that he manured his orchard for twelve years, and the Duchesses were the only trees that bore well. After putting his orchard under grass he had an immense crop.

Mr. FISKE  
there was an

PROFESSOR  
have to be en  
superphosph  
which could  
essential min  
depended mu  
potash was a  
plant.

Mr. BAKER  
be obtained i

BESIDES

Mr. GEORGE  
opening the

Existing  
wrong that i  
the condition

Unquest  
apple cultur  
appertaining  
preservation  
favors of nat  
witness man  
tree. No cor  
honesty and  
United State  
export to cor  
badly bruise  
dishonesty i  
for transport  
prominent o  
or less brui  
package to p  
riably gets i  
ocean measu

Having

Mr. FISK remarked that it was very frequently the case that where there was an excessive growth of wood, there was no growth of fruit.

PROFESSOR PENHALLOW said that of course different treatment would have to be employed for different trees. As a mineral food, in addition to superphosphate of lime, they could use magnesia in the form of a sulphate which could be cheaply procured as kieserite. Potash was also a most essential mineral element, but the form in which it should be employed depended much on the tree itself. It had been found by experience that potash was absolutely essential to the complete digestive process of the plant.

Mr. BAKER EDWARDS advocated the use of fertilized moss which could be obtained in sorts possessing different chemical properties.

#### BEST SYSTEM OF MARKETING AND EXPORTING APPLES.

Mr. GEORGE A. COCHRANE submitted the following paper by way of opening the subject:—

Existing methods of marketing and exporting apples are so radically wrong that it is impossible to do the two subjects proper justice within the conditions of your request, viz., a short paper.

Unquestionably, Canada is the best adapted country in the world for apple culture, but, unfortunately, has the lowest standards of everything appertaining to growth, picking, selecting, packing, packages, handling, preservation and transportation of any. When one looks at the bountiful favors of nature in the product, it is truly a reflection on our civilization to witness man's treatment of it from the time he takes it from the parent tree. No country in Europe or Asia gives such positive evidence of dishonesty and slovenliness in the matter of packing fruit as Canada and the United States do. Take it on the average, fully one-third of the apples we export to consuming foreign markets are positive rubbish, another third so badly bruised as to greatly lessen their value. One is from down-right dishonesty in packing, and the other from the use of a barrel as a package for transportation. The barrel has many objectionable features, the most prominent of which are that it holds too great a quantity; it causes more or less bruising to the fruit in manner of packing; it is an awkward package to pack; its weight and shape invite rough handling and it invariably gets it. Besides this there is the loss of twenty-eight per cent. in ocean measurement over a square package in matter of freight charges.

Having alluded thus briefly to some of the most important existing-

evils, I will now make such suggestions as, I think, will tend to improve matters. Owners of orchards should take greater interest in the product of them, discontinue the pernicious habit of selling the same yearly *en bloc* on the condition the buyer picks the fruit. They should perfect a system of picking and packing that would, in time, create a reputation and demand for their brand of apples that would pay them handsomely for the extra attention. Immediate efforts should be made to create a higher standard of selection, and legislative action invoked to make it compulsory.

Greater efforts should be made to market in England the many delicious varieties of our fall apples grown in and around Montreal Island. They ripen and are ready to market at a period when England could, and would, consume large quantities at a full range of prices. It is perfectly feasible, but the subject requires more explanation than time now permits; but if a dozen of your members, who grow the Peach, Strawberry, Red Astrachan, Alexander and St. Lawrence apples, will contribute equal to ten bushels each a week of any of the above mentioned varieties the coming season, to test my assertion, I am certain they will net more per bushel from the returns of the test than they will realize on sales made in this market during the same period. I am positive it will eventuate in a regular and large business with the mother country every fall. Growers of fall varieties on or near this island, who look to Montreal market for the sale of their fruit, would do well to substitute a box for the basket in bringing the same to it. The basket, now generally in use, is too flexible, too deep and too narrow to carry fruit well, as it causes bruising in lifting and the bottom layers sustain the weight of those above.

My experience teaches me that any package that is rigid and shallow, so as to carry as much in width and length, with as few layers as possible, is the best for any kind of fruit, and absolutely necessary in the case of the more tender varieties. I would suggest a box about twenty-four inches long, fifteen inches wide, and deep enough to hold one bushel of fruit without causing the sides to bulge. Boxes of this style and size would necessitate careful handling, which would be a guarantee of the good condition of the fruit. Such boxes, by having a cleat at each end on the tops, would allow of their being piled one on top of another to any height, without danger of bruising. A little cut straw or hay should be put in the bottom of each for a bedding for the first layer.

A public fruit warehouse, that would be frost and heat proof, as well as maintaining a uniform low temperature for several consecutive months, is greatly needed in Montreal. Such a storehouse would pay to any capitalist who should construct it, a handsome return on the output, as growers

could afford of many months to sell during

As to the business, and the slightest well packed steamers, from Canada, in the

The most disgraceful apples; second lines after the one-half of the or evaporated the whole—cent. greater transportation on the exporting those who have

Mr. FR.

For the the best method earth. Among it for storing as a rather of able substance simply keep long life, or about the most

These of preventing constantly at degree of importance which thing is con

could afford to pay a high rate of storage as it would give them the option of many months market during the season, instead of being, as now, forced to sell during the most depressed period.

As to the matter of exporting apples, it is an excessively hazardous business, and has ever been such. It should not be so, as there is not the slightest obstacle, except a matter of brains, to prevent well selected, well packed apples, carefully handled and put in certain parts of ocean steamers, from being landed in any part of England from any section of Canada, in the most perfect order.

The most prominent causes of loss in the export trade are, first, the disgracefully, low standard of quality in the matter of sorting and packing apples; secondly, the rough usage and improper stowage by the steamship lines after they have passed into their hands. I am safe in saying, that if one-half of the apples that are shipped annually were converted into cider or evaporated, instead of being shipped—the other half being the best of the whole—the wealth of the country from its orchards would be fifty per cent. greater than it is. Until the barrel is discarded as a package for transportation, the standard of quality greatly raised, and proper compartments on steamers for stowing apples given, I can see no prospects of the exporting business becoming more inviting to men of capital or to those who have been heavy losers by it in the past.

Mr. FRASER TORRANCE followed with a paper upon

#### THE STORAGE AND EXPORT OF FRUIT.

For the last year or two my attention has been more or less directed to the best methods of utilizing the very peculiar properties of infusorial earth. Amongst a large variety of economic applications, I thought of using it for storing fruit of all kinds. Some experienced friends treated the idea as a rather original joke. But I clung to the belief that the decay of vegetable substances can be practically prevented, or indefinitely delayed, by simply keeping them under water at an even temperature. And this same long life, or slowness of decay, is noticed in the woodwork of all kinds about the mines in the arid regions of Arizona and New Mexico.

These observations suggest a strong probability that the best method of preventing decay of vegetable matter is whatever method can keep it constantly at an approximately uniform degree of heat or cold and an uniform degree of moisture. But it seems to be a matter of rather secondary importance whether the substance is hot or cold, is wet or dry. The essential thing is constancy.

Such is my storage theory. Now for my facts: The patent "Infusorial" Fruit-case, which I now submit for your inspection, may be briefly described as a case within a case. Its size is a matter of slight importance. The essential feature is the space between the two cases. This must always be at least one inch deep. I pack this space quite full of infusorial earth—such as I am now passing around the audience.

The fruit should be packed in tissue paper and laid in this inner case, and all the interstices among the fruit should be filled with the earth. In packing small or delicate fruits, I substitute for this inner case a series of shallow trays, resting upon one another, and all held securely in the centre of the case by a set of cleats on each side, as you see.

For practical use I would not recommend a case any larger than the one before you. Its capacity is  $1\frac{1}{2}$  bushels. Ten such cases are equivalent to one ton measurement. Four trays might replace this inner box.

Towards the end of last September, my good friends, Mr. and Mrs. Robert Jack, of Chateauguay Basin, kindly consented to make a practical test of my notions about fruit-packing. I sent them some cases and the earth. They generously entrusted a large quantity of grapes, Concords, Niagaras, Emmelams, Agawams, Duchesses and Delawares, to these novel cases, along with a few Alexander and Fameuse apples. By chance these cases were left in an open fruit-shed until the mercury had fallen below zero; but this frost failed to reach the fruit.

At Christmas time many friends were surprised at the abundance of grapes they received from these generous growers. But I shall leave to experts like Mr. Robert Jack himself and Mr. Charles Gibb to testify as to the results already obtained by these hasty experiments, and their opinions as to the possibility of obtaining still better results in future. There are some of the apples and grapes here this evening. They can speak for themselves.

My method of packing fruit is simply a rough and cheap approximation to hermetically sealing it. This earth is composed of a vast multitude of exceedingly minute shells. Every cubic inch of it contains more than one million such organisms. And each of these shells holds a particle of air packed safely into its cavity. Therefore, an inch layer of this earth is simply a cushion of imprisoned air, and it acts in a similar way to the double window upon our houses in winter.

The wonderful merits of this earth as a non-conductor of heat and sound are now widely known, and it is very extensively used in Europe

and the Sta  
and loss of

A very  
tually prev  
this way th  
fruit is pre  
flow of the  
ture from a

Another  
tasteless.  
four month  
plucked fro  
obtained by

Mr. Gi  
by packing  
contact, not  
palate.

From a  
value for tw  
to store the  
haul them  
town in co  
escape the g  
in town, an  
also save th  
be required  
wharf—qui  
same cases

Second  
large enoug  
be returned  
general use  
meg melons  
them this y  
possible pro

A case  
45 cents.  
of large ma

and the States for covering boilers and steam-pipes, to prevent the radiation and loss of heat.

A very important merit in this system of packing fruit is that it effectually prevents all change of air or creation of atmospheric currents. In this way the evaporation of the juices and consequent shrivelling of the fruit is prevented; for it is a simple, scientific fact that any agitation or flow of the surrounding air enormously increases the evaporation of moisture from any substance.

Another merit of this system is the fact that this earth is absolutely tasteless. These apples that were packed directly in contact with it for four months have retained their full characteristic flavour, as though fresh plucked from the tree. No results at all comparable to this have been yet obtained by any other system of commercial packing.

Mr. Gibb made a severe test recently of the tastelessness of this earth by packing some fresh butter directly in it. After ten days of this close contact, not the slightest change of flavour could be detected by his acute palate.

From a commercial point of view these cases promise to be of special value for two purposes, viz.: First, for the use of fruit farmers that desire to store their extra-choice fruit at home until towards Christmas, and then haul them over the winter roads to the railroad station and ship them to town in cold weather for the holiday trade. In this way farmers would escape the glutted markets of September and October, heavy storage accounts in town, and obtain holiday prices for their choice fruit. And they would also save the time (in the drive and hurry of harvest) that would otherwise be required to haul this fruit immediately to the railroad or steamboat wharf—quite a serious item. For this city trade a farmer could use these same cases over and over again, season after season.

Secondly, for export. In this business the margin of profit must be large enough to pay for the case and packing at one trip, for they could not be returned. Therefore, it would be idle to dream of bringing them into general use for exporting our apples. But the prices of tomatoes and nutmeg melons are so very high in England that I intend to ship a quantity of them this year. Better authorities than myself are very sanguine as to the possible profits.

A case like the one before you can be bought from Messrs. Esplin for 45 cents. It would take about 30 lbs. of infusorial earth and one quire of large manilla paper to pack it full of fruit. This earth will probably be

retailed here next summer at \$1.50 per bag of 100 lbs. The paper would cost \$1.50 per ream. But I have not yet decided what royalty to charge for the use of the case.

An important factor in the cost of exporting fruit arises from the fact that fruit packed in these cases of mine can be shipped at much lower rates of freight than in other fruit cases, because my cases may be stowed in the hold of the vessel, instead of being carried between decks, which is absolutely necessary for fruit in any "ventilated" cases.

In regard to the question of values, perhaps I should mention that this earth is of considerable value in the British markets as a polishing powder and for other purposes. It is quoted at from £4 to £6 sterling per ton. Probably the dealers over there would make some allowance in their prices on this account. And it seems to me possible that the value of these cases for other use might also be considered in the price, if they arrived in good order, for packing cases of all kinds are worth money over there. But I am not able to speak positively on these points. Trial shipment next summer must settle all such questions.

In conclusion, I should like to call the especial attention of our officials to the great advantage that this system offers to them for transporting our choice fruits of all kinds (large and small) to the great Colonial Exhibition this season, and for delivering them in perfect order.

Perhaps the best way to proceed would be to distribute these cases to all our leading fruit-growers, with instructions to fill them with the choicest specimens of their special line of fruits, directly from the plants, as they ripen next summer. In this way, the best possible display of our fruits could be easily secured.

And another very important fact should not be overlooked. These cases would serve as the best possible store-houses for reserve supplies of fruit. Liberal quantities of our famous apples, grapes, plums, tomatoes, peaches, melons and other fruits, would lie snug and safe in their soft beds of earth until they were needed to replace the fruit on the tables. In this way a perpetual supply of our early fruits could be kept on exhibition until the very close of the show. And opportunities could be afforded to all prominent men and representatives to actually eat our peach apples and be agreeably convinced that they are not wax.

Mr. O'HARA said that he had tried Mr. Cochrane's plan, and he had kept fruit the entire season.

Mr. JAMES MORGAN, JR., said that he had sent some apples to the old

country pack  
was afterwa

THE PR  
earth was a

Mr. FIS  
keeping a s

Mr. BA  
was one of

Mr. TO  
earth on Oc

REV. R  
was to sell  
would ther  
means of pa  
introduced  
the best ma

Mr. TO  
thus it did



country packed in straw. He superintended the packing himself, and he was afterwards informed that they had kept splendidly.

THE PRESIDENT thought that the idea of excluding air by infusorial earth was an excellent one, and might be found to be the best one yet.

Mr. FISK said the system of packing in hay was the best he knew for keeping a small quantity of apples late into the season.

Mr. BAIN thought that the system of packing with infusorial earth was one of the grandest things yet discovered for the fruit-growers.

Mr. TORRANCE exhibited grapes which were packed in infusorial earth on October 10th, and which were then in excellent condition.

REV. R. HAMILTON said that the next thing to growing a good apple was to sell it well, and the best way to sell it well was to pack it well. It would therefore be seen how important was the question of the best means of packing. He had not the slightest doubt but that the system introduced by Mr. Torrance would enable fruit-growers to ship apples in the best manner possible, and to get the highest prices for them.

Mr. TORRANCE explained that infusorial earth was tasteless, and that thus it did not effect the flavor of fruits packed in it.

### *Second Winter Meeting.*

The second Winter Meeting of the Society was held on the evening of Thursday, March 11th; the President, Dr. T. Sterry Hunt, in the chair.

#### PRESIDENT'S ADDRESS ON FLOWERS.

The President said the meeting had been called, in order to give new interest to the Montreal Horticultural Society and Fruit Growers' Association of the Province of Quebec. He insisted on both names, because they indicated the double function of the Society. A month ago, they had held meetings of fruit-growers, one in the afternoon, of two-and-a-half hours, and one in the evening, of three hours. Much interest was shown. There were discussions on our hardy fruits, and the time was not sufficient for all the members had to say. To-night they had called together a similar gathering to discuss the cultivation of flowers. They had not expected so many present, as the subject was not of so great economic interest. Especially they had not expected to see so many ladies. A great many persons interested in floriculture, had been called upon to present papers. Some few had already sent in their papers, others had not replied, but he hoped were present to read papers, or at least to take part in the discussion.

He had been asked to say something of the cultivation of flowers for the people—flowers that everybody can grow. We have not all of us green-houses and stove-houses and fine gardens; but everyone is interested in the cultivation of flowers. In almost every window we see some little plant managed—sometimes mismanaged—with much tender care; made to bloom perhaps. The gardener can only wish these cultivators had more knowledge how to cultivate. Many plants cannot bear the dry heat of our winter homes; many more are sensitive to coal-gas. The small amount of sulphur in our gas, the escape of gas itself, is fatal often to the finest growing plants in our green-houses. In our rooms the air is exceptionally dry, the plants droop, the leaves fall off and the plants suffer very much. We notice fine flowers in some of the smaller houses, especially in the French quarter of the city, and in the villages; in low, small rooms, where there is a family living, where there is a large stove and water boiling on the stove a great part of the time. The moisture of a room occupied in that way, is very favorable for flowers. We see in some of these places a display of bloom that would make some of our gardeners envious.

He wished to speak of some of the common kinds of flowers, that we can cultivate with advantage in the house—some that he wished were

more common  
is comparative  
to see how  
the condition  
its character  
antheum; i  
The Chrysa  
This flower  
England it  
as a boy, as  
they were b  
that was the  
that will flo  
port. These  
The Chinese  
in the produ  
ful selection  
more, Japan  
arts. The Ja  
is to them  
fragrant odo  
is cultivated  
have three  
pure blue, a  
colors at the  
lower side;  
hardy and v  
not be made  
necticut, the  
Here we cul  
propagation  
gated, and  
with flowers  
and keep th  
gathered. W  
to the groun  
moisture all  
you a great  
them—from s  
result is unc  
varieties. T

more common. And first about Chrysanthemums. To many people, the name is comparatively new, and the flower itself is new. He had been surprised to see how few are cultivated in Canada. That, however, is due in part to the conditions of climate. All present knew the family of this flower and its character. We speak of this flower, something like an aster, as a Chrysanthemum; it is really a Pyrethrum. It is one of the composite flowers. The Chrysanthemum we cultivate the most is one that comes from China. This flower was for a long time cultivated in India and China and in New England it was known as "the India plant." The story he had heard as a boy, as to the manner of their introduction, was to the effect that they were brought out from India by some sea-captain. And, doubtless, that was their history. They are highly prized in India; they are plants that will flower for a long time on ship-board, and they are easy to transport. These Chrysanthemums have been greatly varied by cultivation. The Chinese and Japanese have from time immemorial vied with each other in the production of new varieties. Nowhere has the florist's art and careful selection been carried to such a pitch of perfection as in China, or, still more, Japan. The Japanese are our masters in that as in so many elegant arts. The Japanese attach a special importance to the Chrysanthemum. It is to them a sacred flower. It has a peculiar religious symbolism. Its fragrant odor; the freedom with which it flowers; the ease with which it is cultivated, have given it prominence among these people of the East. We have three or four different types. They are of every possible color but pure blue, and are often beautifully shaded with two or three tints; one color at the tip, one at the base, one on the upper side, and another on the lower side; there is infinite variety in this one little flower. Extremely hardy and very easy in cultivation, they do not stand our winters, and cannot be made to blossom here in the open air. In Rhode Island, or in Connecticut, they bloom in November, and even in early December in the open. Here we cultivate them in pots and bring them to bloom in the house. The propagation is simple; it is a little, woody, shrubby plant, easily propagated, and running up some four, five or six feet in height and is laden with flowers in the late autumn and early winter. They are very fragrant, and keep their beauty for a long time on the plant, and after they are gathered. When the plant has done its work of flowering, you cut it down to the ground, and put the root in a place where there is not too much moisture all the winter, and in the spring the root, torn asunder, will give you a great many plants. Comparatively few take the trouble to grow them from seed; you may get something that is more beautiful, but the result is uncertain, and you rather trust to friends for cuttings of approved varieties. The last few years, our florists are beginning to cultivate them

with great success. At the Society's Annual Meeting Mr. Bain offered a prize for the best exhibit of Chrysanthemums next autumn. He (the speaker) had seen many fine exhibitions of Chrysanthemums in England; the autumn shows of the Royal Horticultural Society, and the Temple Gardens were very fine indeed. On the first of November he was at Salt Lake City, Utah, and there saw them by thousands; saw a hedge of them, thirty or forty feet in length; saw them in clumps, here and there, and forming a very conspicuous part of the decoration of some of the fine gardens he saw in Salt Lake City. He had been in the habit of cultivating them from his boyhood, and it was most gratifying to see them coming into vogue. He hoped the exhibition this autumn would lead a good many people to take up the cultivation of Chrysanthemums. Anyone may grow them with great success. They are best grown in the open ground until September, but they may be grown in pots all the year round.

He wished to say a good word for palms. Of late years, these have been attracting considerable attention. They are grown in England to a large size, and are much used for purposes of decoration. They may be got at a cheap rate, and are easily grown; will stand all the winter through in a house where gas is constantly burned, and where the sun never shines. Moderately watered and kept at a good temperature they will flourish well, and in the spring will put out new and fine leaves. A plant of that character, set in the garden in summer, and not in too strong sun-light, will grow year after year and be a constant source of pleasure and satisfaction. The date palm, the famous *Phoenix dactylifera*, which yields the dates so much prized, is a pretty hardy palm. One has only to plant the seed of one of our common dates, and in two or three months you get a nice little palm. It will take three or four years to make much display. When you get as far south as Charleston, you get them in the open air. He had never forgotten when he first saw a large date palm which was near Florence. Walking through the garden with the owner, the Princess Massalsky, he came on a large date palm, twenty-five feet high. He took off his hat and said "That is the Prince of Palms." The lady said "I call that my prince." He replied "You do well, Princess." She went on to say, "I put that out myself, and had a glass-house put over it, and watched it year after year. Then once when the glass-house was not put up, there came one of the most severe storms of the winter. Not one leaf of the palm was injured. I then learned to leave it uncovered." The palm was then in flower, and it was hoped would bear fruit. They seldom bear fruit in that country, but they are interesting for all the history and poetry associated with this class of trees.

Another class to which he wished to refer, was that of succulents, that

is to say, very dry, tionally ju refreshing thirsty. T These cacti they can b mention as chickens"- small ones

But h for instanc the minds speaker's, tongue, ca Most of th of this p Cereus. T from gas c quire war Gibb foun many in t above the melocactu name *aloe* always sai Most of r leaves, tw edges. W they are r ferent side you have t are not mo feet. The as "aloes. smaller va land. Ver collection Ottawa, ha water, and great man

is to say, juicy plants. It is the habit of some plants, when growing in very dry climates, to take up a great quantity of liquid and become exceptionally juicy. Hence the name. The leaves of our begonias are full of juice, refreshing and wholesome, and can be eaten with pleasure when one is thirsty. This quality is still more remarkably developed in the cactus. These cacti are worth our notice; they can be cultivated with little trouble; they can be kept in our houses, and will resist gas and dry air. He might mention as an example the common house-leek, sometimes called "hen-and-chickens"—the centre plant, arranged like the petals of a dahlia, and then the small ones around, looking like an old bird surrounded by her young ones.

But he wished to speak particularly of plants fitted for our houses, as for instance, cactuses or cacti, aloes and agaves. There is some confusion in the minds of some people about the names of these plants. A friend of the speaker's, who knows more about gardening than he does about the Latin tongue, calls them all *Cacti*, whether they are in the singular or the plural. Most of those present know a cactus called the *Cereus*. Some species of this plant bloom at night and are known as the Night-Blooming *Cereus*. These are cultivated with a great deal of ease, and do not suffer from gas or heat. They may be watered once or twice a week. They require warmth and dryness, and they should be put in a sandy soil. Mr. Gibb found two species at Medicine Hat; and he (the speaker) had collected many in the Rocky Mountains, in Wyoming and Colorado, at 7,000 feet above the sea. Many of these ought to grow in our gardens, even the melocactus which is very pretty. It is very curious to note how the name *aloe* is commonly used. The country people, a generation ago, always said "alo-es." They were using the old Greek form of the word. Most of us are familiar with the American aloes, having great long leaves, two or three inches in breadth, and bristling with spines along the edges. We see them placed in large pots at the doors of our houses, but they are really "agaves." Nature repeats itself with a difference on different sides of the ocean. Through northern Europe and eastern Asia, you have the true aloe, a flower of the lily tribe, some very small; several are not more than three inches in diameter; others attain a height of many feet. They have a bitter juice, from which is obtained the drug known as "aloes." Others have a pleasant or insipid juice. A good many of the smaller varieties have become a fashion in the United States and England. Very few of our people grow them, though the speaker had a large collection ten years ago. Mr. Robinson, of the Parliament House gardens, Ottawa, has a good collection. They are of very slow growth, require little water, and may be put in any position in the house, if kept warm. A great many have little lily-like flowers, which keep their bloom for many

weeks. These aloes are well worth cultivating. They send out little side shoots and suckers, and cost no trouble to maintain them. Some of the agaves are equally fine. Not to speak of the American aloe, there are some agaves found in Texas and Mexico; the *Agave Americana* is one of the most beautiful, and a very interesting plant, because to the Mexican it serves many purposes. From the leaves he gets a valuable fibre; from the juice, an excellent fermented liquor. It is sometimes called the Century Plant, from the idea that it only blossoms once in a hundred years. The fact is, a half century is usually the extreme period of life; the plant dies, but not until it has thrown out a vast number of side-shoots and suckers. The agave has grown well in Italy. In these countries, it forms hedges impervious to cattle. On a low wall, a foot or two in height, they plant a few of the aloes. In three or four years' time these throw up leaves two or three feet in length, and an inch or two in thickness; tough and formidable with their great spines. The speaker had seen in this way enclosures made by planting the American aloe or agave.

He had not forgotten the commoner things, the fuchsias and geraniums, but everybody knows these. He only wished we could get a hardy fuchsia and hardy geranium to grow in our gardens, as in England and in Ireland and in Scotland. The fuchsia blooms in the open air the greater part of the year in Chili and Patagonia. It does not require a great summer heat. If you have a north window, in the summer you can scarcely do better than to put out one of the varieties of fuchsias. He had seen them in Ireland twelve feet in height. Here they have to be housed in winter. On the western coast of America, it is remarkable how these plants flourish all the year round. At Oakland, opposite San Francisco, he was standing under a fine shade tree, and his host asked, "Do you know what tree that is?" He found it was a lemon verbena, which we know as a delicate little shrub a foot high. He saw there a hedge of heliotrope trained round a rough trellis of wood, and it would have taken a good axe to sever it. He saw geraniums climbing up to the second story of houses. We must content ourselves with humbler forms.

He must say a word for our winter bulbs. We get most of them from Holland, the land which grows tulip bulbs for all the world. All of us know how easy it is to grow them in earth, moss or water, and to keep them through late winter and early spring. The florists have an art, but they do not tell it to us outsiders, of bringing them forward at this early season. There is no way one can get such a foretaste of the spring as one can get from a pot of narcissus forced into early blossom.

One of the simplest and purest pleasures we get is in the cultivation

of flowers hold, plant can be more pleasures v sons. Their "nature," f Greek has t could be m part in all lesson from

Mr. JA

To the for winter growing by are apt to b Safrano, Bo stiff-loamin a temperat easier cult pally, on ac summer tre in fresh loa and sunligh temperatur varieties to called by h good one an as King of

The B made to blo The treatm the matter found the r Nenner.

Mr. S. give the fu and he did vardia ther

of flowers. In the ministrations of religion and decoration of the household, plants and flowers always had a very important part. Nothing can be more refining. We can look on them, quite independently of the pleasures we get from their contemplation, as teachers of great moral lessons. Their great significance struck the early Greeks; their word for "nature," for the material universe, is the same word as for "plant"; the Greek has the root as the word for "the plant *or* growing thing." Nothing could be more significant. We see how beautifully the flowers play their part in all ages. The Divine Teacher himself did not disdain to draw a lesson from the lilies.

Mr. JAMES MCKENNA, JR., read a paper on

#### FLORIST'S FLOWERS.

To the rose he gave the first place among florist's flowers. Its culture for winter bloom is profitable in skilful hands, but experiments in rose-growing by people who do not understand the requirements of the flower, are apt to be expensive. The most profitable varieties for the florist are—Safrano, Bon Seline, Marshal Niel and Mappetas. They require a moderately stiff-loaming soil, abundant sunlight and drainage, a moist atmosphere and a temperature ranging from 60° to 75°. The carnation is a plant of much easier culture than the rose, but there are many failures with it, principally, on account of over-watering in the winter. Much depends on its summer treatment. Carnations should be placed under glass in September, in fresh loamy soil, slightly enriched and treated to abundance of air, water and sunlight. After firing has begun, water must be given sparingly. A temperature of 50° to 60° suits them. He had found the most profitable varieties to be King of Crimson, Snowdon, Garfield, and a white variety called by himself, Cote des Neiges. The Yellow variety, Buttercup, is a good one and profitable, when the blooms bring about three times as much as King of Crimson.

The Bouvardia is in demand at all seasons of the year, and may be made to bloom nine months of the year, that is from October 1st to July 1st. The treatment should be about the same as that of the carnation, except in the matter of heat, which should be about ten degrees higher. He had found the most profitable varieties, Single Davidsonii and Double White Nenner.

Mr. S. S. BAIN thought all growers should be prepared to come and give the fullest information of a practical character, as to their methods, and he did not think the trade was hurt by so doing. With regard to Bouvardia there are two ways of propagating; the first is, cutting from soft

wood. Take the cutting near the second joint, at the joint, or in the centre—it does not matter. There is the least pulp in the part just below the leaf, and therefore the least danger of rotting. The new system of propagating is from the roots. It is full of eyes all over. Cut it in pieces and place in from 80° to 90° of bottom heat. The Bouvardias are grown to large plants in the United States. The double varieties must be taken from the root cutting; the top cuttings are very slow to strike. A great deal of bottom heat is required and little sunshine. After the root takes, they are put into the smallest pots, because the smaller the pot, the less chance of the soil becoming sour. As soon as they make three or four leaves, put them in thumb pots. About May 24th, put them out in the garden; and about the middle of August, put them into the smallest pots they can be put into with ease. Put them out of the sun and syringe them. They require much attention to prevent them wilting too much in the transplanting. The speaker's experience had been quite the opposite of that of some people who say and write that most plants are ruined by too much water. He found that, as a rule, we do not make sufficient allowance for our dry atmosphere. The roots of a potted plant make straight for the sides of the pot, and then as they can go no further in the same direction, they commence to go round. He would advise that house plants be grown in two pots, one outside the other, so as to keep the plants moist. They should be at an even temperature. In the ground, the changes are gradual; in the house, the atmosphere kills the plants back.

Mr. J. DOYLE thought it would be as well to qualify Mr. Bain's remarks about watering; the plants and soils dry quicker in dry air, and if the plants get the same quantity of water in a moist atmosphere that would suffice for them in a dry atmosphere, they get water-logged. A good practical test is to strike the pot with the knuckles—judge by the sound produced. There is an old saying that more plants are killed by kindness than by neglect. A good many ladies think they can do nothing better than to water the plants carefully two or three times a day, and so the roots are always in a cold bath. We ought to know whether the plants are tight or loose in the pot before watering them.

Mr. BAIN insisted that "dribble is death" to anything. Either water thoroughly or let it alone. There is an idea in Montreal that house plants must stand in saucers of water. He considered the saucers most injurious; they cause stagnation in a few days. The soil takes out of the water the ammonia that feeds the plant, and after the water has once passed through the soil it is of no more use.

Mr. McKENNA held that water which had passed through the soil would

be better  
house pla  
good for r  
hot weath  
rather tha

Mr. I  
proved by  
by them.

Mr. I  
of water,  
a saucer o

THE  
to grow i

Mr. I  
they neve

Mr. I  
vardia by  
twelve ye  
growing  
beneficial  
than whe  
which ha  
session.

did not th  
thing abo  
Plants in  
Sand requ  
frozen. I  
would fu  
mould, so  
is a good  
with a sp

Mr. I  
plant tha  
monia rel

Mr. I

After



be better to use again. He recommended the use of saucers in growing house plants; principally in the score of cleanliness. He did not think it good for most plants to stand in saucers full of water but a little water in hot weather under the plant will do no harm. It will keep the plant fresh rather than sour the soil.

Mr. DOYLE thought that plants with a large quantity of roots were improved by the use of saucers, but plants with fewer roots would be injured by them.

Mr. BAIN remarked that aquatic plants of course require a great deal of water, but no practical man would grow a fuchsia, geranium, or rose, in a saucer of water.

THE PRESIDENT said that many plants that grow in earth, do not object to grow in water also—the hyacinth for instance.

Mr. DOYLE thought Mr. Bain must have seen spiræa growing where they never get any water from the time the snow melts.

Mr. E. GRAVES did not agree with Mr. Bain that propagating the Bouvardia by roots was a new idea. He believed it was tried in Scotland twelve years ago. He held with a former speaker with regard to plants growing in saucers; with some it will not do and with others it is very beneficial. He believed the water to be better after coming from the plants than when first poured on. He knew a lady in this city who has a plant which has never had a drop of water upon it since it has been in her possession. It is a Dr. Livingstone geranium, and she gives it ammonia. He did not think there was another in the city to compare with it. The main thing about the pots is drainage. If the plant does not drain, it will die. Plants in pots require good soil, plenty of rich loam, and rotten manure. Sand requires water every day. The very wet pots are the first to get frozen. Mr. Bain had given a good idea of planting out Bouvardia. He would further suggest, when planting out Bouvardia, to put them into leaf mould, so that when lifting the roots, they can be lifted in a ball bodily. It is a good plan to go round a week or two before and cut the roots around with a spade.

Mr. BAIN confessed himself curious to see a geranium or any other plant that would grow without water. He questioned whether the ammonia referred to by Mr. Graves was dry.

Mr. E. J. MAXWELL, of Montreal, then read a paper on

#### THE CULTIVATION OF PANSIES.

After alluding to the deserved popularity of the pansy, he explained

that the pansy of the present is a gradual development, aided by cultivation, of the primitive wild violet.

The first worthy of notice is the English or Show variety, the outline of which should be a perfect circle, the petals lying evenly on each other; these should be thick, and have a rich glossy appearance; the colour should be distinct, and the blotch dense, solid, and of circular character, free from rays, running into, or through the ground colour; the belting should be of equal breadth throughout. The eye should be of a bright gold or orange colour, without running into the blotch, and should be exactly in the centre of the flower. Self flowers, of whatever colour, should be of the same shade throughout.

Next come the Fancy or Belgian pansies: they are generally of strong growth, very large in size and extremely rich and varied in colour, partaking of curiously blended tints of white, purple, gold, orange, blue, yellow, black, mauve, copper-color and red—indeed, an endless variety of shade and colour, not to be found in any other plant. When the weather is cool and moist, these colours shine out with exceeding beauty. The Fancy pansy originated in France or Belgium, thirty years or more ago, then they came into the hands of the English and Scotch florists, who have greatly improved them.

The bedding varieties of pansies are free-blooming, and marked more for their effectiveness in masses than by individual qualities.

Growing pansies from seed is the easiest method of propagation, but when the perpetuation of a particular plant of special merit is required, propagation by cuttings or division of the plant, is the only safe method.

For spring blooming, the seed requires to be sown out of doors in September or October, or else in the green-house during the months of January, February, or March; when the plants are large enough, they require to be transplanted. For fall blooming, seed requires to be sown in May or June. The pansy delights in a cool and partially shaded situation, with plenty of moisture, and the ground can scarcely be too rich, but must be well drained. They do not do well under trees; but the north side of a fence, where the sun is shaded during the middle of the day, suits them best. The ground should be frequently stirred in dry weather, and liberally watered; a top dressing of short grass is a great help to keep the soil cool and moist. The pansy suffers greatly in midsummer from heat. To keep up the vitality of the plants, it is necessary to pick off at least half of the flower buds, and all the waste inferior blooms, and give the bed a coating of soot—a quarter of a pound to a square yard, and water liberally in

the evening  
the strong

The P  
wire-worm  
the main s  
slugs destr  
hand-picki  
as the slug  
destroyed.  
carrot or p  
may be ins  
or syringe

A very  
a great par  
regarding t  
by applyin

To gro  
be removed  
wind from  
layer of tw  
top, and w  
give weak

Shade  
storms. Se  
take an ord  
the sun. T

Mr. J.  
preserved f  
which were  
condition a  
should send  
earth to the  
present ther  
been kept a  
might obvia  
pots and fil  
sorial earth

the evening, while the hot weather lasts. Also, it should be shaded from the strong sun.

The pansy's chief enemies are wire worms, slugs and green fly; the wire-worm destroys the root of the plant by eating the heart or pith out of the main stem, thus killing the plant in a few hours. On the other hand, slugs destroy the plant by eating the leaves. They can be kept down by hand-picking, or by laying a few cabbage or lettuce leaves near the plants: as the slugs are fond of these, they soon infest them and can thus be easily destroyed. The wire-worm also can be easily trapped by small pieces of carrot or potatoe laid an inch under the ground near the plants, which may be inspected every three or four days. For green fly, use tobacco dust or syringe with tobacco juice.

A very great source of annoyance is the common sparrow, who shows a great partiality for pansy blooms, and greedily devours them, evidently regarding them as a delightful salad; their depredations can be prevented by applying water flavoured with quassia, or paraffin.

To grow pansy blooms for competition, all superfluous shoots should be removed and those left should be staked or pegged down to prevent the wind from damaging them. Stir the ground and put between the plants a layer of two or three inches of old decayed manure, with a little earth on top, and water liberally in dry weather between the rows; once a week give weak liquid manure.

Shade the blooms in sunny weather, and protect them from rain and storms. Select the blooms you want, and six or eight days before showing, take an ordinary teacup or bowl, and cover the bloom, and shade it from the sun. The blooms will increase in size, and be fine and clean.

Mr. J. F. TORRANCE exhibited a bouquet of flowers which had been preserved for eight days in a box of infusorial earth. The flowers, some of which were cut four days previous to their being packed up, were in good condition and were much admired. Mr. Torrance suggested that the Society should send a bouquet of Canadian-grown flowers packed in infusorial earth to the Colonial and Indian Exhibition and request Lady Tupper to present them to Her Majesty. Mr. Torrance stated that the flowers had been kept at very varying temperature. It had occurred to him that we might obviate the risk of freezing our flowers by growing them in double pots and filling the space between the inner and the outer pot with infusorial earth.

A paper then followed from Mrs. A. L. JACK, of Chateauguay Basin, P. Q., entitled

#### HORTICULTURE FOR WOMEN.

In this paper, stress was laid on the necessity for devotion to the work, in order to success in horticulture as in any other profession or business. But women were quite as well fitted to succeed as men. That important branch of the work, fruit-growing, can be attended to by either sex and either is able to bud and graft, to prune and trim, also to learn to detect diseases or insects doing injury to the trees in their charge. She knew of a family where the work of planting an orchard of over a thousand trees was done by girls, row for row, with the boys. The work was as carefully done; and these daughters found leisure to cultivate the fine arts and the domestic graces as well.

In gathering apples, grapes, or small fruits, Mrs. Jack continued, we prefer women, as more gentle and particular in picking, sorting and selecting. The growing of the latter for market is extensively carried on in many country places, and one lady of my acquaintance, whose specialty is gooseberries, superintends the girls she employs, and she packs so honestly, and daintily the fruit she sells, as to command the highest market price. A gentleman friend told me his daughter did all the grafting in his orchard, and I know several ladies who have made considerable sums by marketing the cherries and plums they gather from their gardens. But in order to teach those who have a love for this vocation, but no opportunities, it is necessary to form classes for the purpose, or to make it part of an experimental fruit farm that should be established in this Province, where we could test the fruits best suited for our climate and teach our girls the various branches of horticulture, for which they should receive a diploma as for any other study. This would do away with the prejudice against this work in a great measure, by making it popular and elevating the study to the same rank as any other. It is a peculiar fact that even farmers' daughters who feed calves and make butter—doing the churning and milking, besides the arduous kitchen work of a farm house—are proud to say they "do not work out of doors," and affect to despise this health-giving labor. But I have never yet found a girl who, if once interested in the pleasant occupation of fruit and flowers, was willing to give it up and return to the labors of the kitchen stove, the wash-tub and the ironing table.

I once had a conversation with Andrew S. Fuller, of New York, on this subject. He had been at one time interested in starting a Horticultural School for girls, but found it could not be done, as there could not be found girls who cared for the work while yet untried, though it has a rare fascina-

tion for the  
knowledge  
the mind,  
periments  
Battling v  
of mother

The p  
ment is w  
why they  
that cause  
toward al  
cial point  
or potting  
of floricult  
endorse m  
a true hel  
Children a  
this work.

The p  
young to h  
such meet

The H  
subject of  
swards as  
upon whic  
were takin  
the flower  
In Roches  
gardens.  
Montreal b  
low the ex  
French to

Mr. B  
in the use  
flowers, bu  
published,  
times the f

The m

tion for those who enter into its full meaning. Scholars agree that the knowledge of plants, and their cultivation has an elevating tendency upon the mind, leading the thoughts into new channels, exciting one to new experiments, and not only to careful training but to patient waiting. Battling with the weeds is strengthening to the body and the very smell of mother earth is invigorating.

The poetry of gardening is the cultivation of flowers, and this department is well understood by many amateurs who cannot explain how or why they succeed. There is no doubt it is the genuine love for their pets that causes the watchful faithful labor, which is woman's natural faculty toward all tender things that need her care. But even from a commercial point of view, whether in cultivating, making up and selling flowers, or potting plants and pruning vines and shrubs, the garden, and the art of floriculture is woman's sphere. I know a florist in this city who can endorse my views on this subject from practical experience, whose wife is a true help-meet in his business and to her he owes much of his success. Children are born florists, and can early be trained to become useful in this work.

The paper concluded with Mrs. Jack's own experience in training the young to horticulture. She considered that women were in their place at such meetings as the present, and should take their part in the discussion.

The HON. L. BEAUBIEN expressed a desire to hear something on the subject of lawn-keeping. We have to go some distance to see such green-swards as we see in the United States and especially in England. One thing upon which he could congratulate the people of Montreal was that they were taking down their ugly fences. Even the little folks will not destroy the flowers and a costly iron fence will not keep the robbers away. In Rochester there are not a hundred houses that are not surrounded by gardens. The city is a garden all through. A wrong start was made in Montreal by making the streets too narrow, but if the citizens would follow the example set by this meeting, they might still turn this good old French town into a garden city.

Mr. BAKER EDWARDS asked if any of the members had had experience in the use of fertilized moss. In Rouen they were cultivating, not only flowers, but small fruits in hanging baskets. According to the accounts published, the plants yield ten times the ordinary exflorencence and ten times the fruitage.

The meeting then closed.

### *Judges' Returns.*

To the Montreal Horticultural Society and the Fruit Growers' Association of the Province of Quebec, the following Reports of the Judges are respectfully submitted.

#### A.

#### SPECIAL EXHIBITS OF PLANTS, 1885.

The unfortunate necessity which compelled this Society to give up all idea of holding its annual Exhibition this year, led the Directors to adopt certain measures whereby intending exhibitors of plants, grown for the special purpose of Exhibition, might be compensated in some measure for the disappointment and inconvenience suffered. With this in view, the Board appointed the undersigned to visit the various gardens and green-houses entered, and make such recommendations for awards as in their opinion would be justified, said awards not to be final, but to be subject to approval by the Board of Directors. In their official capacity the Judges were directed to be controlled by the rules of this Society governing judging, said rules being as follows:—

1. The Judges shall have the discretionary power of withholding premiums if, in their opinion, the articles exhibited do not merit them.
2. Gratuities may be awarded by the Judges for any new or rare fruits, flowers, plants or other objects of special interest on which no special premium has been offered.
3. On recommendation of the Judges, or of a committee appointed by the Society, the Directors may award a diploma for exceptional excellence, if, in their opinion, it is deemed advisable.

By the terms of the circular issued by the Board to intending exhibitors, the latter were requested to have their plants in readiness for examination on the morning of Tuesday, September 13th, the day on which the Exhibition would have opened. It was also requested that the plants called for by each section shall be grouped together. Entries were received only from the city and vicinity. Acting under these instructions, the Judges, accompanied by the secretary of the Society and representatives of leading city papers, visited the various gardens and conservatories entered, and now beg to submit their report of awards recommended. The whole number of entries was eleven, of which seven were entered as professional

and four a  
special pr

P. G.  
W.  
Jul  
Geo  
O. I  
W. S

F. W  
Wm  
Mrs  
Mas

Much  
draw his e  
had suffer  
power of t  
proper to  
*Hydrangea*  
abundant  
they clear  
ful out-of-  
were ruled  
which op  
examinati  
cising the  
awards; b  
the Societ  
the points  
second pri  
powers to  
ing undue

The av

Mr. E  
Mr. E  
Mr. S  
Mr. T  
Mr. S

and four as amateur, one of the latter being an entry in competition for the special prize offered by Mr. E. J. Maxwell. The entries were as follows :—

## PROFESSIONAL.

	No. of Entries.
P. Gardiner, St. Paul's Church, Dorchester Street.....	20
W. Bell, gardener to Mr. Mackay, Kildonan Hall, 1059 Sherbrooke Street.	8
Jules Betrix, gardener to Mr. Andrew Allan, Iononteh, Peel Street.....	15
George Trussell, gardener to Mr. J. H. R. Molson, Piedmont, Durocher St.	10
O. Dandurand, gardener to Mr. William Notman, 557 Sherbrooke Street..	2
W. Sprigings, Mount Royal Cemetery.....	14

## AMATEUR.

F. W. Burden, 50 Park Avenue.....	33
Wm. Lewis, 571 St. Urbain Street.....	10
Mrs. Scott, Cote St. Michel.....	24
Master George Doyle, head of Durocher Street.....	3

Much to the regret of the Judges, Mr. Gardiner felt compelled to withdraw his exhibit at the last moment, owing to the damage which his plants had suffered from heavy wind and frost. It is, therefore, not within the power of the Judges to recommend an award in this case, but they deem it proper to call the attention of the Board to two very fine specimens of *Hydrangea hortensis* as being not only worthy of comment because of their abundant bloom and thrifty appearance, but also because of the fact that they clearly demonstrate the possibility of giving to tender exotics successful out-of-door treatment through the winter. One or two other exhibitors were ruled out, entirely or in particular sections, from the same causes which operated to destroy Mr. Gardiner's exhibit. In conducting their examinations, the Judges awarded points on each section entered, exercising their discretion as to the desirability of making or withholding awards; but, in their final estimates, their recommendations for awards from the Society deal wholly with each exhibit as a whole, as determined by the points taken in each section. No reference whatever is had to first or second prizes, and the Judges have further exercised their discretionary powers to limit an exhibition of quantity in favor of quality, without giving undue preference.

The awards recommended are as follows :—

## PROFESSIONAL.

Mr. Betrix.....	\$24 00
Mr. Bell.....	13 50
Mr. Sprigings.....	12 00
Mr. Trussell.....	10 00
Mr. S. Martin.....	4 50

Mr. Trussell is also recommended for special diploma as having exhibited geraniums, which, for general excellence of culture and profusion of bloom, were probably the finest ever exhibited in Montreal.

## AMATEUR.

Mr. Burden .....	\$3 00
Mr. Lewis .....	3 00
Mrs. Scott .....	3 00

Upon the remaining entries no awards are recommended. Among the exhibits as specially worthy of mention, were to be seen a very fine specimen of the beautiful *Cattleya*, grown by Mr. Bell in the greenhouse of Mr. Mackay. In the garden of Mr. Burden, was a very fine specimen of *Ficus* fully eight feet high. As an evidence of careful culture and good management in amateur gardening, it reflected great credit upon its grower. As a whole, the exhibits were good and gave many gratifying evidences of increasing taste and interest in the cultivation of ornamental plants, as well as of the stimulus which is being offered by this Society. Were it within the range of their duties, the Judges could most cheerfully bear testimony to many promising evidences of care and enterprize in both gardens and conservatories, but adherence to the duties assigned them prevents this. In closing, however, the Judges would suggest that exhibitors in the future would do well to give less attention to large displays, and concentrate their efforts upon the production of a few choice exhibits which will be sure to command attention.

The Judges have endeavored to perform their duties in an impartial manner, and trust that their recommendations and efforts may meet with the approval of the Directors, to whose consideration they respectfully submit them all.

D. P. PENHALLOW,  
E. J. MAXWELL,  
JAMES MCKENNA.

## B.

## GARDEN PLOTS, 1885.

In compliance with the desire of the Directors of the Society, we, the undersigned have examined the garden plots opened for competition and awarded the prizes offered for them.

In al  
diversity  
from wee  
each speci  
sonal valu

1st. C  
season and

2nd. I  
grass too m

3rd. S  
creepers, h

The fo

1st

2nd

3rd

All th  
the compet  
ners, who  
advise the  
adorning h  
Siston, 482  
places are s  
of them is  
varieties of  
little plot o  
cottagers c

It is to  
their kind  
prizes from  
treat the ye  
may be sti

Reports  
gardens ent



In all the plots, a choice of plants competed, showing their species, diversity of foliage and their multiple colors of flowers, all admirably free from weeds. The choice of plants differed much in each plot showing that each species of flowers has a friend somewhere. We did not give any personal value to plants, but merely based our verdict on three distinctions:—

1st. Choice of plants giving the greatest quantity of bloom for the season and cleanliness.

2nd. Design giving the largest space for plants without cutting the grass too much and healthiness of plants.

3rd. Surroundings such as walls, fences, etc., utilized by tall plants, creepers, baskets or stands, and their general effect.

The following prizes were awarded:—

1st. Prize: Mrs. Lewis, 571 Upper St. Urban Street.

2nd. Prize: Mr. John Riddle, Outremont.

3rd. Prize: Mr. George Hodge, 323 St. Antoine Street.

All the gardens were well kept, doing great credit to the owners and the competition was consequently very close. Apart from the prize winners, who had their places well garnished and showing great care, we advise the directors to highly commend Mr. J. B. Cartwright, whose plot adorning his house is a picture of taste and cleanliness. Also Mr. D. M. Siston, 482 St. Denis Street, and Mrs. Massey, 38 St. Mark Street; these places are small plots, on account of the structure of the houses, but in each of them is a fine flower bed filled with the best blooming plants and varieties of which gardeners would be proud; and Mr. Walter H. Smith's little plot on 210 $\frac{1}{4}$  St. Charles Borromée Street, is a neat model of what cottagers can do.

It is to be hoped that the generous donors of these prizes will continue their kind offices and that their aim will be strengthened by more offers of prizes from house-owners and well-intentioned people; and that in Montreal the yearly competition of this beautiful embellishment of our houses may be still more successful and extend to a wider circle.

JULES BETRIX.

A. F. COPPERTHWAITTE.

### C.

#### WINDOW GARDENS AND CONSERVATORIES, 1885-6.

Reports of the judging of the private conservatories and window gardens entered for competition up to February 10th. The standard of

excellence was determined by 50 points, and the following awards have been made:—

- CONSERVATORIES.—1st. Prize: Sir George Stephen, 140 Drummond Street.  
J. Stanford, gardener.
- 2nd. Prize: Mr. Robert Mackay, Kildonan Hall, Sherbrooke Street.  
Wm. Bell, gardener.
- 3rd. Prize: Mr. Jas. Burnett, 27 Ontario Avenue.  
Samuel Ward, gardener.
- 4th. Prize: Mrs John McDougall, 1074 Dorchester Street.  
Walter Wiltshire, gardener.
- WINDOW GARDENS.—1st. Prize: Mrs. John Auld, 44 McGregor Street.  
2nd. Prize: Not awarded.  
3rd. Prize: Mr. John Hanna, 312 Guy Street.

The judges are happy to state that they found the conservatories in first-class condition, and much ahead of former years in regard to display of bloom, and the addition of new plants of rare excellence, and beauty, more particularly the houses of Sir George Stephen and Mr. Mackay—the former, especially, excelling in its beautiful display of ferns, orchids, crotons and foliage plants. The conservatory, of Mr. Mackay is exceedingly beautiful with its magnificent display of orchids in full flower, cypripedium, laelias, dendrobia, cylogynæ, etc., and a grand show of amaryllis, primulas, etc., altogether reflecting great credit on the gardener Mr. Bell. We also found the conservatory of Mr. Burnett in fine condition, and a grand display of bloom; a remarkably fine plant of heliotrope, fine azalias, spireas and ferns, etc. The next conservatory, that of Mrs. John McDougall, was also in excellent condition as regards bloom, and good culture, the gardener having made the most of his limited space.

The entries for window gardens were very few, but were very creditable, especially the exhibit of Mrs. John Auld, where the amount of bloom and evidence of skilful cultivation, would astonish some professional gardeners.

E. J. MAXWELL,  
JOHN DOYLE,  
JAS. MCKENNA,  
FRANK ROY.

It dev  
Report fro  
to your no  
tions for t  
institution  
to be of so  
to those w

It is a  
that there  
new to Mc  
a desirable

The fi  
McGill Un  
of a garden  
of Natural  
considerati  
however, t  
expenditur  
be pressed  
ble; for, in  
of the Gov  
secure, fro  
grounds, as  
necessary h  
sitate a fur  
years later  
a separate  
following  
fessorship o  
of five year  
was the ca  
formed by  
been a prac

---

## LOCAL SOCIETIES.

---

### *Montreal Botanic Garden.*

It devolves upon me to present, for your consideration, the First Annual Report from the Director of the Montreal Botanic Garden, and in bringing to your notice the results of our first season's work, together with suggestions for the future, I feel that a brief history of the development of our institution, and the events which have gradually led up to it, may prove to be of some interest and value, more especially as hints may thus be given to those who are likely to institute similar movements elsewhere.

It is a common remark, possessing somewhat more than a grain of truth, that there is nothing new. The practical realization of a botanic garden is new to Montreal, but the conception of it, and efforts to bring about such a desirable result, are by no means unfamiliar to the people of this city.

The first idea of a botanic garden appears to have originated with McGill University. In 1863, Sir William Dawson recognized the importance of a garden as a necessary means of extending the work in the department of Natural Science, and introduced the matter as one deserving serious consideration, to the attention of the Board of Governors. At that time, however, the resources of the University would not permit of the necessary expenditure, and the plans then hopefully laid had to be deferred, only to be pressed again, however, when circumstances appeared to be more favorable; for, in 1870, Sir William once more brought the subject to the notice of the Governors, and so pressed the project upon their consideration as to secure, from the Royal Gardens at Kew, plans for the laying out of the grounds, as well as plans and estimates of cost for the construction of the necessary buildings. Once more, however, circumstances seemed to necessitate a further postponement of this project, and it was not until thirteen years later that the subject was renewed in a conspicuous way. In 1883, a separate lecturer was appointed for instruction in botany, and in the following year he was fully confirmed in the occupation of the professorship of botany, a chair having been separately endowed for a period of five years. Inasmuch as one of the specified duties of this new officer was the care and direction of a botanic garden, when such should be formed by the University, this appointment may be regarded as having been a practical declaration that the University intended to establish a

garden, or at least to lend its influence in the promotion of efforts made in that direction.

In the meantime, the idea of a garden appears to have developed from an entirely independent source. With the renewal of its energy, and the inauguration of a career of active usefulness which has since proved most honorable to all concerned, the Montreal Horticultural Society felt that one of the great needs of the City, and of the entire Dominion, was a botanic garden. The idea seems to have taken definite form in the mind of its proposer, for, in 1873, the minutes of the Society record that Mr. S. J. Lyman proposed the establishment of a botanic garden, wherein should be grown both native and foreign plants, and that the garden should be located in Mount Royal Park as being that place most suited to its needs. Unfortunately these words fell on barren soil, as also did those of the Secretary of the Society, Mr. H. S. Evans, when, in 1880, he called attention in his annual report to the necessity for a botanic garden. There thus appear to have been at least four efforts made to establish a garden in Montreal, within a period of seventeen years, not one of which proved fruitful. Three years later, however, we are brought to the commencement of that movement which has so far accomplished a great deal in the direction of successful realization.

With the creation of a Chair of Botany in McGill University, the incumbent at once undertook to perfect plans for a botanic garden, with the express object in view of meeting the pressing needs of his department for the proper facilities for practical instruction.

Fully cognizant of the efforts previously made by the University, he was wholly unaware of any attempt in this direction having been made by any other institution or society. As designed at that time, the plans contemplated a garden in the grounds of the University, and an arboretum to supplement this, on Mount Royal, but under the patronage of the Horticultural Society. The conditions of finance at that time did not appear to warrant an appeal to the liberality of our most generously disposed citizens, and by the advice of those interested in the project, active measures were held in abeyance until a fitting opportunity should be presented.

This opportunity appeared in a most unlooked for manner and was immediately seized, when the Secretary of the Horticultural Society in his annual report for the same year, again called attention to the pressing need of a garden, and suggested the occupation of Dominion Square. The comments which followed from the President and others, showed that the time was undoubtedly ripe for action. It was immediately decided to secure the co-operation both of himself and the Society he represented.

How well  
thus far r

With  
tives from  
hensive p  
of this co  
Governors  
one-half o  
of suitabl  
the Horti  
of the fu  
When su  
plan was  
as they di  
necessitat  
for the gar  
this in the  
that fact t  
time, the p  
whole pro  
fulness wh  
been carri

As soc  
so far mod  
under one  
to those of  
directed to  
tor, and pu  
and the ge  
here.

The H  
the respon  
maturity.  
Sterry Hur  
pose, applic  
for prelimin  
clearly saw  
more espec  
Louis Beau  
that time i  
cultural So

How well their pledges were redeemed, you may now judge from the results thus far reached.

With the object of mutual aid in view, a joint meeting of representatives from the University and the Society was held, to perfect a comprehensive plan which might be adapted to the needs of each. The results of this conference, as embodied in a communication to the Board of Governors, under date of January, 1885, contemplated the conversion of one-half of the University grounds into a garden; the erection thereon of suitable conservatories and other buildings; their joint occupation by the Horticultural Society under suitable regulations, and administration of the funds under direction of the Governors of Royal Institution. When submitted to the Board of Governors in its complete form, this plan was by them rejected—and, as it now appears, wisely—believing, as they did, that the future expansion of the University would eventually necessitate the occupation by their own buildings, of all the ground needed for the garden. Adverse to the immediate interests of the University, as this in the first instance appeared to be, careful examination soon disclosed that fact that such interests would in no way suffer; while, at the same time, the plans would be turned in such new directions as to give the whole project a more comprehensive basis, and an extended range of usefulness which it could never have acquired had the original intentions been carried into effect.

As soon as this decision was reached, therefore, the original design was so far modified as to embrace the garden and arboretum in one location and under one management, making it appeal not merely to local interests, but to those of the entire Dominion. At the same time, public attention was directed to the matter by a series of articles prepared by the present director, and published in the *Daily Star*, concerning the value of such gardens, and the general policy which would be adopted in the one to be established here.

The Horticultural Society, through its Board of Directors, now assumed the responsibility for the future growth of these plans and their ultimate maturity. Through the action of a special committee, consisting of Dr. T. Sterry Hunt, D. R. McCord, and Prof. Penhallow, appointed for that purpose, application was made to the Quebec Legislature for a grant of \$1,000 for preliminary expenses. Through the very kind assistance of friends who clearly saw the great importance to the Province of this institution, and more especially through the very kind offices and untiring zeal of the Hon. Louis Beaubien, representative from Hochelaga, the grant was secured. At that time it was contemplated to create a Board of Trust within the Horticultural Society, to administer the finances of the garden; but as the plan

grew, it was very soon rendered clear that, the institution must be placed upon the broadest basis, in order that it might appeal to the needs of all classes and institutions in the country, without respect to race or other distinction; and it is in this truly catholic spirit in which the plan first took complete form, that it has been prosecuted up to the present time. In order to accomplish this, however, an Act of Incorporation was found to be necessary. This was accordingly prepared by the committee already referred to, who, under special stress of circumstances attending its passage as a special measure, were obliged to appear as charter members. This Act was passed and became law at the close of the legislative session. It is as follows:—

ACT OF INCORPORATION (*Vic. 48, Cap. 63.*)

An Act to incorporate the "Montreal Botanic Garden Association."

Whereas, T. Sterry Hunt, D. P. Penhallow, and D. R. McCord (of whom the first and second are respectively the president and vice-president of the Montreal Horticultural Society and Fruit Growers' Association of the Province of Quebec), have represented by their petition on behalf of the said society and others, citizens of the city of Montreal and inhabitants of the province of Quebec, the desirability of establishing a Botanic Garden in the city of Montreal, and that the same would be of great importance in promoting forestry interests in the province of Quebec and extending a general knowledge of useful vegetable products in their application to economic purposes, as well as in promoting general educational interests in the said province of Quebec; and whereas, it is desirable to grant the prayer of the said petitioners; Therefore, Her Majesty, by and with the advice and consent of the Legislature of Quebec enacts as follows:—

1. The said T. Sterry Hunt, D. P. Penhallow, and D. R. McCord, together with four persons elected by the said Montreal Horticultural Society from among the members of the same at a meeting of the said society called within six months from the coming into force of the present act, by special notice thereof setting forth the objects of the said meeting, and such other persons as shall then have signified their intention to donate sums of money not less than one hundred (\$100) dollars each, shall be and are hereby constituted a body politic and corporate under the name of the "Montreal Botanic Garden Association," and under such name may exercise all the general powers with which corporations are vested, and may acquire, hold and possess, either as owners or lessees, all property, movable or immovable, acquired by the said corporation by purchase, donation or otherwise, within the district of Montreal, and the said property, movable

or immovable  
other may  
may deem  
by the corp  
four thousa

The th  
by the Mon  
directors of  
vided, and  
provided fo

2. The  
Botanic Gar  
economic  
botanical k

3. Two  
the vacanci  
among the  
said retiring  
failing such  
society shall  
be elected.

4. The  
"Montreal  
full power a  
lations, not  
said corpora  
ment of its

5. At a  
shall be ent  
by resolutio  
called for th  
for every hu  
dred dollars

6. The  
such time a  
general mee

7. The  
directors cor  
and treasure  
from time to

or immovable, may sell, hypothecate, alienate or otherwise dispose of, and other may acquire in the place and stead thereof, as the said corporation may deem desirable, provided that the said immovable property so possessed by the corporation as owners does not exceed in annual value the sum of four thousand dollars.

The three persons above mentioned, together with four persons elected by the Montreal Horticultural Society as aforesaid, shall be the provisional directors of the said association until others are elected as hereinafter provided, and they shall have all the powers and be subjected to all the duties provided for by law in such cases.

2. The objects of the said corporation shall be, by the medium of a Botanic Garden and other accessories, to promote research in forestry and economic botany, and advance the interests of technical and general botanical knowledge.

3. Two out of the said seven members shall retire annually by lot, and the vacancies thereby created shall be filled by persons elected from and among the members of said Horticultural Society at its annual meeting, the said retiring members being always, however, eligible for re-election, and failing such election for any reason, the said retiring members of the said society shall remain members of the corporation until their successors shall be elected.

4. The majority of the members of the said corporation of the said "Montreal Botanic Garden Association" at any general meeting, shall have full power and authority to make and enact such rules, by-laws and regulations, not contrary to this act or the laws in force in this province, as the said corporation may deem necessary in the interests and for the management of its affairs.

5. At all meetings of the said corporation, each member of the same shall be entitled to one vote; but the said corporation shall have the power by resolution, carried by a majority of those present at a special meeting called for that purpose, to declare that donors shall have an additional vote for every hundred dollars subscribed by them over and above the first hundred dollars.

6. The annual general meeting of the said corporation shall be held at such time as may be decided from time to time by the said corporation at a general meeting called for the purpose.

7. The affairs of the said corporation shall be managed by a board of directors composed of five members of the said corporation, and a secretary and treasurer, or a secretary-treasurer, as the corporation may by resolution from time to time determine, to be elected at the annual general meeting

of the said corporation, or, failing such election for any reason at the said annual meeting, at any other general meeting of the corporation called for that purpose, and one of the said board of management shall be chosen by the corporation as the director of the garden. The said secretary or secretary-treasurer, as the case may be, may or may not be a member of the said corporation.

8. The said corporation shall determine, from time to time by by-law, whether the director shall be chairman of the board of management or not.

9. No member or officer of the said corporation shall be personally liable for any debt or obligation of the corporation.

On the 16th day of April, the directors of the Horticultural Society appointed a provisional board of management, under whose direction affairs were administered by the present director as provisional director of the garden. It was during the operation of this board that the Act of Incorporation was obtained, and by them put in force. On the 5th day of June, the corporation of the Montreal Botanic Garden Association was duly constituted, as provided in the charter, by election from the Horticultural Society of Rev. R. W. Norman, Hon. L. Beaubien, Mr. Wm. Evans, and Mr. R. Holland. At that time also, Dr. T. Sterry Hunt, Mr. Charles Gibb, and Mr. William Little became members of the corporation by qualifying as specified in the Act.

A permanent Board of Management was immediately constituted, and to them was transferred all the work of the provisional board. This body consisted of Dr. R. W. Norman, *Chairman*, Dr. T. Sterry Hunt, Hon. Louis Beaubien, Mr. Richard Holland, *Chairman of the Park Commissioners*, and Prof. D. P. Penhallow, in whose hands, as *Director*, the responsibilities of the Chief Executive were placed. The Corporation also provided this Board with such by-laws as would meet their needs in the immediate future. They are as follows :—

#### BY-LAWS.

I.—The Annual General Meeting of the Corporation shall be held the first Thursday of December, at 8 o'clock, P.M.

II.—Notices of the Annual and all Other Meetings of the Corporation, shall be given by the Secretary, by at least one insertion in one English and one French newspaper published in the City of Montreal, inserted not less than eight days previous to the date of said meeting.

III.—The  
presided over  
that purpose

IV.—The  
tary-Treasurer  
Management  
Management  
entitled to

V.—Not  
meeting, for  
or any other  
Corporation

VI.—The  
Board of Man  
as the case  
or officers h

VII.—The  
of the same,  
be given to  
mailed not

VIII.—The  
Secretary an  
in the inter  
to such offic  
ment may d

IX.—The  
of Management  
ing or Board

X.—At  
Chairman n  
present at s

XI.—It  
ernor-Gener  
ciation.

XII.—The  
and the bu  
same. He s  
Association.  
conduct all



III.—The Annual and all Other Meetings of the Corporation, shall be presided over by such member of the said Corporation as may be chosen for that purpose at such meeting.

IV.—The Board of Management, the Secretary and Treasurer or Secretary-Treasurer, the Director of the Garden and Chairman of the Board of Management, shall be elected by ballot by the said Corporation or Board of Management, as the case may be, if a request therefore be made by any one entitled to vote at any such election.

V.—Nine members of the Corporation shall constitute a quorum at any meeting, for the election of the Board of Management, the Managing Director or any other election by said Corporation. At any other meetings of said Corporation, five shall constitute a quorum.

VI.—Three members shall constitute a quorum at any meeting of the Board of Management, but the Secretary and Treasurer, or Secretary-Treasurer, as the case may be, shall not form one of the quorum, nor shall such officer or officers have a deliberative voice in the proceedings of said Board.

VII.—The Chairman of the Board of Management shall call meetings of the same, as often as he may deem proper; notice of all such meetings shall be given to members of the Board of Management by letter or postal card, mailed not less than three (3) days previous to such meeting.

VIII.—Vacancies in the Board of Management, or in the office of Secretary and Treasurer or Secretary-Treasurer, as the case may be, occurring in the intervals between the Annual Meetings, shall be filled by the election to such office or offices, of such person or persons as the Board of Management may decide upon.

IX.—The Chairman, at all meetings of the Corporation or of the Board of Management, shall vote only on the occasion of an equality at the meeting or Board over which he presides.

X.—At all the meetings of the Board of Management from which the Chairman may be absent, a chairman shall be chosen from amongst those present at such meeting.

XI.—It shall be competent for the said Corporation to elect the Governor-General of the Dominion to be the Honorary President of the Association.

XII.—The Managing Director shall have the chief charge of the Gardens and the buildings thereon erected, and all property connected with the same. He shall conduct all the scientific and general correspondence of the Association. He shall be the principal executive officer, and as such shall conduct all the business of the Association, except as otherwise provided;

he shall suggest all expenditure in connection with the Gardens and property of the Corporation under his charge, and the engagement of clerical assistance, or gardeners and such other help as he may deem requisite, subject to the approval of the Board of Management; he shall submit to the corporation, at its annual meeting, a report of his administration for the preceding year.

XIII.—The gardeners and those employed in and about the said gardens, shall be subject to dismissal at the discretion of the Director.

XIV.—The Secretary shall keep the minutes of the Corporation and Board of Management, and shall conduct all correspondence which does not properly devolve upon the Managing Director.

XV.—The Treasurer shall have charge of all funds of the Association, and shall place the same in such Bank, as shall be from time to time determined by the Corporation. He shall pay out such money on his check, countersigned by the Chairman of the Board of Management. All accounts in connection with the Gardens or other property under the charge of the Managing Director, shall be certified by him before payment.

XVI.—The Treasurer shall furnish at the annual meeting, accounts of receipts and expenses, and his books shall be at all times open to inspection by any member of the Board of Management.

XVII.—The Corporation may appoint at the annual meeting, such person as they may deem proper to audit the accounts of the Association. He may or may not be a member of the Corporation.

XVIII.—The Director may, on his own authority, between meetings of the Board, expend for the purposes of the Gardens a sum not to exceed \$50.00, which said expenditure shall be honored and paid by the Treasurer.

XIX.—The Board of Management are authorized, when circumstances permit, to fix a proper salary for the Managing Director.

XX.—It shall be competent for this Corporation to elect the Lieutenant-Governor of Quebec, as Honorary Vice-President.

---

Thereby vested with all the powers requisite to the performance of their functions, the Board at once entered upon its active duties, and thus was accomplished, so far as organization under legislative authority could realize, the establishment of the Montreal Botanic Gardens as an assured fact.

The general plans and the policy to be pursued have been brought to the notice of the public so frequently, that it would almost seem as if a restatement of them here were superfluous; but it appears that after all our

efforts, the  
thus appear  
by reiterat

As ou  
shall be, by  
mote resear  
ledge." T  
course, in l  
pursue in t

(1.) In  
means of p  
afford a mo  
classes. It  
sentiment.  
times—spe  
restriction  
tion of pro  
closing of  
set apart fo

(2.) In  
trees and p

(3.) In  
ments of  
highest int  
will be sol  
all surplus  
where it v  
most impo  
instruction

(4.) In  
educational  
receive eq  
highest in  
tion, provi  
tures upon  
special res

(5.) In  
come a cen  
tion, for th  
bearing, w

efforts, the public at large is not so well informed as it should be, and it thus appears desirable to lend additional emphasis to previous statements, by reiteration at this time.

As our charter concisely states, "the objects of the said Corporation shall be, by the medium of a Botanic Garden and other accessories, to promote research in forestry and economic botany, and general botanical knowledge." This at once indicates a very broad field of usefulness, and is, of course, in harmony with the original plans and the policy it is intended to pursue in the future. These may be stated briefly as follows:—

(1.) In its relation to the public at large, the garden will serve as a means of popularizing botanical science, while at the same time it will afford a most invaluable means of recreation and instruction to the laboring classes. Its effect must thus be to gradually elevate the public morals and sentiment. To accomplish this, it is designed that the grounds shall at all times—special occasions alone excepted—be open and free to the public use, restrictions being in force only so far as may be necessary for the preservation of property, and the maintenance of due order and propriety. The closing of the garden proper, will be permitted only upon such days as are set apart for the purpose of exhibitions.

(2.) In its relations to the city, there will be no difficulty in supplying trees and plants by way of exchange to offset advantages received.

(3.) In its relation to kindred institutions, and to private establishments of a similar character, it will always endeavor to promote the highest interests of the science which they represent. Nothing whatever will be sold from the garden or greenhouse; but, so far as means will allow, all surplus material will be distributed as exchanges to those gardens where it will be most useful. The gardens will also eventually serve a most important purpose as a centre of reliable information, and a means of instruction to gardeners in the important details of their calling.

(4.) In its relation to general education, it is designed that every educational institution which can avail itself of the privileges offered, shall receive equal and impartial benefit to the full extent consistent with the highest interests of all concerned. With reference to mere technical education, provision will be made in a suitable lecture room for courses of lectures upon special subjects, and as soon as means permit, a laboratory for special research will also be added to the resources.

(5.) In its relation to the Dominion at large, the garden will finally become a centre of information, and also, to a certain extent, of experimentation, for the whole Dominion. Important questions, having an economic bearing, will be given prominence. Forestry; the treatment of diseases; the

examination of and report upon vegetable substances having application to the arts and medicine, as well as those bearing important relations to food supply—all properly come within the functions of such an establishment.

Broad as this policy is, it is well within the requirements of the day and the needs of the country. It should be pressed upon public notice, however, that due time must be allowed for healthy growth, and that the amount and character of the work which it will be possible to execute, must depend very largely upon the degree of personal interest and pecuniary aid received. With a suitable endowment, the garden may always remain free to the public use without resort to expedients of a commercial nature, which would at once narrow its sphere of usefulness and permanently impair its value to the country.

#### GROUNDS.<sup>1</sup>

From the first inception of the present plans for a garden, Mount Royal Park was considered the most suitable place, not only as affording desirable proximity and room for future growth, but because there were to be found the most advantageous exposures, and the original plan of the park also contemplated a botanic garden at some future time. Within the entire area of this reservation, two locations appeared available for a choice—the one at the west end of the park, the other at the east end. Each had its special advantages, and it was only after very careful consideration on the part of the Director and Board of Management, that the choice was allowed to fall upon the location now in view. Exposure, soil, drainage, accessibility, and adaptation to good landscaping, were some of the more important considerations which finally determined the selection of that part of the park known as the Hall property, adjoining Fletcher's field.

The boundaries, as defined by the Park Commissioners, include an area of diversified character, embracing about seventy-five acres in all. This extends from the property of Mr. J. H. R. Molson, on the south-east, to the cemetery line on the north-west; and from Park Avenue on the north-east, to the foot of the mountain on the south-west. The drainage of the entire area is excellent, while the soil is of fine quality, and of sufficient depth for all the requirements of both garden and arboretum.

The surface is broken, and will permit of most admirable landscaping effects. The total rise of the ground from Park Avenue, is 195 feet, but this elevation is separated into a lower and an upper level. The former, which fronts on Park Avenue, and constitutes about two-thirds of the

<sup>1</sup> The terms of the lease as reported by the Park Commissioners, await ratification by the City Council.

entire area  
constituted  
feet, and t  
The surfac  
adapted to  
is characte  
it to the w  
much bro  
that can b  
venient m

At the  
purposes o  
devoted to  
The quest  
difficult o  
only requi  
mountain,  
when prop  
the opening  
that high  
from the c

The ex  
deemed be  
the locati  
whatever c  
it will alw  
that end.  
the sun fro  
it may als  
attracted a  
that it is t  
ance in the

As tim  
with the l  
the fact th  
Montreal.

In ma  
constructio

entire area, has a total rise of eighty feet in a depth of 900 feet; the latter constitutes a plateau, rising above the former by a bold front of thirty-five feet, and thus affords a most commanding outlook over the lower level. The surface of the lower level is, in the main, quite even and admirably adapted to the needs of the garden proper, while its frontage on the Avenue is characterized by bold crags and broken surface, which will well adapt it to the wants of the arboretum. The surface of the upper level is very much broken, but the soil is rich and of sufficient depth for all the trees that can be grown there. A large natural basin will also afford most convenient means of establishing a pond with comparatively little outlay.

At the north-western boundary, a lot of land, formerly devoted to the purposes of a market garden, and containing about three acres, will be devoted to nursery purposes, for which it is particularly well adapted. The question of water is an important one, but one which will not be difficult of solution. Within the nursery is a stone well of good water. It only requires cleaning to yield an unfailing supply. At the foot of the mountain, near the south-western boundary, are two good springs which, when properly developed, will be an important source of supply. Finally, the opening of Pine Avenue, and extension of the city water mains along that highway, will afford the means of securing a liberal supply of water from the city reservoirs.

The exposure of the land is not altogether that which would have been deemed best, had that been the leading consideration. Other features of the location, however, were found to be of paramount importance, and whatever element of risk may arise from this particular exposure, though it will always be very small, can readily be offset by special provision to that end. The entire area of the ground selected, has the full advantage of the sun from morning to night, even during the short days of winter, and it may also be stated that one of the features of this location, which first attracted attention, and finally had great weight in its selection, is the fact that it is that place where the early spring flowers make their first appearance in the greatest abundance.

As time advances and permits us to gain a more intimate acquaintance with the locality in all its aspects, we become more deeply impressed with the fact that it is by far the best possible site for a garden within reach of Montreal.

#### PLANS.

In maturing the general plans for the disposition of the ground and construction of buildings, due regard has constantly been observed for

future growth and requirements, and with reference to the ground, it may be stated that, while the general purposes to which it is to be devoted are clearly defined, the details of each particular portion will not be matured until a later date, since a fixed plan in detail is always subject to great modification; and it is believed that that plan, which is the result of moderate growth, will, in the end, prove the most satisfactory, as meeting in the highest degree the adaptation of artificial treatment and additions to natural surroundings. The essential features of the plan for the disposition of the ground may be stated in the following terms.

The land now embracing what is known as the Hall orchard, together with a short extension westward, the whole including about eighteen acres, will constitute the garden proper, within which will be the various buildings and all the beds of herbaceous plants, exclusive of those which properly belong to the pond and its vicinity. This area will be enclosed by a temporary fence until such time as a suitable hedge can be grown. Entrance will be secured by several smaller gates and one large gate, which will probably be located in such a way as to utilize a fine avenue of maples already within the limits of the garden proper.

With a frontage on Park Avenue of six hundred feet from the western boundary, the arboretum will be carried back, up the slope, and around the garden until it reaches the upper level. Within this latter area, a natural basin, formed by the outcropping limestone, will be utilized as a pond, into which it can be converted at moderate cost. The area of this pond will be about three acres. The contour of the surface is such that necessary islands, rockeries, and grottoes for plants requiring darkness, can easily be provided as important features. Around the pond the ground will be properly arranged for semi-aquatic and meadow plants, while from it the water will be led down over the bluff to the lower level in such a way as to afford the necessary degree of moisture for the proper growth of hardy ferns, mosses, and similar plants.

It will thus be seen that of the seventy-five acres, only eighteen will actually be enclosed in such a way as to permit of exclusion on occasions which demand it for the proper care of the property, while the balance—fifty-seven acres—will always remain as free and open to the public as it is to-day, with the additional advantage of enhanced surroundings for enjoyment and study.

Within the limits of the garden proper, there is a two-storey stone building of very substantial construction and ample dimensions. This, it is designed to remodel as to its interior arrangements, and convert to purposes immediately connected with the work of the garden. It will con-

tain the h  
and lectur  
future ext  
nected wit  
with the p  
will direct  
of plants t  
ferred wit

In ar  
been kept  
in distribu  
buildings  
harmony o  
the plan es  
as will an  
when addi  
the erectio  
least five  
frontal—w  
whole rang  
age of 216  
an elevatio  
river, this  
attractive

In con  
pondence  
which pro  
Regular o  
September  
and that v  
publication  
list, 185 in  
blank form  
gardens.  
have been  
seeds for e  
taking. W

tain the herbarium, working library, economic museum, directors' office, and lecture room, and for this purpose it is well adapted, permitting of future extension if necessary. Around this building, and directly connected with it, the plant houses will be grouped. Connection of the offices with the plant houses will be secured through the lecture room, which will directly open into a range of houses specially designed for the growth of plants to be used in the lecture room, and to which they may be transferred without difficulty.

In arranging the various buildings, three leading considerations have been kept in mind:—(1.) To group all as compactly as possible for economy in distribution of heat; (2.) To avoid heavy falls of snow from high to low buildings; and (3) to provide for future extension without impairing the harmony of the entire structure. In accordance with these considerations, the plan embraces all the essential houses of a complete conservatory, such as will answer the requirements of the garden for some time to come, and when additional accommodation becomes necessary, it may be provided by the erection of larger or smaller buildings, as may be called for, from at least five different parts of the original structures—two terminal and three frontal—without in any degree detracting from the present design. The whole range, as at present shown, exclusive of the office, will have a frontage of 216 feet and a depth of 90 feet. Fronting on Park Avenue, and with an elevation of fifty-five feet above that highway, or 285 feet above the river, this group of buildings will form one of the most conspicuous and attractive features of Montreal.

#### CORRESPONDENCE.

In consideration of the very recent date at which the work of correspondence was begun, it has already assumed very decided proportions, which promise a large amount of work for the future in this direction alone. Regular correspondence with kindred institutions was not opened until September 15th, when a short circular stating the fact of our organization, and that we were prepared to arrange for future exchange of seeds and publications, was issued to each one of the botanic gardens then on our list, 185 in all. Together with this circular, was mailed a postal card in blank form, calling for details concerning the management of the various gardens. From the directors of the gardens thus addressed, many replies have been received; in some cases accompanied by publications, lists of seeds for exchange, and most kindly expressions of interest in our undertaking. We are thus in communication to-day, with every botanic garden

of the world, so far as known to us, and it is to be hoped that those who receive this report will kindly favor us with the names of such as may not appear in our list.

As properly belonging to this department of the work, it should be stated that a large number of circulars of various kinds have been distributed wherever they would be likely to do good. Of the special article on Botanic Gardens, reprinted from the Tenth Annual Report of the Horticultural Society, 306 were distributed, being sent to all the gardens of the world, as well as to leading botanists elsewhere. Of special circulars for local distribution, 779 were issued, and if we add to this 187 circulars already referred to, we have 1,272 circulars, so far, issued in connection with our work. This has given rise to a correspondence which has involved a large number of letters, written and received.

Practical results have already been manifested, as the direct outcome of this effort. Efforts to establish botanic gardens have received fresh impulse and strength from our work and publications, in at least two places in the United States. Direct applications for the seeds or cuttings of plants peculiar to this country, are already being received, while important contributions to our resources in seeds and plants, are now constantly arriving.

GARDENS OF THE WORLD.

One of the first and most essential steps necessary to the establishment of our Garden upon a proper working basis, is intimate acquaintance with kindred institutions in all parts of the world, and the special character of the work they perform, as well as their method of securing an adequate income. In the previous enumeration of the Botanic Gardens of the World,<sup>1</sup> it was shown that at least 187 such institutions are in operation. It has been our endeavor to obtain such additional information from the Director of each Garden, as to enable us to complete an authoritative revision of this list. With that object in view, return postal cards, bearing the following items in blank form, were mailed to every known Garden in the world:—

BOTANIC GARDEN OF.....

- Director.....
- Supported by\* (State) (University) (City) (Private Donations).
- Admission (Free) (.....fee).
- Sundays (Closed) (Open).
- Publications.....

\* Cross out all except the one you wish to give.

<sup>1</sup> 10th Annual Rept. Mont. Hort. Soc., 1885.

At t  
 accompan  
 obtained  
 gardens—  
 sources—  
 and other  
 policy of  
 which ha  
 an asteris  
 The

- Loc
- ALGERIA-  
ALGER ...
- AUSTRAL  
ADELAIDE  
tralia).  
BRISBANE
- MELBOUR  
SYDNEY  
Wales)
- AUSTRO-H  
BUDAPEST  
nia) ...
- CZERNOWI  
GRATZ (S  
INNSBRUC  
KLAGENFU
- KOLOZSVA  
nia) ...
- KRAKAU  
LEMBERG  
PRAGUE (S  
SELMEEBA  
vania).  
TRIESTE (S  
VIENNA ...
- " ..
- BELGIUM  
ANTWERP  
BRUSSELS  
GHENT ...
- GEMBLOUX
- LIÈGE ...



At the present time, a large number of these have been returned, accompanied by expressions of most cordial interest. The information thus obtained has served as the principal basis for the revision of the list of gardens—though a few additional names have been received from other sources—as well as for the statements concerning endowment, admission, and other details which may have an important bearing upon the future policy of this garden, by way of precedent and example. Those gardens which have been heard from up to the date of this report, are indicated by an asterisk.

The following is the revised list by countries :—

GARDENS OF THE WORLD.

LOCATION.	GARDEN.	DIRECTOR.
<b>ALGERIA—1.</b>		
ALGER .....	Jardin d'Acclimatation du Hamma..	Charles Rivière.
<b>AUSTRALIA—4.</b>		
ADELAIDE (South Australia) .....	.....	*Dr. R. Schomburgk.
BRISBANE (Queensland) .....	.....	Walter Hill, <i>Director and Colonial Botanist.</i>
MELBOURNE (Victoria) .....	.....	.....
SYDNEY (New South Wales).....	.....	Charles Moore, F.L.S.
<b>AUSTRO-HUNGARY-13</b>		
BUDAPEST (Transylvania).....	University Botanic Garden.....	Dr. L. Juranyi.
CZERNOWITZ (Bukovia).....	" " " .....	Dr. Ed. Tangl.
GRATZ (Styria).....	" " " .....	Dr. Leitgeb.
INNSBRUCK (Tyrol).....	" " " .....	Dr. Joh. Peyritsch.
KLAGENFURT (Carinthia).....	.....	Bon. de Jabornegg-Gamse-negg.
KOLOZSVAR (Transylvania).....	.....	Dr. Aug. Kanitz.
KRAKAU (Galicia).....	University Botanic Garden.....	Dr. Jos. Thom. de Rostafinski.
LEMBERG " .....	" " " .....	Dr. Th. Ciesielski.
PRAGUE (Bohemia).....	" " " .....	Dr. M. Willkomm.
SELMEEBANYA (Transylvania).....	.....	Prof. A. Fekete.
TRIESTE (Istria).....	.....	*Raimondo Tominz.
VIENNA.....	University Botanic Garden.....	Dr. A. J. Kerner.
" .....	Imperial Hort. Gardens of Hofburg..	Fr. Antoine.
<b>BELGIUM—5.</b>		
ANTWERP .....	.....	*Dr. H. Van Heurck.
BRUSSELS .....	Royal Botanic Garden .....	*François Crépin.
GHEENT .....	University Botanic Garden.....	Dr. J. J. Kickx.
GEMBLoux.....	Botanic Garden of the Agricultural Institute.....	Dr. C. Malaise.
LIÉGE .....	University Botanic Garden.....	Dr. Ed. Morren.

## GARDENS OF THE WORLD—Continued.

LOCATION.	GARDEN.	DIRECTOR.
BRAZIL—1. RIO DE JANEIRO.....	Botanic Gardens of the Agricultural Institute, at Corrigez .....	Dr. Nicolau J. Moreira.
CANADA—1. MONTREAL (P. Q.).....	Montreal Botanic Garden.....	Prof. D. P. Penhallow.
CANARY ISLANDS—1. OROTAVA (Teneriffe) ...	Jardin d'Acclimatation.....	Mr. Wildpret, <i>Chief Gardener</i> .
CAPE OF GOOD HOPE—3 CAPE TOWN.....	.....	Prof. MacOwan.
GRAAF REINET.....	.....	*J. C. Smith, <i>Chief of the Garden</i> .
GRAHAM'S TOWN.....	.....	*Edward Tidmarsh, <i>Chief of the Garden</i> .
CEYLON—1. PERADENIA.....	Royal Botanic Garden.....	Dr. Henry Trimen.
CHILI—1. SANTIAGO .....	.....	Prof. Fred. Philippi (fils).
CHINA—1. HONG KONG.....	.....	*C. Ford, <i>Superintendent</i> .
COCHIN CHINA—1. SAIGON.....	Colonial Botanic Garden.....	Dr. L. Pierre.
DENMARK—2. COPENHAGEN.....	University Botanic Gardens.....	*Prof. Eug. Warming.
".....	Royal Gardens of Rosenberg.....	*Tyge Rothe.
ECUADOR—1. QUITO .....	.....	Prof. R. P. Al. Sodiro.
EGYPT—1. CAIRO .....	.....	Gastinel-Bey.
FRANCE—20. ANGERS .....	.....	Dr. Em. Lieutaud.
BESANÇON .....	.....	F. Paillot.
CAEN .....	.....	Eugène Vieillard.
CANNES .....	.....	Comte d'Épémésnil.
CLERMONT-FERRAND .....	.....	.....
DIJON .....	.....	Dr. Laguesse.
HYÈRES .....	.....	Emile Davrillon.
LILLE .....	.....	T. Meurein.
LYON .....	.....	Dr. Ant. Magnin.
MONTPELLIER.....	.....	Prof. J. E. Planchon.
NANCY.....	.....	Prof. G. Le Monnier.
NANTES .....	.....	Dr. Écorchard.
ORLÉANS .....	.....	M. Rossignol.
PARIS .....	Gardens of the Nat. History Museum	*Prof. Maxime Cornau.
ROCHEFORT.....	.....	Dr. Barallier.
ROUEN.....	.....	Emm. Blanche.
ST. QUENTIN.....	.....	Charles Magnier.
TOULON.....	.....	J. B. Chabaud, <i>Chief Gardener</i> .

TOULOUS  
TOURS ..

GERMAN  
AIX-LA-C  
BAMBER  
BERLIN.  
"  
BONN (R  
BRESLAU  
BRUNSW  
CARLSRU  
COLOGNE  
Pruss  
DARMSTA  
DRESDEN  
ERLANG  
FRANKF  
(Hess  
FRIBOUR  
GIessen  
GOERLIT  
GREIFSW  
nia)  
HALLÉ-U  
(Saxon  
HAMBUR  
HEIDEL  
JENA (S  
KIEL (S  
stein)  
KÖNIGSB  
LEIPZIG  
MARBOU  
sau).  
MUNDEN  
MUNICH  
MUNSTER  
POTSDAM  
ROSTOCK  
STRASBU  
raine)  
THARANT  
TUBINGE  
berg)  
WURZBU

GREAT B  
IRELAN  
BIRMING  
CAMBRID  
LONDON  
"  
"  
"

## GARDENS OF THE WORLD—Continued.

LOCALITY.	GARDEN.	DIRECTOR.
TOULOUSE.....	.....	*Dr. Dominique Clos.
TOURS.....	.....	*Prof. David Barnsby.
GERMANY—34.		
AIX-LA-CHAPELLE.....	.....	Dr. M. Debey.
BAMBERG (Bavaria).....	.....	Dr. Funk.
BERLIN.....	Berlin Botanic Gardens.....	*Dr. A. W. Eichler.
“.....	University Botanic Gardens.....	Dr. S. Schwendener.
BONN (Rhenish Prussia).....	“ “ “.....	Dr. Ed. Strasburger.
BRESLAU (Silesia).....	.....	Dr. H. R. Göppert.
BRUNSWICK (Brunswick).....	Botanic Garden of the Polytechnic School.....	Dr. W. Blasius. J. Pfister.
CARLSRUHE (Baden).....	.....	*Prof. J. Niepraschk.
COLOGNE (Rhenish Prussia).....	.....	*Dr. Leopold Dippel.
DARMSTADT (Hesse).....	.....	*Dr. Oscar Drude.
DRESDEN (Saxony).....	.....	*Dr. Max. Rees.
ERLANGEN (Bavaria).....	.....	.....
FRANKFORT - ON - MAIN (Hesse-Nassau).....	.....	*Dr. H. Th. Geyler.
FRIBOURG (Baden).....	.....	Dr. F. Hildebrand.
GIESSEN (Hesse).....	.....	Dr. H. Hoffmann.
GOERLITZ (Silesia).....	.....	Dr. R. Peck.
GREIFSWALD (Pomerania).....	.....	*Dr. Fr. Schmitz.
HALLE-UPON-SALLE (Saxony).....	.....	Dr. Greg. Kraus.
HAMBURG.....	.....	*Dr. H. G. Reichenbach.
HEIDELBERG (Baden).....	.....	Dr. E. Pfitzer.
JENA (Saxe-Cobourg).....	.....	Dr. E. Stahl.
KIEL (Schleswig - Holstein).....	.....	Dr. Ad. Engler.
KÖNIGSBERG.....	.....	*Dr. Robert Caspary.
LEIPZIG (Saxony).....	.....	Dr. Schenck.
MARBOURG (Hesse-Nassau).....	.....	Dr. A. Wigand.
MUNDEN (Hanover).....	.....	Dr. N. J. C. Müller.
MUNICH (Bavaria).....	.....	Dr. C. G. Von Naegeli.
MUNSTER (Westphalia).....	.....	Dr. O. Brefeld.
POTSDAM.....	.....	Dr. Jühlke.
ROSTOCK (Mecklenburg).....	.....	Dr. Jean Roeper.
STRASBURG (Alsace-Lorraine).....	.....	Dr. Ant. De Bary.
THARAND (Saxony).....	.....	Dr. Fred. Nobbe.
TUBINGEN (Württemberg).....	.....	Dr. W. Pfeffer.
WURZBURG (Bavaria).....	.....	Dr. Jul. von Sachs.
GREAT BRITAIN AND IRELAND—12.		
BIRMINGHAM (England).....	.....	Mr. Latham.
CAMBRIDGE “.....	.....	Prof. C. C. Babington.
LONDON “.....	Chelsea Botanic Gardens.....	Thos. Moore, Curator.
“ “.....	Royal Botanic Gardens, Kew.....	*Prof. W. T. T. Dyer,
“ “.....	Royal Botanic Society Gardens, Regent's Park.....	W. Coomber, Sup't.
“ “.....	Royal Horticultural Society Gardens, S. Kensington.....	A. F. Barron, Sup't.

## GARDENS OF THE WORLD—Continued.

LOCALITY.	GARDEN.	DIRECTOR.
MANCHESTER (England) .....		Bruce Findlay, <i>Curator</i> .
OXFORD " .....		Dr. J. Bayley Balfour.
DUBLIN (Ireland).....	Royal Botanic Gardens of Glasnevin .....	*Dr. W. R. McNab.
BELFAST " .....	Royal Belfast Botanic Gardens.....	R. Motherell, <i>Secretary</i> .
EDINBURGH (Scotland)..	Royal Botanic Gardens.....	Dr. A. Dickson.
GLASGOW " .....		R. Bullen, <i>Curator</i> .
GREECE—1.		
ATHENS.....		Dr. T. de Heldreich.
GUATEMALA—1.		
GUATEMALA .....		G. S. Jenman, <i>Sup't</i> .
GUIANA—1.		
GEORGETOWN .....		Dr. Francesco Abella.
HOLLAND—4.		
AMSTERDAM.....		*Prof. C. A. J. A. Oudemans.
GRONINGEN .....		Prof. P. De Boer.
LEYDEN.....		Dr. W. F. R. Suringar.
UTRECHT.....		*Dr. N. W. P. Rauwenhoff.
INDIAN EMPIRE—7.		
BANGALORE (Madras).....		Col. W. L. Johnson.
BOMBAY .....		A. Shuttleworth.
CALCUTTA .....	Royal Botanic Gardens.....	Prof. G. King.
GANISH KIND (Poona) ..		G. W. Woodrow.
OOTACAMUD .....		Mr. Jamieson.
PONDICHERY .....		
SAHARANPUR (Bengal) ..		*J. F. Duthie.
ITALY—23.		
BOLOGNE.....		
CAGLIARI.....		Dr. P. Gennari.
CASERTA .....		Dr. N. Terracciano.
CATANIA.....		Prof. Fr. Tornabene.
FERRARA.....		Dr. Carus Massalongo.
FLORENCE .....		Prof. T. Carnel.
GENOA.....		Prof. Fred. Delpino.
LUCCA.....		Dr. C. Biechi.
MESSINA.....		Prof. A. Borzi.
MILAN.....		Prof. Fr. Ardissonne.
MODINA .....		Dr. A. Mori.
NAPLES.....		Dr. J. A. Pasquale.
PADOVA.....		*Cav. Dr. P. A. Saccardo.
PALERMO.....		Dr. Aug. Todaro.
PARMA.....		Prof. J. Passerini.
PAVIA.....		Prof. J. Briosi.
PEROUSE .....		Prof. Al. Bruschi.
PISA.....		Dr. J. Arcangeli.
PORTICI .....		Dr. Horace Comes.
ROME.....		*Dr. R. Pirrotta.
SIENA.....		Prof. Att. Tassi.
TURIN .....		Prof. G. Gibelli.
VENICE.....		Sen. Ruchinger.
JAPAN—1.		
TOKIO .....	Koiskekowa Botanic Gardens.....	Prof. K. Ito.

Lo

JAVA—1.  
BUTENZO

MALTA—  
LA VALLE

MAURITI  
PORT LO

NATAL—  
D'URBAN

NEW ZEAL  
CHRISTCH

PERU—1.  
LIMA ...

PHILIPPIN  
ISLANDS  
MANILLA

PORTUGAL  
COIMBRA  
LISBON  
OPORTO

REUNION  
ST. DENIS

ROUMANIA  
BUCHAREST  
YASSY...

RUSSIA—  
DORPAT  
HELSINGF  
KAZAN (C  
KHARKOV  
KIEV...  
MOSCOW  
NIKITA (C  
ODESSA...  
OREL...  
OUMAN (C  
PENZA (C  
ST. PETERS  
" "  
TIFLIS...  
WORONES  
WARSAW

SCANDINAV  
CHRISTIA  
GÖTEBOR  
LUND

## GARDENS OF THE WORLD—Continued.

LOCALITY.	GARDEN.	DIRECTOR.
JAVA—1.		
BUTENZORG .....		Dr. M. Treub.
MALTA—1.		
LA VALETTE .....		Dr. Gavino Gulia.
MAURITIUS—1.		
PORT LOUIS .....		*J. Horne.
NATAL—1.		
D'URBAN .....		Mr. Keit, <i>Sup't.</i>
NEW ZEALAND—1.		
CHRISTCHURCH .....		J. B. Armstrong.
PERU—1.		
LIMA .....		Dr. Mig. de los Ríos.
PHILIPPINE ISLANDS—1.		
MANILLA (Luzon) .....		Seb. Vidal y Soler.
PORTUGAL—3.		
COIMBRA .....		*Dr. J. A. Hienriques.
LISBON .....		Prof. J. de Andrade Corvo.
OPORTO .....		Dr. F. de S. G. Cardoso.
REUNION, ISLAND OF—1.		
ST. DENIS .....		M. Richard.
ROUMANIA—2.		
BUCHAREST .....		Dr. Brandza.
YASSY .....		Dr. A. Fétu.
RUSSIA—16.		
DORPAT (Livonia) .....		Dr. Ed. Russow.
HELSINGFORS (Finland) .....		Dr. S. O. Lindberg.
KAZAN (Kazan) .....		Prof. N. W. Sorokin.
KHARKOFF .....		Dr. Ad. Pitra.
KIEV .....		Dr. J. Schmalhausen.
MOSCOW .....		Dr. J. Goroschankin.
NIKITA (Crimea) .....		Mr. Basarow.
ODESSA .....		Dr. L. Reinhard.
OREL .....		P. G. Tretjakoff.
OUMAN (Kiev) .....		Prof. L. Scrobichewski.
PENZA (Penza) .....		
ST. PETERSBURG .....	Imperial Botanic Gardens .....	*Dr. Ed. de Regel.
" .....	University Botanic Gardens .....	Prof. André Bikitoff.
TIFLIS .....		Prof. W. Scharrer.
WORONESH .....		Dr. J. E. Fischer.
WARSAW .....		Dr. A. F. de Waldheim.
SCANDINAVIA—7.		
CHRISTIANIA (Norway) .....		Dr. F. C. Schübeler.
GÖTEBORG (Sweden) .....	Hort. Soc. Bot. Gardens .....	Prof. C. Löwegren.
LUND .....	" .....	Dr. F. W. C. Areschong.

## GARDENS OF THE WORLD—Continued.

LOCALITY.	GARDEN.	DIRECTOR.
STOCKHOLM (Sweden)...	Gardens of the Royal Academy of Agriculture .....	E. Lindgren, <i>Sup't.</i>
" " ...	Royal Gardens of Haga.....	Prof. M. A. Werner.
" " ...	Swedish Soc. of Hort. Bot. Gardens..	M. A. Pital.
UPSALA " .....	.....	*Dr. Th. M. Fries.
SERVIA—1.		
BELGRADE.....	.....	Dr. Jos. Panic.
SIBERIA—1.		
TOMSK.....	.....	Mr. Schestakoff.
SPAIN—2.		
MADRID .....	.....	Dr. Miguel Colmeiro.
VALENCIA .....	.....	Dr. José Arévalo Boca.
STRAITS SETTLE- MENTS—1.		
SINGAPORE .....	.....	J. Cantley.
SWITZERLAND—3.		
BASLE.....	.....	Dr. H. Vöchting.
BERNE .....	.....	Dr. L. Fischer.
ZURICH .....	.....	
TASMANIA—1.		
HOBART TOWN.....	.....	Mr. Abbot.
UNITED STATES—5.		
BROOKLINE (Mass.)....	Arnold Arboretum of Harvard College	*Prof. C. S. Sargent.
CAMBRIDGE " .....	Harvard College Botanic Gardens...	*Dr. G. L. Goodale.
LANSING (Michigan)...	Botanic Garden of State Agricultural College .....	*Dr. W. J. Beale.
St. LOUIS (Missouri)...	.....	*H. J. Shaw.
WASHINGTON (D.C.)....	U. S. Dept. of Agriculture Gardens...	Dr. Geo. Vasey.
WEST INDIES—6.		
CASTLETON (Jamaica)...	.....	G. Syme.
HAVANA (Cuba).....	.....	J. Lachaume.
KING'S HOUSE (Jamaica)	.....	Wm. Harris, <i>Sup't.</i>
KINGSTON " .....	.....	W. R. Elliott.
PORT OF SPAIN (Trini- dad).....	.....	H. Prestoe.
St. PIERRE (Martinique)	Colonial Botanic Gardens.....	M. Thierry.

From this list, which may be regarded as fairly correct, it appears that there are one hundred and ninety-seven gardens in the world, or ten more than were reported in our previous enumeration. The aim has been to include only those which may be regarded as established upon a scientific basis, but obviously, some which are not will unavoidably be included.

A classifi-  
gardens

It v  
far each

Wi  
details.  
enable  
them, b  
themsel

SUPP

A classification of the countries of the world, according to the number of gardens they support, would give us the following :—

I.	Germany.....	34
II.	Italy.....	23
III.	France.....	20
IV.	Russia.....	16
V.	Austro-Hungary.....	13
VI.	Great Britain and Ireland.....	12
VII.	Hindustan and Scandinavia.....	7 each.
VIII.	West Indies.....	6
IX.	Belgium and the United States.....	5 “
X.	Australia and Holland.....	4 “
XI.	Cape of Good Hope, Portugal and Switzerland.....	3 “
XII.	Denmark, Roumania and Spain.....	2 “
XIII.	Algeria, Brazil, Canada, Canary Islands, Ceylon, Chili, China, Cochinchina, Ecuador, Egypt, Greece, Guatemala, Guiana, Island of Reunion, Japan, Java, Malta, Mauritius, Natal, New Zealand, Peru, Philippine Islands, Servia, Siberia, and Tasmania.....	1 “

It will be also interesting to see from the following classification, how far each of the nations of the world is responsible for these gardens :—

I.	England and Colonies.....	39
II.	Germany.....	34
III.	France and Colonies.....	25
IV.	Italy.....	23
V.	Russia and Siberia.....	17
VI.	Austro-Hungary.....	13
VII.	Scandinavia.....	7
VIII.	Belgium, Holland and Colonies, Spain and Colonies, United States.....	5 each.
IX.	Portugal, Switzerland.....	3 “
X.	Denmark, Roumania.....	2 “
XI.	Brazil, Chili, Ecuador, Egypt, Greece, Guatemala, Japan, Peru, Servia.....	1 “
	Total.....	197

With reference to the information concerning endowment and other details, so far received, enough gardens have not yet been heard from to enable us to draw precise conclusions as to the general practice among them, but the information, so far as obtained directly from the directors themselves, may be tabulated as follows :—

SUPPORT :—	Percentage Numbers.
State.....	55.5
University.....	5.5
State and University.....	11.1
State, University and City.....	2.7
City.....	11.0
City or State, and private donations.....	8.3
Private donations.....	5.5

ars that  
en more  
been to  
cientific  
cluded.

ADMISSION :—	Percentage Numbers.
Free.....	94.5
Charge.....	5.5
SUNDAYS :—	
Closed .....	27.8
Open.....	72.2
PUBLICATIONS :—	
Annual Reports and Scientific Research.....	73.3

It thus appears that gardens are generally supported by the State,—an undoubted recognition of their national importance in all the numerous directions of their usefulness. Next to the State, the City appears to be the chief supporter, doubtless for much the same reasons.

It is a noteworthy fact, that such institutions are in most cases so supported as to make them free to the public use, but in any case, this freedom is subject to certain limitations as necessitated by proper care of property. In only two cases, so far heard from, is a charge exacted, but the fee does not appear to exceed twenty-five cents *per capita*. Practice varies widely as to admission on Sundays, even in the same country, it being determined, apparently, by each community in which the garden is located. The custom, however, seems to be in favor of keeping the grounds open on Sunday. In one case, the pleasure garden only is open on Sunday; in another, all the grounds are free, but the plant houses are closed; while, at Madrid, it is the custom to open the garden on Sunday from May to November only.

A few gardens issue no publications, but this appears contrary to the general practice. Many issue annual reports of the director, or seed catalogues for purposes of exchange only. In England, however, as in all the more important gardens of France and Germany, these publications are supplemented by valuable contributions to science, as the result of original investigations conducted in the laboratories, herbariums, or plant houses of these institutions, and no better idea of the character and value of this work could be obtained, than from an examination of the annual reports issued by the Director of the Royal Gardens at Kew. It indicates the great scope which such an institution properly endowed, ably directed, and allowed healthy growth, may ultimately have.

#### EXCHANGES AND DONATIONS.

Owing to the circumstances of our recent organization, and the fact that it will of necessity be some little time before we can hope to return in kind the many contributions received, our exchanges do not make a very large total as yet. With the issue of this report, however, regular exchanges of publications with all the gardens of the world, will be instituted.

In the  
that garden  
been made  
requests,  
received  
ing in the  
on account  
the dista  
procured  
lar reques  
and cutti  
stadt, and  
ply seeds  
course fo  
specimen

The  
and seed  
gather in

ROYAL BOT  
se  
BOTANIC G  
DUBLIN BO  
BOTANIC G  
II.  
Contri  
Catalog  
L  
Also Seed  
MONTREAL  
tre  
MR. CHAS.  
T  
N  
IMPERIAL  
MR. WM. I  
ABBOTSFOR

A s

As  
corpora



In the absence of exact knowledge as to the species of our native plants that gardens in other parts of the world might desire, no special effort has been made to collect seeds or cuttings, it being obviously wiser to wait for requests, even if the loss of a year were involved. One application was received late in the summer from the St. Peterburg Gardens for trees growing in the Northwest. An immediate effort was made to fill the order, but on account of the time required for a letter to reach the proper parties, and the distance which they thus found it necessary to travel, no seeds were procured. Arrangements will be perfected, however, so that this and similar requests may be complied with in proper season. Application for seeds and cuttings has also been received from the Botanic Gardens of Darmstadt, and will be filled the coming season. While we cannot as yet supply seeds and plants from our own grounds, it will doubtless prove a wise course for us to make provision for the collection of such of our native specimens as may be called for. This I shall refer to later.

The donations received up to the present date, chiefly in nursery stock and seeds, constitute a very favorable nucleus around which more may gather in the near future. They may be enumerated as follows:—

- ROYAL BOTANIC GARDENS, KEW, ENGLAND.—Official Guide, 1883, 1885. Official Reports for seventeen years. 5 pkgs. of Seeds=560 species of plants.  
 BOTANIC GARDENS OF LIÈGE.—Description of the Bot. Institute, 1885.  
 DUBLIN BOTANIC GARDENS.—Annual Report for 1884.  
 BOTANIC GARDENS OF COIMBRA, PORTUGAL.—Boletim da Sociedade Broteriana, Vol. II, 1883. Vol. III, 1884, Fasc. 1 and 2.  
 Contribuções ad Floram Mycologicam Lusitanicam, Series III, IV, V, and VI.  
 Catalogue Raisonné des Graminées du Portugal. Contribuções ad Floram Cryptogamicam Lusitanicam.  
 Also Seed Catalogues from other Gardens desiring exchange.  
 MONTREAL HORTICULTURAL SOCIETY.—Reports of Hort. Societies, 28 vols. Annual Report Montreal Horticultural Society, 1876-1883.  
 MR. CHAS. GIBB.—The Fruit Garden, P. Barry, 1 vol. Cuttings of Trees and Shrubs, 27 species. Trees and Shrubs, 38 species. Seeds from Japan (trees), 15 species. Seeds from the Northwest, 7 species.  
 IMPERIAL BOTANIC GARDENS, ST. PETERSBURG.—Seeds, 137 species.  
 MR. WM. EVANS.—Seeds, 30 species. Trees and Shrubs.  
 ABBOTSFORD FRUIT GROWERS' ASSOCIATION.—Trees and Shrubs, 324 species.

A summary of donations shows the following:—

Publications .....	68
Seeds .....	749 species.
Trees and Shrubs .....	433 "
Cuttings .....	27 "

As yet, no systematic effort has been made to increase the funds of the corporation through special donations. It is proper to state, however, that

enough informal offers of assistance have been received to assure the Management of the hearty co-operation and support of our best citizens; but it has been manifestly impracticable to institute any systematic collection so long as the lease of land from the city was at all in doubt. The Board of Management have been prepared and waiting to prosecute work in this direction, and will undertake it as soon as ratification of their lease by the City Council will enable them to do so consistently.

In response to our application last winter, the Quebec Legislature kindly granted us \$1,000 for preliminary work. Beyond this, the donations so far received have been practically unsolicited, and represent sums paid in as membership fees, as provided in our charter. It is desirable, however, that early measures be taken to secure increased donations, to which I shall refer more particularly.

There has been one donation, however, which deserves more than passing notice, since it establishes a precedent which may well be followed. Mr. W. T. Costigan has given the sum of twenty-five dollars, to be expended in laying out the first flower bed. It is hoped others may profit by the example thus set.

#### NURSERY.

Under arrangement with Mr. Wm. McGibbon, Superintendent of Mount Royal Park, the large number of seeds received from the Imperial Botanic Gardens of St. Petersburg, last winter, were successfully planted in his grounds. A very large percentage of them germinated, and were thus the source of a great deal of nursery stock, including a large number of species. Coming from a place so far north, all of this material will prove of value here, on account of its assured hardiness. Owing to the construction of a new road, it became necessary to transplant the bulk of these plants at a season which would otherwise not have been chosen. In August, the land designed for the nursery was carefully cleared of weeds—which were burned—plowed and harrowed. All the material which necessity compelled us to move, was then transferred to the nursery and planted out in rows. A very large amount, however, was not disturbed, and will not be transplanted until next spring. Notwithstanding the time at which the transfer was made, the weather continued very favorable to such work, and all the plants were finally secured and made sufficient growth to insure them against winter, with an almost inappreciable percentage of loss.

In September, the Director, with the co-operation of Mr. St. George, City Surveyor, secured a valuable addition to our resources in the collection

of a large  
tant addi  
co-operati  
letter wa  
stating th  
lection of  
spontane  
acceptanc  
specimen  
The zeal  
came a d  
wholly u  
contribut  
in the w  
an intell  
garden.

There  
Charles G  
has add  
Goegging  
Petersbur  
been plan  
of materi  
causes of  
lows:—

To t  
27 specie

of a large number of native shrubs. A few days later, a still more important addition of trees and shrubs was secured through the generous co-operation of one of our horticultural societies. Early in September, a letter was received from the Fruit Growers' Association of Abbotsford, stating that the members of the Association would devote a day to the collection of specimens if the Director would aid them in the work. So spontaneous and thoughtful an offer was not to be overlooked, and its acceptance has borne good fruit. The result was the collection of 304 specimens of trees and shrubs, representing forty-one different species. The zeal displayed will be well indicated by the fact that one member came a distance of ten miles in order to contribute his quota. It is wholly unnecessary to dwell upon the significance of this voluntary contribution, since it not only speaks for itself of a high degree of interest in the work we are undertaking, but also indicates in a high degree an intelligent appreciation of the benefits likely to result from a botanic garden.

There have also been planted the very valuable contributions from Mr. Charles Gibb and Mr. Wm. Evans. To the stock thus secured, the Director has added a large number of trees and shrubs, obtained by purchase, of Mr. Goegginger, of Riga, Russia. The balance of the seeds received from St. Petersburg, as well as a large number received from other sources, have been planted in suitably prepared beds, and will yield a very large amount of material, even after making a liberal allowance for bad seed and other causes of failure. The total stock now in nursery may be stated as follows:—

DESCRIPTION.	TREES.	SHRUBS.	HERBS.
Native species .....	249	164	—
Exotics from Mr. Gibb .....	21	6	—
From Mr. Wm. Evans .....	50	108	40
Purchased from Russia .....	63	26	—
From Russian seed .....	479	1376	499
From other sources .....	—	25	—
	862	1705	539

Total..... 3,106

To this should be added 194 species of seeds now in the ground, and 27 species of trees and shrubs in the form of cuttings. It will thus be seen

that a very important basis for planting and exchange has already been established. All the plants thus far, in the nursery, are designated by numbered stakes, corresponding numbers being entered in the stock book against the name of the species represented. In order to systematize the work of this department, regular account books have been opened, with debit and credit columns. All stock placed in nursery is debited under its proper class as trees, shrubs or herbs, seeds or cuttings, by number of species or specimens represented. Similarly, the nursery is credited with all stock sent out. Thus only a moment's examination is sufficient to show the exact number of plants of each kind from every source. It is intended to follow this system in all departments of the garden.

#### EXPENDITURES.

The expenses of the Garden during the past year have been those incidental chiefly to the work of organization. About one hundred dollars have been expended in the preparation and planting of the nursery, and for items necessarily connected therewith. The principal items of expense have been incurred for office furniture, circulars of information and other necessary printing expenses attending the passage by the legislature, of the bill of incorporation. Other than these, expense has been incurred for plants from Russia, and for a telephone. This latter, which, through the courtesy of Mr. Sise, Manager of the Bell Telephone Company, was given us at a reduced rate, has proved a most valuable addition to our working facilities. No expense has so far been incurred for office rent, or for salaries, and the grant from the Provincial Assembly has proved sufficient to cover all expenses up to date, and leave a small balance with which to continue our preliminary work. In view of what has been accomplished, I cannot but feel that this is a most gratifying exhibit.

#### RECOMMENDATIONS.

While I am fully aware that the Board of Management already contemplate certain important measures for the development of the plans in view at an early date, it seems proper that I should embody in this report, such recommendations, of a more important nature, as directly concern the Corporation. I would therefore ask your consideration of the following suggestions:—

With reference to the funds which may in the future be collected, it would appear desirable that all money which is not in the first instance donated for a special object, should be devoted to the establishment of a permanent fund, the interest on which could be applied to meet the running

expenses of  
fees, or fro  
specified,  
purposes,  
of this na  
disposed

The p  
which we  
which it  
should m  
sold, and  
ings—ne  
well as a  
and ind  
It is high  
date, and  
early con  
Management

It is  
and that  
for donat  
were with  
group of  
every per  
the entire  
arboretum  
include i  
could we  
gest the

A.—

B.—

one or al

C.—

which m

Don

donated

to perma

the princ

select.

The

its futur

expenses of the establishment. Thus, all money accruing from membership fees, or from special donations or otherwise, the application of which is not specified, might be devoted to this purpose, while, for buildings and other purposes, special appropriations might be secured. It is probable that a plan of this nature would most fully meet the desires of those of our liberally disposed citizens who are likely to become our best patrons.

The policy which the originators of this scheme adopted—the policy to which we now stand committed by the terms of our Charter, and the one which it is essential to the highest character of our institution that we should maintain, viz., that none of the produce of the garden shall be sold, and that the public shall have free access to the grounds and buildings—necessitates our dependence upon the generosity of our citizens, as well as a certain measure of support from Government, who will directly and indirectly derive a very large proportion of all the benefit obtained. It is highly desirable that a secure financial basis be obtained at an early date, and I would commend to the consideration of this Corporation, the early completion of those measures now contemplated by the Board of Management looking to this end.

It is believed that the interests of the Garden may be greatly promoted, and that a growing interest may be awakened in the public, by providing for donations for special objects. If persons could donate such sums as were within their means to the preparation, or permanent care of a particular group of plants in which their interest was chiefly centered, it would make every person, thus contributing, feel an individual interest in the welfare of the entire establishment. The plans not only contemplate an extensive arboretum, and a large pond with aquatic plants, but they necessarily include in the garden proper, a large number of beds; and any one of these could well become an object of special donation. I would therefore suggest the following as special objects for this purpose:—

*A.*—Arboretum, embracing 38 families of trees, shrubs and vines.

*B.*—Pond, with aquatic and marsh plants, embracing 17 families, any one or all of which may be made a special object of donation.

*C.*—Garden proper, embracing at least 75 families of plants, any one of which may be selected.

Donors should state (1) the object of the particular family or object donated for; (2) whether the donation is to be applied to first planting, or to permanent maintenance. There should also be printed lists giving all the principal families represented in the gardens, from which donors may select.

The material now on hand requires certain suggestion from me as to its future disposition. The very large number of seeds received should be

planted in season. This will necessitate certain temporary provision in the way of a propagating house and hot beds. The nursing stock now in the ground will require constant attention from the opening of next season. To meet the necessary requirements in this direction, ample provision should be made for the employment of a regular gardener, and an occasional assistant. It will also be necessary to provide for one regular policeman, with an extra one for Sunday duty.

The plans of the contemplated buildings submitted herewith, are as yet somewhat tentative, though, in all their general features of size and arrangement, they are substantially those which it is designed to follow. It is earnestly to be hoped that sufficient money may be secured to commence building as soon as spring opens. The estimated cost, including heating apparatus, is \$30,000. The construction of at least a portion of the plant-houses, is essential to the initial work of the garden, and I would earnestly recommend provision for their early completion.

The work has progressed so rapidly, up to this time, that any extension of it, or even to continue the care of the property now in our possession, will involve a continually increasing demand upon the time and energies of those who are responsible for the results obtained. It will, therefore, be highly desirable to contemplate the provision, at an early date, of such assistants as may be necessary, as well as other officers, who can give the necessary time to the work, at a reasonable compensation.

Our present relations to the other gardens of the world are such that requests for material, in the form of seeds and cuttings, will undoubtedly multiply during the present winter. A few requests of this nature have already been received, but too late to be filled this year. To properly provide for exchange in kind, it will probably be desirable to issue lists of such plants, the seeds or cuttings of which will be available next season.

In closing this report, it is but proper that some expression should be given of the gratitude we feel to the many kind friends who have lent us their support. To the press of the City, and especially to the *Star* and *Gazette*, we feel under deep obligations for their great and kindly assistance. We are also under deep obligations to all those friends who have already contributed to our resources. To the members of the Board of Management, individually, it is proper that we should express our obligations for the efforts they have made, often at personal sacrifice, in the promotion of this object, and I would also express my own sense of personal obligation for the courteous consideration with which I have invariably been received by them, and my propositions entertained.

D. P. PENHALLOW, *Director.*



---

*Abbotsford Fruit-Growers' Association.*

This Association has entered upon a new field of work. Exhibitions had been held for nine consecutive years, and now, by permission of the Council of Agriculture, no exhibition was held, but the Society's funds devoted to the introduction of Russian fruits. During the early years of the Society there was an urgent and pressing need of such exhibitions, which need is now well supplied in this part of the country by the Societies of Missisquoi, Shefford and Brome.

The Russian fruits are the future fruits of a large part of this northern country. They reach us often under wrong names. Varieties, under the same name from different parts of Russia, are not always alike. Some names must be regarded as names of families. Then the issuing of varieties in this country, by number instead of name, has no doubt caused confusion. Extensive experimental work was necessary. It was the one thing that needed to be done.

During the past two years the Society has obtained, for distribution among its members, 41 varieties of Russian apples. These have been distributed to the members, except a few which are "heeled in" ready for distribution next spring. We have usually obtained from three to six or ten of each kind, although in two instances a tree of the same variety was sent to each member. A record is also kept in the Society's books, showing what trees are in the hand of each member.

These varieties were not always those we most wished to have, but were the best obtainable. We may add too that every means were taken to find out what was really good among these many varieties, including almost yearly journeys to the Iowa Agricultural College, to the Baraboro' Hills in Wisconsin, and to those orchardists who had fruited them in Minnesota.

The pears of Russia and North Germany we have not yet placed in the hands of our members, owing to the difficulty of getting suitable stocks. We have, however, a good many trees growing of the wild Bergamot and pyriform Pears, from seed brought from Simbirsk on the Volga, and which we believe to be the best stock in the world for our climate.

Of Russian plums the Association has but four varieties, and two of cherry, the survivors of an order received from the Academy at Petrowskoe Rasumowskoe, near Moscow, and which did not reach us until June 26th.

Bes  
bers at A  
which th  
Abbotsfo  
79 variet  
regions v  
Russian  
will be r  
all we co  
to the W  
hands of

Ther  
new and  
West an  
Russian  
such a pl  
at Anne  
promise  
from the  
esting an  
feet and  
Saguenay

The  
have got  
only the  
with the  
the Ussu  
making c

This  
necessity



Besides this work, done directly by the Association, some of its members at Abbotsford have entered largely into this experimental work, of which the Society has the benefit. So that there are now growing at Abbotsford some 38 additional varieties of apples, making a total of some 79 varieties from Russia and North Germany. Of the pears from these regions we have 48 varieties, also 10 kinds of German cherries, and a few Russian plums. Neither does this list include some large orders which will be received by the Society next spring. We may add, too, that scions, all we could possibly cut of these pear, plum and cherry, have been sent to the West to be root-grafted, that trees of these varieties may be in the hands of our members at the earliest date possible.

There are, however, other fields to which the Society must look for new and useful fruits. There are seedling plums of native types in the West and Northwest, which promise to be even more valuable than the Russian plums: such varieties as Mooreman and De Sota, and especially such a plum as the Wolf, which we saw fruiting on the College grounds at Anne's, Iowa, last September. These belong to a type of very great promise of usefulness to this country. The Dwarf June berries received from the Iowa College, four kinds of which fruited last summer, are interesting and useful little fruits. The little bushes from nine inches to two feet and a half high, bearing a heavy crop of berries the size of the largest Saguenay blueberries, and richer in flavor.

The apricots of Mantchuria we have not yet got, and I doubt if we have got the best strain of the Siberian Apricot. Of mulberries we have only the so-called "Russian," descendants of what the Mennonites brought with them from the neighborhood of Azof. Neither have we yet obtained the Ussuri pears, nor the fine mulberries of that region; though we are making efforts in these directions, efforts which in time must succeed.

This experimental work had to be done, that is, the doing of it was a necessity to fair progress. We have done at least our share.

C. GIBB, *President.*

A. N. FISK, *Secretary-Treasurer.*

---

*Horticultural Society and Fruit-Growers' Association of Missisquoi.*

The annual exhibition of this Society was held on September 23rd last, when 592 plates of apples, pears and grapes were displayed. We are assured that if it had been a fair day this number would have been largely exceeded.

The exhibit of grafted apples in collections by five competitors numbered 135. Collections of seedlings (limited to twenty varieties) numbered 120 plates. Some of these, though unnamed, are good enough to be cultivated. It is quite possible, too, that they are grafts introduced by men going about putting in grafts on the "order" system. In the class of single plates varied from 3 of the Wealthy to 23 of the Fameuse, were to be found Duchess 17, St. Lawrence 14, Salmon Sweet 13, Alexander 12, Golden Russett 12, Peach 12, Blue Pearmain 10, and so on for the thirteen prizes in this class. These represent very fairly the varieties generally grown in this section, excepting the Red Astracan. It is hardly necessary to say it is our earliest, bears young and heavily, and for profit is second to none. It is also one of our hardiest, though perhaps, not so long-lived as some others.

We had the promise of a fine exhibit of grapes from Mr. Pattison, of Clarenceville. Owing, however, to absence and unforeseen circumstances, they did not reach us; but one hundred plates representing all the leading varieties, were placed on the tables by Messrs. Spencer, Hart, Wood, and Seneyck. We remember well that at the first exhibition scarcely a dozen bunches were shown altogether, and there seems little doubt now that many varieties can be successfully grown and ripened if their pruning and cultivation are properly attended to.

In the vegetable department an exceedingly large show was made and a specimen unworthy of a prize would have been difficult to find. Fourteen pecks of potatoes, besides several collections, attracted much attention and comparison. Four exhibitors displayed specimens of over forty different varieties of vegetables in their general collections.

The floral display, in some respects not as large as on previous occasions, was well represented by choice foliage plants. Roses, cuts flowers, bouquets, plants in bloom, etc., were shewn by several of the members.

HON. THOS. WOOD, *President.*

J. W. FERRIS, *Vice-President.*

DAVID WESTOVER, *Secretary-Treasurer.*

*Fruit-Growers' Association of the County of Shefford.*

I have the honor to present herewith the Annual Report of the Fruit Growers' Association of the County of Shefford for 1885. Our exhibition was held on September 22nd and 23rd last, and was a grand success, both as to the number and quality of the exhibits in every department and in the number of visitors as well. Notwithstanding the unfavorable weather, the large and commodious Town Hall, in which our exhibitions are held and which is one of the finest buildings of the kind and best adapted to the purpose of any in the townships, was filled to overflowing both days.

The Upper or Concert Hall was used for the display of fruit and flowers. The fruit was placed on three tables extending the entire length of the hall, and the flowers tastefully and systematically arranged on ascending steps or shelves on either side against the wall; producing an effect and making a display that could not be well surpassed. In the evening of the second day there was a grand vocal, dramatical, and instrumental concert given in the exhibition building by the members of the Granby Brass Band to a crowded house, the proceeds of which went to the benefit of the funds of the Association. This and other extra and external efforts on the part of our citizens have succeeded in lifting our Association out of debt and placing us next year on a safe if not very substantial basis; so that all the energy and funds of the Society can be turned to the immediate success and usefulness of the exhibition to be held next fall. Consequently we have increased the amount, variety and number of our prizes and trust, in so doing, to stimulate our members to still greater efforts, both in producing and exhibiting the best and most profitable varieties of vegetables, fruit and flowers, till ours shall be an Association second to none, a merit we feel justified in claiming for it already, as the following statistics go to show:—

NUMBER OF ENTRIES.	
APPLES.—Collections .....	6
Five best varieties.....	20
Collection of seedlings.....	16
Five heaviest seedlings.....	9
Alexander .....	15
Duchess.....	18
St. Lawrence .....	24
Fameuse .....	33
Canada Baldwin.....	30

APPLES.—(Con.)—Late Strawberry .....	15	
Peach .....	10	
Blue Pearmain .....	22	
Pound Sweeting .....	3	
Shaker Pippin .....	6	
Wealthy .....	7	
Crabs .....	17	
Collections of crabs .....	10	
		Total..... 261
GRAPES.—Collections .....	5	
Five best varieties .....	9	
Heaviest .....	8	
		Total..... 22
MELONS.—Musk .....	3	
Water .....	5	
		Total..... 8
VEGETABLES.—Beets .....	24	
Cabbage .....	12	
Cauliflower .....	7	
Carrots .....	27	
Celery .....	4	
Onions .....	26	
Sweet Corn .....	7	
Cucumbers .....	14	
Parsnips .....	10	
Collection of Potatoes (one collection comprising 124 named varieties) .....	5	
Heaviest and best peck of potatoes .....	32	
Squash .....	24	
Pumpkins .....	7	
Tomatoes .....	15	
Turnips .....	16	
Basket of vegetables .....	9	
		Total..... 239
FLOWERS.—Asters .....	4	
Balsams .....	2	
Bigonias .....	3	
Carnations .....	1	
Chinese Pinks .....	1	
Cockcombs .....	1	
Coleus .....	3	
Fuchsias .....	3	
Geraniums .....	11	
Pansies .....	1	
Petunias .....	3	
Roses .....	1	

F  
For  
In c  
expressi  
Growers  
auspices  
heartily

FLOWERS.—(Con.)—Phlox.....	9
Verbenas .....	5
Zinnias .....	6
Abutilon .....	2
Begonia Rex .....	2
Calla.....	4
Heliotrope .....	2
Lantaria .....	2
Twelve best varieties .....	7
Climbing Plant.....	5
Hand Bouquet .....	12
Table Bouquet .....	12
Floral Design.....	5
	119
Total.....	
Grand Total.....	649

For the above, prizes were paid amounting to \$156.65.

In conclusion, the Secretary of this Association cannot refrain from expressing the pleasure and profit derived from attending the Fruit Growers' Convention held in Montreal on February 11th, under the auspices of your Society, and trusts such gatherings may be continued and heartily sustained by the sister Associations throughout the Province.

J. A. TOMKINS, *Secretary-Treasurer.*

*Meteorological Observations for 1885.*

By C. H. McLEOD.

The table on a succeeding page is a summary of the meteorological observations made in 1885 at the McGill College Observatory, Montreal. The observatory is situated at the height of 187 feet above the level of the sea. Latitude N.  $45^{\circ} 30' 17''$ . Longitude  $4^m 54^h 18^s 55$ , W.

The year 1885 had an average temperature of  $2^{\circ}.6$  below the normal and was the coldest year since 1875. The deviation in temperature for the year is almost entirely due to the very low temperatures of the months of February and March, which, as will be seen on inspection of the table, made the very marked departure of over  $10^{\circ}$  below the mean. August and September were also considerably below the average. The year may be described as having a very cold winter, a cold summer, and a spring and autumn of average temperature. The greatest heat  $87^{\circ}.1$  was on July 17th, the greatest on the records of the past eleven years is  $93^{\circ}.9$ . The lowest temperature,  $21^{\circ}.3$  below zero, was on January 22nd, while the lowest on the records is  $26^{\circ}.0$ . The greatest range of the thermometer on one day was  $35^{\circ}.9$  on April 23rd, and the least range  $3^{\circ}.0$  on November 6th. The mean temperature of the warmest day, July 30th, was  $75^{\circ}.5$  and that of the coldest day  $15^{\circ}.0$  below zero. The highest barometer reading was 30.747 on January 23rd, and the lowest 29.104 on January 12th. The extremes of barometric pressure which have been recorded here in eleven years are 30.999 and 28.766. The average weight of vapour in the air was slightly less than the lowest in eleven years, the lowest value being 0.234 for 1883. The driest state of the air was on May 29th, when the relative humidity was 21. The greatest mileage of wind in one hour was 46 on January 17th, when velocity in gusts was at the rate of 64 miles per hour. The total mileage of the horizontal component of the wind during the year was 93,279, and the resultant mileage 46,290 in the direction S.  $67^{\circ}.6$  W. The rainfall is slightly in excess of the average, and the snowfall very decidedly so, being 55 inches above the normal and the greatest, by 17 inches, for any one year on the records. The rainfall in October, of which 4.06 inches fell during 28 hours, is the greatest recorded here during any one month in the past eleven years. Although the amount of precipitation measured in depth was above the average the number of days on which rain or snow fell was considerably below the average. The year is thus marked as one of heavy falls of both rain and snow. The amount of

clouded  
age amo  
may ha  
days, lu  
without  
The  
the autu  
Novemb  
river wa

January ...  
February ...  
March ...  
April ...  
May ...  
June ...  
July ...  
August ...  
September ...  
October ...  
November ...  
December ...

Means for

Means for

January ...  
February ...  
March ...  
April ...  
May ...  
June ...  
July ...  
August ...  
September ...  
October ...  
November ...  
December ...

Means for

Totals for

Means for

\* Barom  
† Relati  
" + "  
eleven year  
with 3h. Om

clouded sky has been slightly less than usual, while there has been an average amount of bright sunshine. Auroras were observed on 17 nights, but may have occurred oftener. There was hoar-frost on 15 days, fogs on 19 days, lunar halos on 9 nights, thunderstorms on 13 days, and lightning without thunder on 3 days.

The sleighing of the water closed on April 17th. The first snow of the autumn fell on October 30th. The first sleighing of the winter was on November 25th. Upper river navigation opened on May 5th, and the river was open to ocean ships on May 6th.

MONTH.	THERMOMETER.					* BAROMETER.					† Mean relative humidity.
	Mean.	Deviat'n from 11 year means.	Max.	Min.	Mean daily range.	Mean.	Max.	Min.	Mean daily range.	‡ Mean pressure of vapour.	
January	12.13	+0.32	48.0	-21.3	16.7	30.0043	30.747	29.104	.358	.0753	79.2
February	5.88	-10.42	34.0	-16.3	15.6	29.9415	30.451	29.111	.249	.0534	83.7
March	13.25	-10.45	39.8	-14.4	15.8	29.9809	30.466	29.339	.270	.0720	76.6
April	37.68	-1.76	76.9	10.7	16.0	29.9630	30.542	29.347	.232	.1634	69.2
May	55.43	+1.29	81.0	25.2	19.7	29.9532	30.254	29.529	.148	.2623	58.4
June	62.13	-2.29	85.4	38.0	18.0	29.8896	30.178	29.355	.169	.3768	66.6
July	69.23	+0.30	87.1	49.5	16.4	29.8735	30.150	29.565	.143	.5282	73.5
August	62.98	-4.72	82.6	44.5	16.7	29.9128	30.185	29.481	.163	.4583	74.0
September	55.36	-3.67	74.3	38.2	16.7	29.9700	30.311	29.433	.175	.3325	74.0
October	44.08	-1.87	68.3	22.6	12.7	30.0038	30.396	29.468	.178	.2348	76.8
November	32.82	+0.08	51.0	11.6	8.1	29.9161	30.380	29.506	.176	.1580	84.1
December	19.38	+0.45	44.6	-3.4	14.7	29.9579	30.717	29.165	.318	.0983	82.6
Means for 1885	39.20	-2.65	.....	.....	15.6	29.9500	.....	.....	.215	.2328	74.9
Means for 11 years, ending 1885	41.85	.....	.....	.....	.....	29.9728	.....	.....	.....	.2509	74.3

MONTH.	Mean Dew point.	WIND.		Sky clouded per cent.	Bright sunshine per cent.	Inches of Rain.	No. of days on which rain fell.	Inches of Snow.	No. of days on which snow fell.	Inches of rain and snow melted. Number of days on which each fell.	Number of days on which rain or snow fell.	
		Resultant direction.	Mean velocity in miles per hour									
January	6.7	S. 75° W.	14.50	63	23.5	1.11	5	21.5	18	3.24	3	20
February	1.7	S. 78° W.	13.36	49	49.9	0.50	1	43.5	13	4.79	1	13
March	7.0	S. 65° W.	12.70	56	53.2	0.36	3	29.1	15	2.98	3	15
April	27.8	S. 78° W.	12.58	49	55.5	1.16	10	29.8	9	4.05	5	14
May	39.6	S. 78° W.	8.76	54	63.1	1.66	10	0.0	0	1.66	0	10
June	50.2	S. 55° W.	11.08	57	49.2	3.61	15	0.0	0	3.61	0	15
July	59.9	S. 66° W.	7.43	52	64.1	2.85	9	0.0	0	2.85	0	9
August	54.0	S. 64° W.	8.82	62	55.4	2.46	14	0.0	0	2.46	0	14
September	46.9	S. 64° W.	9.05	45	64.4	4.16	12	0.0	0	4.16	0	12
October	36.8	S. 62° W.	8.51	66	34.6	7.17	15	2.8	1	7.49	1	15
November	28.0	N. 72° W.	9.20	77	16.7	2.27	12	14.4	9	3.70	3	18
December	14.9	S. 73° W.	11.52	74	26.3	1.38	8	36.5	18	5.07	4	22
Means for 1885	31.1	S. 67° W.	10.63	58.7	46.3	.....	.....	.....	.....	.....	.....	.....
Totals for 1885	.....	.....	.....	.....	.....	28.69	114	177.6	83	46.06	20	177
Means for 11 years, ending 1885	.....	.....	11.00	60.8	46.8	27.40	134	122.1	85	39.56	16	203

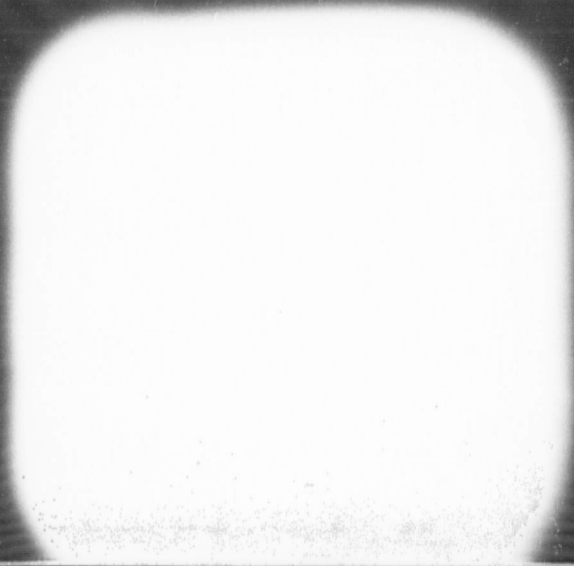
\* Barometer readings reduced to 32° Fah., and to sea level.

† Inches of mercury.

‡ Relative saturation being 100.

§ For 4 years only.

¶ "+" indicates that the temperature has been higher; "-" that it has been lower than the average for eleven years, inclusive of 1885. The monthly means are derived from readings taken every 4th hour, beginning with 3h. 0m., Eastern Standard time.



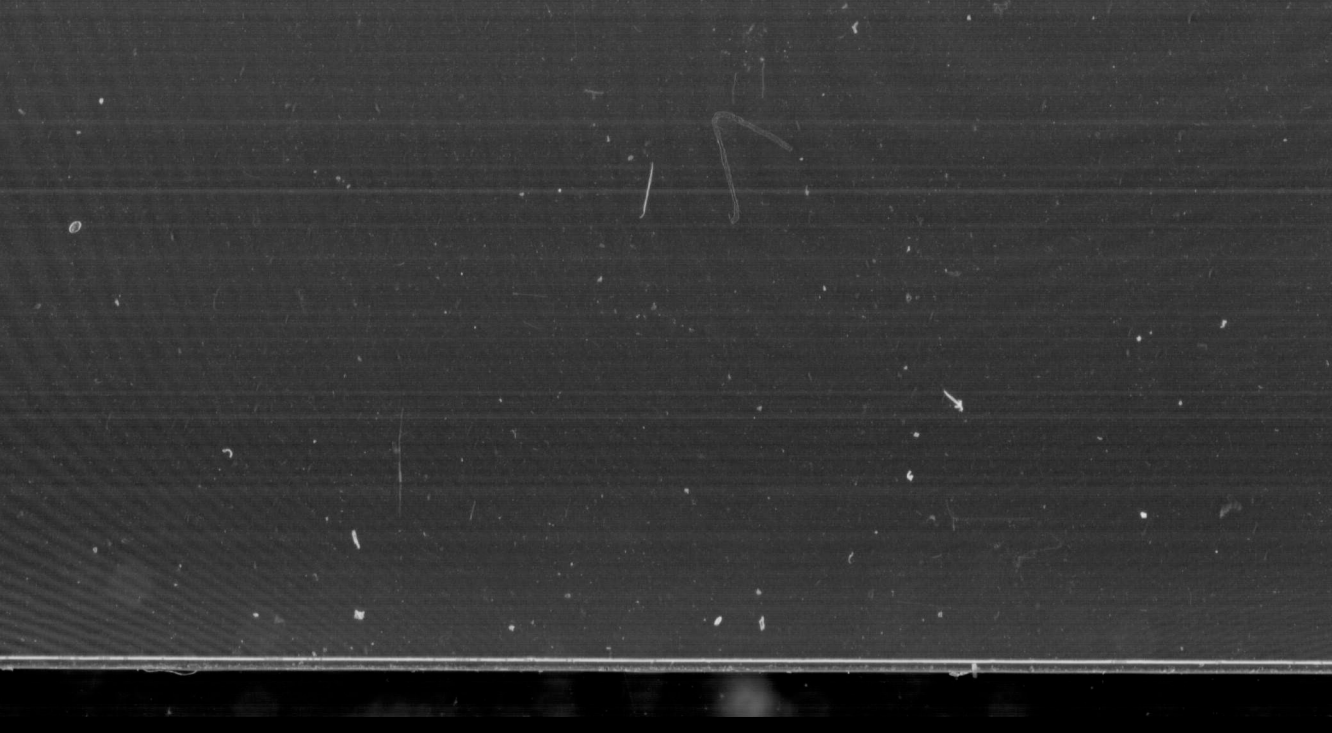


*Donations to the Library.*

The following donations to the Library have been received and are hereby acknowledged :—

- MR. H. C. ADAMS—  
Wisconsin State Horticultural Society, 1878-79, 1879-80. 2 copies each.
- MR. JAMES O. ADAMS—  
New Hampshire State Agricultural Society, 1883, 1884. 1 copy each.
- MR. ROBERT G. BAIRD—  
Michigan State Board of Agriculture.  
Michigan State Agricultural College, Bulletins Nos. 11, 12, 13, 14.
- MR. W. GEORGE BEERS—  
Half Hours in the Green Lanes. J. E. Taylor, London, 1875.  
Transactions of the Literary and Historical Society of Quebec, founded January 6th, 1824,  
Vol. I, 1829.  
The Materialist in Bermuda. J. W. Jones, London, 1859.  
The Farm and Fireside. Rev. John L. Blake, Auburn, 1852.  
Floral Poesy. By Terry, London.
- MR. G. C. BRACKET—  
Kansas State Horticultural Society Reports, 1884, 1885.
- MR. J. M. BROWNING—  
Country Gentleman. Complete, from 1878 to 1885, 8 vols.  
Massachusetts State Board of Agriculture, 1870-71, 1 vol.  
Maine State Board of Agriculture, 1860.  
Agricultural Chemistry. Sir H. Davy, London, 1839.  
Manitoba and the Great North-west. Macoun, Guelph, 1882.  
Agriculture and Public Works, Province of Quebec, 1868, 1869, 1870, 1871, 1872, 4 vols.;  
1875, 1876, 1878, 3 vols.  
Traité Populaire d'Agriculture, Théoretique et Pratique. Par A. C. P. R. Landry, A.B., 1878.  
Concours d'Eloquence sur l'Agriculture, Quebec, 1879.  
La Mouche ou La Chrysonéle des Patates. Par J. C. Taché, Montreal, 1877.
- MESSRS. BRUSH & SON—  
Illustrated Descriptive Catalogue of American Grape Vines. Bushberg, Jefferson Co., Mo.  
1883.
- MR. ACTON BURROWS—  
Manitoba Department of Agriculture, 1883. (25 books).
- MR. J. M. DRAKE—  
Agriculture in Canada. Wm. Evans, Montreal, 1835.  
Gardeners' Chronicle. London, 1841, 1842, 1843, 3 vols.
- MR. E. B. ENGLE—  
Pennsylvania State Agriculture, 1884.  
Pennsylvania State Horticultural Association Reports, 1882, 1883.
- MR. HENRY S. EVANS—  
Insects Injurious to Fruit. Saunders.

MR. N. H.  
Amen  
Tree  
MR. S. D.  
Illino  
MR. J. M.  
Cana  
MR. N. C.  
Le Jo  
FRUIT GR  
Main  
MR. ERNE  
Rapp  
Gene  
MR. CHAS.  
Mich  
Amen  
MR. Z. A.  
Main  
MR. T. C.  
Conn  
Conn  
MR. L. A.  
Miss  
PROF. C.  
Mass  
MR. T. L.  
New  
MR. W. A.  
Wisc  
MR. E. G.  
Soci  
MR. C. D.  
Min  
DR. HOSH  
Ame  
MR. WM.  
Hort  
Ame  
Agri  
Fore



- MR. N. H. EGGLESTON—  
American Forestry Congress, 1885.  
Tree Planting for Arbor Day. John B. Peaslee, 1884.
- MR. S. D. FISHER—  
Illinois State, Agriculture, Vol. XXII, 1884.
- MR. J. M. FISK—  
Canada Farmer, 1870, 1871, 1872.
- MR. N. C. FISK—  
Le Journal d'Agriculture, Vol. I, July 1877 to June 1878.
- FRUIT GROWERS' ASSOCIATION, Abbotsford, P.Q.—  
Maine State Agriculture, 1 vol., 1864.
- MR. ERNEST GAGNON—  
Rapport Général Commissaire de l'Agriculture, Province of Quebec, 1880, 1883, 1884.  
General Report Commissioner of Agriculture, Province of Quebec, 1880 to 1884.
- MR. CHAS. W. GARFIELD—  
Michigan State Pomological Society.  
American Pomological Society, 1885.
- MR. Z. A. GILBERT—  
Maine State Agriculture, 1880, 1881, 1882, 1883, 1884. 5 vols.
- MR. T. C. GOLD—  
Connecticut State, Agriculture, 1880, 1882, 1883, 1884. 4 vols.  
Connecticut Experiment Station, 1885.
- MR. L. A. GOODMAN—  
Missouri State Horticultural Society, 1883, 1884. 2 vols.
- PROF. C. A. GOESSMAN—  
Massachusetts Experiment Station, 1st and 2nd Reports, 1883, 1884. Also Bulletins Nos.  
14, 15, 16, 17, 18, 19. March, April, July, August, October, 1885.
- MR. T. L. HARRISON—  
New York State Agricultural Society Reports. 33 vols. 1841, '42, '43, '44, '45, '46, '47, '48,  
'49, '50, '51, '52, '53, '54, '55, '56, '57, '58, '59, '60, '61, '62, '63, '64, '65, '66, '67, '68, '69, '70,  
'71, '77-82. 1 vol.
- MR. W. A. HENRY—  
Wisconsin Experiment Station, 1st and 2nd Reports, 1884. Also Bulletins Nos. 1, 3, 4, 5, 6,  
7, 8, 9.
- MR. E. G. HILL—  
Society, American Florists. 1885.
- MR. C. D. HILLMAN—  
Minnesota State Horticultural Society, 1880, 1 vol.; 1881, 2 vols.; 1882, 2 vols.; 1883, 2 vols.;  
1884, 2 vols.; 1885, 1 vol.
- DR. HOSKINS—  
American Agricultural Association, 1881.
- MR. WM. LITTLE—  
Horticulturist. A. J. Downing. Vols. I, II, IV, V, viz.: July, 1846, to June, 1847; July,  
1847, to June, 1848; July, 1849, to June, 1850; July, 1850, to December, 1850, wanting  
to complete series July, 1848, to June, 1849.  
American Forestry Congress. Boston, 1882.  
Agricultural Review and Journal—odd numbers (7), 1883.  
Forestral Experimental Stations. Adolph Lane, Columbus, Ohio, 1884.

- DR. GEORGES LECLERE—  
 Agricultural Experiment Station. Wm. Evans, 1837.  
 Maine State Agriculture. Goodale, 1857.  
 Massachusetts State Agriculture. Flint, 1855.  
 Ontario Agricultural Commission, 1881.  
 Ontario Agriculture and Arts, 1869, 1871, 1872. 3 vols.  
 On the Acacia. Withers, London, 1842.  
 Indiana State Board Agriculture, 1852.  
 Indiana State Agricultural Society, 1852.  
 Upper Canada Board Agriculture, 1864-68. 1 vol.  
 Manitoba Department de l'Agriculture, 1883.  
 Manuel d'Horticulture Pratique. Dr. G. Laroque, Levis, 1880.  
 Farmers' Journal of Lower Canada, Vol. XI, 1859.  
 Geological Survey of Canada, 1876-77.  
 " " " maps, 1877-78.
- MR. P. C. REYNOLDS—  
 Western New York Horticultural Society, 1880, 6.
- HON. A. M. ROSS—  
 Ontario Agricultural Experimental Station, 1882, 1884.  
 Ontario Agriculture and Arts, 1884.  
 Ontario Agricultural College Report for 1885.
- REV. CANON ROBINSON—  
 Farmers' Journal. Montreal, September, 1857, to August, 1861.
- MR. WM. SAUNDERS—  
 Forestry Report. F. B. Hough, Vol. II, 1878-79.  
 " " N. H. Egleston, Vol. IV, 1884.  
 Agricultural Graphics. J. R. Dodge, 1885.  
 Descriptive Catalogue of Grasses of the United States. Dr. Geo. Vasey.
- MR. G. B. SAWYER—  
 Maine State Pomological Society, 1884. (10).
- DR. A. R. C. SELWYN—  
 Canadian Plants. Macoun, parts 1 and 2.  
 Geological Survey of Canada, Reports for 1876-77, 1877-78, and maps: 1878-79, 1879-80, and  
 maps; 1880-81-82, and maps; 1882-83-84, and maps.  
 Vocabularies of Indian Tribes of British Columbia. By Dr. George Dawson.
- MR. D. WILMOT SCOTT—  
 America Association of Nurserymen, Florists and Seedsmen. Chicago, 1885.
- MR. C. R. H. STARR—  
 Nova Scotia Agriculture, 1885.
- MR. S. C. STEVENSON—  
 Highland and Agricultural Society, Scotland. Vols. XII, XIII, XIV, XV, for 1880, 1881,  
 1882, 1883. 4th series.  
 Journal of Royal Agricultural Society, England. 2nd Series.  
 Vol. 18, part 1, No. 35. 1882.  
 " 20, part 2, No. 40. 1884.  
 " 21, part 1, No. 41. 1885.  
 " 21 part 2, No. 42. 1885.  
 Index for the above, 1885.  
 Kansas State Board Agriculture, Vol. VIII, 1881-2; Vol. IX, 1883-4.  
 Massachusetts Agriculture, 1877-78. 1878-79; also Index 1853 to 1877.

New Y  
 Wisco  
 DR. E. LEV  
 New Y  
 MR. ANDR  
 Botau  
 MR. C. W.  
 Cana  
 MR. WM.  
 Wisco  
 MR. A. H.  
 Califo  
 "  
 MR. J. ME  
 Natal  
 MR. E. W  
 New J  
 DEPARTME  
 Journ  
 Le Jo  
 MR. CHAS.  
 Agric  
 Agric  
 Agric  
 Agric  
 Agric  
 Agric  
 Agric  
 Agric  
 Agric  
 Agric  
 Agric  
 Agric  
 Amer  
 Beet-  
 Cana  
 Cana  
 Cana  
 Cente  
 T  
 g  
 Chem  
 Chem  
 Essay  
 Elem  
 Fores  
 Grap  
 Iowa  
 Illust

- New York State Agricultural Society, 1872-76, 1 vol.  
 Wisconsin State Agricultural Society, 1878-79, 1 vol.
- DR. E. LEWIS STURTEVANT—  
 New York Agricultural Experiment Station, 1884, 1885, 2 vols.
- MR. ANDREW TAYLOR—  
 Botanical Society, Edinburgh. Vols. XV and XVI, part 2, 1885.
- MR. C. W. TAYLOR—  
 Canada Farmer for 1873, 1 vol.
- MR. WM. TRELEASE—  
 Wisconsin State Horticultural Society, 1884.
- MR. A. H. WEBB—  
 California State Board Horticulture, 1884.  
 " " " " 1883.
- MR. J. MEDLEY WOOD—  
 Natal Botanic Gardens, Report. Durham, 1884.
- MR. E. WILLIAMS—  
 New Jersey State Horticultural Society, 1885.
- DEPARTMENT OF AGRICULTURE—  
 Journal of Agriculture, May, 1879, to December, 1885. Complete 7 vols.  
 Le Journal d'Agriculture, February, 1879, to December, 1885. Complete 7 vols.
- MR. CHAS. GIBB—  
 Agricultural Lectures at Yale. Olcott, New York, 1860.  
 Agricultural Education. Constable, London, 1863.  
 Agriculture, Six Lectures on. George Vile, Boston, 1879.  
 Agriculture, First Principles of. Tanner, London, 1878.  
 Agricultural Chemistry. Chapman, Cincinnati, 1860.  
 Agricultural Class Book. Dublin, 1870.  
 Agricultural Chemistry. Nash, New York, 1854.  
 Agricultural Chemical Analysis. Caldwell, New York, 1869.  
 Agriculture of France, Holland, Belgium, etc. Colman, Boston, 1848.  
 Agriculture of Maine, 1860, '63, '65, '66, '68, 69, '72. 7 vols.  
 Agriculture of Massachusetts, 1862, 1866-67. 2 vols.  
 Agricultural Instructor. Murphy, Dublin, 1849.  
 Agriculture in United States. J. W. Dawson, Halifax, 1853.  
 American Forestry Congress. Montreal, 1882.  
 Beet-Root Culture. Oct. Cuisset, Quebec, 1876.  
 Canadian Horticulturist, 1878, 1879, 1880, complete.  
 Canadian Farmer, 1874, except June 15th, 1875, 1876, complete.  
 Canadian Entomologist, Vol. VII, 1875, complete; Vol. VIII, 1876, complete, except April.  
 Centennial Official Catalogue—Agriculture and Horticulture, Charts, and Temperature  
 Tables, of Russia, from the Baltic to the Pacific, received from Heinrich Geog-  
 inger, Riga, Russia.  
 Chemistry applied to Agriculture. Hodges, Belfast, 1860.  
 Chemical Field Lectures, from the German. Stockhardt-Cambridge, 1853.  
 Essays; Agricultural and Literary. John C. Gray, Boston, 1856.  
 Elements of Agriculture. Waring, New York, 1855.  
 Forestry in Europe, West Ewing Soc., &c. Hon. G. B. Northrop.  
 Graperies. Woodward, N.Y., 1870.  
 Iowa State Horticultural Society, 1880.  
 Illustrated Rural Manuals. Fowler & Wells, New York, 1859.

- 
- Jamaica Public Gardens. D. Morris, Director, 1883.  
Lectures on Practical Agriculture. Johnston, New York, 1850.  
Lectures on Agricultural Chemistry. Johnston, N.Y., 1842.  
Landscape Architecture. Cleveland, Chicago, 1873.  
Landscape Gardening. Smith, New York, 1856.  
Mississippi Valley Horticultural Society. Vol. II, 1884.  
Noxious, etc., Insects of Missouri, 1869, 1871, 1874, 1875, 1876. 5 vols.  
Ornamental Trees. Mehan, Philadelphia, 1853.  
Outlines of Flemish Husbandry. John Lovell, 1855.  
Popular Vegetable Physiology. Philadelphia, 1842.  
Practical Farming for Schools. Baldwin, London, 1875.  
Reports—American Pomological Society, 1852, '58, '60, '62, '67, '69, '71, '73, '75. 9 vols.  
Rural Hours. By a Lady, New York, 1850.  
Scientific Farming Made Easy. Fletcher, London, 1860.
- MR. HENRY WADE—  
Ontario Agricultural and Arts Association, 1881, 1882, 1883, 1885.
- MR. S. ORHO WILSON—  
North Carolina State Horticultural Society, 1885.  
Journal of Agriculture. Quebec, 1879 to Dec. 1885.  
Le Journal d'Agriculture. Québec, 1870 à Déc. 1885.  
Ontario Entomological Society, 16th Report.  
“ Fruit Growers' Association for 1885.  
Iowa Agricultural College Bulletin for 1885.