James Fletcher

THIRTEENTH ANNUAL REPORT

—OF THE—

MONTREAL

HORTICULTURAL SOCIETY

—AND—

Fruit-Growers' Association of the Province of Quebec.

1887-88.

Montreal:
PRINTED BY THE "HERALD" PRINTING COMPANY.
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Officers for 1888.

PROF. D. P. PENHALLOW, - - - - - *President.*
CHARLES GIBB, - - - - - - - *Vice-President.*
W. W. DUNLOP, - - - - - - - *Secretary and Treasurer.*

SECRETARY'S OFFICE—725 Craig Street, P. O. Box 1145, Montreal.

Directors:

PROF. D. P. PENHALLOW,
R. W. SHEPHERD, JR.,
CHARLES GIBB,
WALTER WILSHIRE,
R. BRODIE,
WILLIAM EVANS,
E. J. MAXWELL,
J. DOYLE.
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CHARLES GIBB,
E. J. MAXWELL.

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CONSTITUTION AND BY-LAWS.

CONSTITUTION.

ARTICLE I.

NAME.

This Society shall be called "THE MONTREAL HORTICULTURAL SOCIETY AND FRUIT-GROWERS' ASSOCIATION OF THE PROVINCE OF QUEBEC."

ARTICLE II.

OBJECT.

The object of the Society shall be to encourage the cultivation of Flowers, Fruits, Vegetables and pursuits pertaining to Horticulture, the promotion of Bee culture, holding of Exhibitions and collecting information regarding the different varieties of fruits best adapted for cultivation in this Province, for publication by the Provincial Government in the form of reports for general information.

ARTICLE III.

OFFICERS

Its officers shall consist of a President, a Vice-President, a Secretary-Treasurer, Corresponding Secretary and seven Directors.

BY-LAWS.

ARTICLE I.

ANNUAL MEETING.

The annual meeting shall be held in the first week of the month of December in each year, notice of which meeting shall be inserted by the Secretary-Treasurer, not less than six days before the time of meeting, in at least one English and one French newspaper published in the city of Montreal.

ARTICLE II.

ELECTIONS.

Election of officers shall be by ballot.

ARTICLE III.

ELECTION OF OFFICERS.

At the annual meeting the members shall elect a Board of nine Directors, who shall, at their first meeting, elect their President and Vice-President from their number. The Secretary-Treasurer and Corresponding Secretary shall be elected from the membership of the Society by the Board of Directors.

ARTICLE IV.

QUORUM.

Five members shall constitute a quorum for the transaction of the business of the Board of Direction. Thirteen members shall form a quorum at all meetings of the Society.

ARTICLE V.

The Directors shall form a Board for the government of the Society; shall hold meetings quarterly, or as often as they may be deemed expedient; shall appoint the time and place for holding exhibitions; make such rules and regulations for the same as may be required; make and publish, before the 15th day of March of each year, a full and specific list of prizes to be awarded; encourage the introduction of new objects of horticulture, and for the purpose of promoting the interests and objects of the Society (subject to its instruction, supervision and control); shall keep a record of all their proceedings, and make a report of the same to the Society at its annual meeting.

ARTICLE VI.

Whenever any vacancy shall occur in the Board of Direction of the Society, it may be filled by a special election by the said Board, at such time as they may deem expedient, of which one week's notice shall be given by the Secretary-Treasurer in writing to each member of the said Board.

ARTICLE VII.

The duty of the President shall be to preside at all meetings of the Society; to maintain order; to state the business before the Society; in case of equal division upon any question to give the casting vote; to call for accounts and reports of all Committees; to call extra meetings of the Society when requested, in writing, by five members; and generally to superintend the execution of such by-laws and regulations as the Society shall from time to time enact, not otherwise provided for.

ARTICLE VIII.

In case of the absence of the President at any meeting of the Society, it shall be the duty of the Vice-President to take the chair, and, for the time being, have and use all the authority, privileges and powers of the President. In case of the absence of the President and Vice-President, the Society shall then choose, *viva voce*, a President *pro tempore* to preside at the meeting.

ARTICLE IX.

The Secretary-Treasurer shall receive all sums of money due or payable to the Society, and shall deposit all sums over fifty dollars in some chartered bank approved of by the Board of Directors; no payment to be made without the written order of the President, or, in case of his absence, of the Vice-President; give due notice of all meetings of the Society and Board of Direction; keep a record of all proceedings of the same; in the absence of the Corresponding Secretary he shall perform his duties. He shall be compelled to give the necessary bonds to provide against loss for funds held by him—amount of said bonds to be fixed by the Board of Direction.

ARTICLE X.

The Corresponding Secretary shall write all letters in the name of the Society and conduct its correspondence; shall keep copies of the same in a book to be provided for the purpose, which shall be open to the inspection of the members at any regular meeting; shall report to the Board of Direction the receipt of all donations of scions, seeds, plants, books, or specimens, which shall be distributed in such manner as shall be deemed best (the recipient, from time to time, making report of their success). In the absence of the Secretary-Treasurer the Corresponding Secretary shall perform his duties; and, in the absence of both Secretaries, the President shall appoint a Secretary *pro tempore*.

ARTICLE XI.

There shall be an Annual Exhibition of Fruits, Plants, Flowers, Vegetables, Horticultural Designs, &c., on such day or days (in the month of September), and subject to such rules and regulations as the Board of Direction may approve. There shall also be Exhibitions at such other times and seasons as may be by them deemed expedient. All Exhibitions shall be held in Montreal.

ARTICLE XII.

Any person residing in the Province of Quebec may become a member of this Society upon paying an annual fee of two dollars, which shall entitle him to the privilege of competing for prizes at all Exhibitions of the Society, and shall be eligible to any office or appointment of the Society.

ARTICLE XIII.

All persons residing outside of the limits of the Island of Montreal, but in th Province of Quebec, shall, upon the payment of one dollar annually, be entitled to the privileges of membership, so far as admission to the Exhibition, competition for prizes, together with copies of reports that may be published during the year by the Society.

SECTION 2.—Any person residing outside the limits of the Province of Quebec shall, upon the payment of one dollar annually, be entitled to the privileges of membership, so far as admission to Exhibition, together with copies of reports that may be published during the year by the Society. Such persons shall not, by this act, be entitled to any of the elective or controlling privileges of the Association.

ARTICLE XIV.

The financial year shall end on the 30th November, and no one shall be entitled to vote at the annual meeting who has not been a member the preceding year, and has paid his subscription for the current year.

ARTICLE XV.

Any person residing within the Province of Quebec, on payment of twenty dollars, will be entitled to a life membership which will entitle him to all the privileges of the Society.

ARTICLE XVI.

All funds derived from life membership fees shall be permanently invested for the benefit of the Society, and the interest alone shall be used for the current expenses.

ARTICLE XVII.

All accounts of the Society shall be examined and audited by two persons appointed by the Society at the regular annual meeting.

ARTICLE XVIII.

The only paid officers of the Society shall be the Secretary-Treasurer and Corresponding Secretary, whose remuneration shall be fixed by the Board of Direction.

ARTICLE XIX.

Neither the Constitution nor By-laws shall be changed except by a two-thirds vote of all members voting at a regular meeting of the Society, due notice of the proposed change having been given at a previous meeting.

LIST OF MEMBERS.

LIFE.

Allan, Andrew
Hickson, Joseph
Kay, W. F.
May, S. H.
Raynes, Capt.
Molson, John
Rankin, John

ANNUAL.

Abbott, Hon. J. J. C.
Adams, A. E.
Allen, James
Alexander, Charles
Allan, H. Montagu
Alston, J. E.
Ames, E. F.
Ansley, J. C.
Angus, R. B.
Angus, William,
Arless, G. C.
Armour, A.
Archibald, J. S.
Arnton, W. H.
Ashford, C. A.
Atwater, H. W.
Auld, John
Aubertin, A.
Ayer, A. A.

Bain, S. S.
Badenach, Thos.
Bagg, R. S. C.
Baby, Horace
Barsalou, Joseph
Barclay, Rev. Joseph
Bazin, J. A.
Babcock, M.
Baylis, James
Baker, J. C.
Barnjum, F. N.
Beall, J. W.
Beaman, J. H.
Beattie, John
Betrix, Jules
Bell, W.

Beaubien, Hon. L.
Benny, R.
Bentley, D.
Bethune, S.
Benallack, H. J.
Bell, Mrs. S.
Becket, R. A.
Benjamin, L. N.
Bennett, W.
Bennett, Joseph
Benson, W. Townley
Birks, Henry
Bishop George
Binmore, C. J.
Binmore, Thos.
Blaicklock, G. H. E.
Bland, Jonathan
Bolton, C. W.
Bourdeau, James
Boas, B. A.
Boas, Feodor
Boulter, N.
Brais, J. E.
Brayley, J. W.
Bremner, A.
Brainerd, T. C.
Brahadi, A.
Brodie, Hugh
Brown, Jonathan
Browning, J. M.
Brown, James
Brown, David
Browne, Mrs. A. A.
Brown, Godbee
Brown, James
Brodie, R.

Brais, L. A.
Brush, Mrs. G.
Bruneau, O.
Burland, G. B.
Buddo, G.
Buller, Dr.
Buntin, Alex.
Bulmer, Henry
Burdon, T. W.
Burnett, J.
Burke, David
Byrne, Miss M. F.

Cassidy, J. L.
Carter, C. B.
Campbell, Dr. F. W.
Campbell, Kenneth
Campbell, Robert
Cantlie, J. A.
Campbell, Colin
Carsley, S.
Carmichael, Rev. James
Cassils, Charles
Cassils, A. M.
Cassils, Mrs. J.
Caverhill, Mrs. E.
Cayford, J. H.
Charest, F. M. A.
Cheney, G.
Cheese, W. E.
Chaput, L.
Chanteloup, E.
Chandler, Prof. G. H.
Childs, G.
Cleghorn, J. P.
Clouston, E. S.

Clark, A. C.
Clark, George
Clogg, J. R.
Cole, F.
Cooper, J. S.
Cooper, W.
Cooke, G. E.
Comte, J.
Costigan, W. T.
Copperthwaite, A. F.
Corneille, C. C.
Coristine, James
Coristine, T. J.
Cox, J. P.
Cowie, William
Cowan, John
Court, W. B.
Croil, James
Crathern, James
Craik, Dr. R.
Cruikshank, Rev. W.
Cruso, Mrs.
Curran, J. J., M.P.

Dawes, T. A.
Davis, M.
Darey, Prof. P. J.
Davidson, W. C.
Date, John
Dandurand, O.
Davidson, W. B.
David, M. E.
Dawson, B., Jr.
Day, James
Dawson, Sir William
Dawes, A. G.
Delisle, M. Nolan
Doyle, John
Douglas, J. M.
Dow, Mrs. M.
Dorion, Sir A. A.
Drake, Walter
Drummond, A. T.
Drysdale, W.
Drummond, N.
Dumouchel, A.
Dunn, D.
Duff, J. M. M.
Dugdale, Dr. J. J.
Dubord, A.
Duncan, John
Dunlop, A. F.
Dunlop, W. W.
Dunbar, John
Dupuis, L.
Durnford, A. D.
Dyer, W. A.

Eadie, G. W.
Eddy, J.
Edwards, Dr. J. Baker
Egginton, J. A.
Elmenhorst, R. W.
Ellegood, Rev. Canon
Emberson, F. C.
Esplin, George
Esinhart, John
Evans, F. W.
Evans, William
Evans, Robert
Evans, Ven. Archdeacon
Evans, W., Jr.
Ewan, James
Ewing, S. H.
Ewing, A. S.
Ewing, William

Fabre, G. R.
Fenwick, Dr. G. E.
Fenwick, A. G.
Ferrier, Hon. James
Finnie, Dr. J. T.
Fisher, R. C.
Forget, L. J.
Freeman, Allan

Gardiner, T.
Gardner, James
Gardner, Dr. W.
Gault, M. H.
Gault, A. F.
Gareau, Arthur
Gibb, A.
Gibb, J. D.
Girdwood, Mrs. F. M.
Girdwood, Dr. G. C.
Gnaedinger, E. W.
Godfrey, Dr. R. T.
Goode, J. B.
Gould, Joseph
Gould, C. H.
Greene, G. A.
Greene, E. R.
Grindley, R. R.
Grafton, F. E.
Grant, G. R.
Grant, Angus
Graham, George
Graham, Hugh
Graves, Burtis
Greenshields, E. B.
Greenshields, S.
Greenshields, J. N.
Grafftee, W. K.
Gurd, Charles
Gurd, Dr.
Gunning, B.
Guest, James

Harvie, R.
Hague, G.
Hall, J. S., Jr., M.P.
Hannaford, Mrs. E. P.
Hally, P.
Hamilton, H.
Hampson, R.
Hall, Thomas
Harrison, Mrs. T.
Harte, J. A.
Hartt, G. F.
Hatton, Daniel
Hart, F. J.
Hebert, C. P.
Henderson, Rev. Canon
Henderson, Peter
Henderson, D. H.
Heuser, E. P.
Hiam, Thomas
Hibbins, W.
Higginson, A. T.
Hill, J. Wentworth
Hill, Rev. J. Edgar
Hingston, Dr. W. H.
Holland, R.
Hodgson, J.
Howard, Dr. R. P.
Hooper, A. W.
Hope, John
Hooton, George
Horrigan, P.
Holland, G. H.
Hunt, Dr. T. Sterry
Hu lon, J.

Hutchison, John
Hutchison, A. C.
Hutton, J. A.

Irish, D. T.
Irving, Miss L.
Iles, George

Jamieson, R. C.
Jackson, H. F.
Johnston, Mrs. J.
Johnson, James
Joseph, J. H.
Johnston, James
Joseph, Jesse
Jones, J. H.
Joyce, A.
Jordan, Thomas
Judge, Edgar

Kemp, George
Kennedy, William
Kenwood, W.
Kerry, John
Kerr, W. H.
Kerr, R.
Kerr, W.
Kimber, Joseph
Kingston, F.
King, Warden
Kirkwood, John

Lapierre, T.
Lacaille, Charles
Lamothe, W.
Labadie, J. E. O.
Lafleur, E.
Landers, J.
Larmonth, John
Latimer, R. J.
Laviolette, J. G.
Learmont, W, J.
Leach, David S.
Leduc, Joel
Leggatt, James
Levin, C. H.
Letourneau, C. H.
Levey, C. E.
Liggett, T.
Lindsay, W. Taylor
Linton, Robert
Little, William
Lockerby, Mrs. A. L.
Lomas, H. S.
Lonsdale, J. C.
Lord, James
Lovell, John
Lundie, G. W.
Lyman, Henry
Lyman, A. C.

Macfarlane, D.
Mackenzie, R.
Mackenzie, William
Maclean, John
Mackay, Robert
Mackenzie, R.
Mackedie, J. W.
Macbean, Dr. D.
Mackay, Judge
Mackerrow, A.
Macnider, A.
Martin, S.
Maxwell, E. J.
Martin, J. B. A.
Marshall, James
Martin, John
Massey, F.
Mathewson, J. A.
Mann, Eric
Marand, J.
Masson, Louis
Maxwell, A.
Mason, A. H.
Meighen, R.
Meyer, H.
McCallum, Dr. D. C.
McCallum, R. W.
McCord, D. R.
McCord, Miss
McCready, James
McCulloch, F.
McDonald, W. C.
McDougall, Mrs. J.
McDougall, James
McEachran, D.
McFarlane, James
McGuire, J.
McGoun, A.
McGregor, James
McHenry, G. H.
McIntosh, John
McIntosh, William
McKenna, P.
McKenna, James
McKergow, John
McLachlan, W.
McLaren, J. C.
McLaren, J. R., Jr.
McLaren, W. D.
McLennan, Hugh
McNally, W.
McNulty, Thomas
Miller, J. D.
Mills, J. W.
Miller, Robert
Mitchell, Robert
Mitchell, William
Molson, J. T.
Molson, J. H. R.
Molson, J. W.
Montgomery, T.
Morgan, James
Morgan, James, Jr.
Morrice, David
Morton, C.
Morton, Henry
Moss, G. W.
Morgan, Colin
Munderloh, W. C.
Murray, W. G.
Murray, H. E.
Munn, S.
Murphy, E.
Murphy, John
Murphy, J.
Mussen, Thomas
Mussen, H. S.

Norman, Rev. R. W.
Nelson, A. D.
Nelson, F. E.
Nelson, James
Neville, F.
Notman, W.

O'Brien, James
O'Hara, W. G.
Ogilvie, Hon. A. W.
Ogilvie, John
Ogilvie, W. W.
Ogilvy, John
Ogilvy, J. A.

Orkney, Miss

Patterson, G. H.
Packard, L. H.
Paton, Hugh
Paterson, W. S.
Parsons, S. R.
Papineau, C. F.
Papineau, Hon. A. C.
Paul, Walter
Penhallow, Prof. D. P.
Penfold, J.
Pepin, H. P.
Phelps, G. F.
Phillips, C. S. J.
Picken, J. B.
Prevost, S.
Proctor, C. D.

Quintal, N.

Ramsay, W. M.
Raymond, G. A.
Rae, Jackson
Raphael, H. W.
Rea, David, Jr.
Redpath, Mrs.
Redfern, J. H.
Reed, G. W.
Reid, W.
Reid, William
Reford, R.
Rielle, Mrs. J.
Rintoul, W. H.
Rivard, S.
Robertson, Alex.
Robertson, John
Robertson, David
Roberts, George
Roddick, Dr. T. G.
Robb, William
Robinson, G. G.
Robertson, Andrew
Rodgers, Alex.
Robertson, J. A.
Ross, P. S.
Ross, Dr. George
Ross, William
Robertson, F.
Roy, Frank
Rutherford, Douglas

Sclater, C. P.
Scott, Gilbert
Scott, W. P.
Scott, Mrs. E.
Schwob, M.
Selby, Charles
Semple, J. H.
Seminary of St. Sulpice
Shepherd, R. W., Jr.
Sharpe, J.
Shearer, James
Shaw, H. J.
Shaw, W. E.
Shorey, Hollis
Sharpe, E. S.
Shearer, J. S.
Shepherd, R. W.
Silverman, S. S.
Simpson, J. Cradock
Sinton, J. C.
Simpson, Rollo C.
Skaife, A.
Slater, G. T.
Slessor, J. M.
Small, A. E.
Smithers, C. F.
Smith, J. Murray
Smith, Sir Donald A.
Smith, Alex.
Smith, W. O.
Smith, William
Smith, W.
Smith, James
Smith, John
Smith, J. Lionel
Somerville, P. A.
Spriggings, W.
Spriggings, R.
Stanford, J.
Stearns, J. H.
Stuart, R.
Stewart, J. F.
Stewart, A. B.
Stephens, G. W.
Stevenson, R. R.
Stephen, Sir George
Stephen, Lady
Stirling, John
Stroud, W. D.
Sumner, George
Sutherland, F.
Sully, Captain
Suffolk, W.

Taylor, J. W.
Taylor, T. M.
Tees, W.
Tees, D. T.
Tester, J. W.
Tempest, J. W.
Terroux, R.
Tees, David
Thibaudeau, A.
Thibaudeau, Hon. J. R.
Thomas, F. W.
Thomson, William
Tooke, John
Tooke, R. J.
Torrance, James
Torrance, J. Fraser
Trottier, A. A.
Trussell, G.

Vipond, G.
Vipond, T. S.

Walsh, J.
Walker, J. R.
Walker, Alex.
Ward, S.
Warrington, F. N.
Weaver, A. O.
Weir, W.
Williamson, James
Williamson, David
Williamson, J. B.
Wiseman, J. L.
Wilshire, A. C.
Wilshire, Walter
Wilshire, William
Whinfield, W. A.
White, Peter
White, Richard
Whitney, R. D.
Wilson, A. A.
Wilson, J. R.
Wilson, Walter
Wilson, James, Jr.
Williamson, T.
Wright, Mrs. J.
Wulff, J. F.

Yuile, D.
Yuile, W.

NON-RESIDENT.

Abbotsford, F. G. A., Abbotsford.

Bell, D. Forrest, Quebec.
Bell, William, "

Campbell, A., "

Edwards, G. B., Covey Hill.

Fisk, J. M., Abbotsford.
Fulton, Rev. Canon, Maritana.
Filteau, D. L., Leclercville.
Fraser, John, Coaticook.

Gibb, Charles, Abbotsford.
Gardiner, Rev. J., Fort Coulonge.

Hamilton, Rev. R., Grenville.

Jack, Robert, Chateauguay Basin.

Martineau, Colbert, Quebec.
Meyer, R., "
McColl, H., St. Joseph du Lac.
Miner, S. H. C., Granby,
Morrin, Miss Amy, Belle Riviere.

Pattison, W. Mead, Clarenceville.
Paradis, Rev. F. J., St. Raphael de Bellechasse.

Robinson, W. H., Huntingdon.

Tache, J. de L., Quebec.

Wright, A. A., Renfrew, Ont.

MONTREAL HORTICULTURAL SOCIETY AND FRUIT GROWERS' ASSOCIATION OF THE PROVINCE OF QUEBEC.

ANNUAL MEETING.

The annual meeting was held in the hall of the Natural History Society, Montreal, on the evening of December 5th, 1887. Prof. D. P. Penhallow, the Vice-President, occupied the chair.

There were present:—Messrs. Wm. Evans, J. M. Browning, Charles Gibb, John Doyle, Wm. Wilshire, James McKenna, R. W. Shepherd, jr., Robert Harvie, A. Joyce, Robert Benny, James Torrance, Walter Paul, Walter Drake, D. R. McCord, J. B. Goode, G. Cheney, S. S. Bain, W. B. Davidson, C. Campbell, James Redfern, P. S. Ross, W. Arnton, D. H. Henderson, W. Ross, R. Brodie, H. Brodie, A. C. Lyman, James Brown, James Johnson, F. C. Emberson and others.

The minutes of the last meeting were read and confirmed.

The Secretary read the following report for the year ending November 30th, 1887.

SECRETARY'S REPORT.

The following report of the past year's proceedings of the Montreal Horticultural Society and Fruit Growers' Association of the Province of Quebec, is respectfully submitted.

The year has been a busy one for the Directors and Officers of the Society.

The first important event was the meeting of "Fruit Growers'," held in the Town Hall at Granby, P. Q., on the 18th January. Notwithstanding the prevalence of a furious snow storm, there was a large attendance of members of this Society and also from the different Societies in the Townships.

After an eloquent opening address by the President, Dr. T. Sterry Hunt, several papers were read by experts on various topics relating to fruit culture, and thoroughly discussed by the leading pomologists of the Province. A very careful and complete report of the proceedings was taken by a city stenographer, which after careful revision, has been fully given in the Society's twelfth annual report.

We may state that your Directors have been making arrangements to hold a similar meeting this winter in the city of Quebec. The proposition has been gladly taken up by our friends there, and there is every prospect of a successful meeting.

On the 18th March, the florist members of the Society held a public meeting for the "discussion of flowers." Several interesting papers on plants and their best modes of treatment were read by prominent florists. After a general discussion by gardeners and amateurs, the Vice-President, Prof. Penhallow, made appropriate remarks on the nature of fertilizers, the best means of application and the results of the stimulation on various plants, &c., the whole making an evening's entertainment most valuable and instructive. A resolution was passed asking the Directors to take steps to hold similar meetings for monthly discussions during the coming winter, which we hope will be carried out.

A full account of this meeting is published in the report.

A year ago, Mr. R. W. Elmenhorst, offered the handsome sum of twenty-five dollars in prizes for the best preserved bunches of indoor grapes, grown in a cold vinery, to be exhibited on the 15th January.

The first prize of fifteen dollars was awarded to Mr. Jules Betrix, gardener to Andrew Allan, Esq., the second prize of ten dollars to Mr. Alexander Armour, gardener to Miss Orkney.

The grapes exhibited were in perfect preservation, the means used to retain their freshness in both cases was in keeping them in a cool dry atmosphere, a few degrees above freezing point.

The winter opening of six of the principal conservatories to the members of the Society and their friends was generously conceded by the owners, to whom the Society are under great obligations.

The Directors at the suggestion of many were induced to hold a summer exhibition of roses, strawberries and pansies, which took place on the 30th of June in the Victoria Rifles Armoury Hall. This show was greatly marred by the extreme hot and dry weather which prevailed throughout the month of June, causing sad havoc amongst the fruit and flowers. The exhibits, although not as numerous as was expected, were highly creditable under the circumstances. Unfortunately, the attendance was small, and the result was a loss to the Society.

The September exhibition held in the Victoria Skating Rink was one of the best that the Society has had. The number of entries was very large and the quality of the exhibits excellent, especially the display of apples and grapes.

There were 127 varieties of apples on exhibition of a high standard of quality that could be scarcely equalled anywhere.

The display of outdoor and indoor grapes was also particularly fine.

The grand feature of the Exhibition was the tables of decorative and flowering plants arranged at each end of the rink, the competition on which was keen and brought forward the finest display of plants ever exhibited in Canada.

The attendance at this exhibition was not as good as it should have been, considering the fine display. A travelling circus or negro minstrel show will have crowded houses, whereas a magnificent display of Nature's choicest productions is rather coldly appreciated by the general public.

These exhibitions entail a great deal of work and cost a considerable amount of money to carry them on successfully, and should be entitled to better support and appreciation.

Encouraged by the splendid success of our Chrysanthemum show last fall the growers of this favorite flower were stimulated to get up a still better exhibition this fall, and almost every one who had the facilities for growing them, laid in a stock of young plants of the newest and finest varieties, and had things gone on in the usual way, there might not have been a hall large enough for all grown for the Exhibition, but alas for the "best laid schemes of mice and men," the plants that had been so carefully and tenderly cared for were blighted by the extreme hot dry weather and failed to produce their flower buds, so that the result in most cases was an almost entire failure. Consequently the Society had to forego this interesting Exhibition.

To recompense in some respect those who had plants fit for competition, the Directors thought it only fair that the plants should be visited by the Judges and prizes awarded at their discretion. In response to this only two parties made entries,, Mr. Eddy and Mr. Betrix. The Judges saw fit to allow Mr Eddy eleven dollars and Mr. Betrix five dollars. The plants exhibited were fairly good specimens, but not up to the best of last season, with the exception of six Japanese, shown by Mr. Eddy, which were almost perfect.

During the year there has been a large amount of work done by the Library Committee, more especially by Mr. Chas. Gibb and Prof. Chandler. The books in the library have been thoroughly classified, and many have been added by donation and purchase.

The membership this year is less than it has been for some years. Owing to the loss to the Society of your late respected Secretary, Mr. Henry S. Evans, the list that he had so industriously worked up has fallen off considerably. Some members have left the city, some have died, others refuse to subscribe owing to indifference or otherwise.

The collecting of the subscriptions after the three or four hundred willing members have paid is a very hard task. We do not see how the membership is going to be kept up to its proper number unless the Directors and members of the Society give their individual assistance to get new subscribers, as after several hundred it is a personal matter to induce people to subscribe and pay up. With the assistance mentioned, we are sure that at least seven hundred could be maintained on the membership. The roll now consists of five hundred and thirty-nine $2 members, eleven at $1, and seven life members.

The Society's twelfth annual report has been distributed to all the members and to the principal Horticultural Societies throughout the United States and elsewhere. From these Societies we receive their reports in return, so that a vast amount of valuable information is thus disseminated.

The Society is under great obligation to the contributors of articles to their report. Many of these articles are of great value and treat upon subjects of special importance to those interested in developing the resources of our country.

The financial statement which will now be read shows that, owing to the great amount of undertakings, the expenditure has been somewhat in excess of the receipts. The prize list has been a long one this year, and we anticipated larger returns from the Exhibition, considering the increased attractions. You will see that there is a balance of $313.36 due to the Treasurer.

The expenses of the Society have been kept down to the lowest possible figure, or otherwise the deficiency would have been greater.

The accounts of the Society have been audited and found correct. Messrs. J. M. M. Duff and Thomas Burdon have kindly performed this service.

E. J. MAXWELL,
Secretary and Treasurer.

Financial Statement of the Montreal Horticultural Society and Fruit Growers' Association of the Province of Quebec for the year ending 30th November, 1887:

RECEIPTS.

Cash on hand 1st December, 1886			$ 273 73
Members subscriptions	539 at $2,	$ 1,078	
	11 at $1,	11	1,089 00
Provincial Government grant			1,000 00
Donations for special prizes			98 50
Dividends Bank Stock			66 00
Exhibitions			302 25
Reports sold			1 75
Subscriptions for 1885-86, received after the close of the year			10 00
E. J. Maxwell, loan			350 00
			$3,191 23

EXPENDITURE.

Sundry accounts	$ 82 53	
Postage	33 47	
Express	8 25	
Cartage	85	
Telegrams	75	
Sundry Expenses	16 83	
Insurance	15 12	
Library account	209 91	
Exhibitions	591 56	
Advertising and Printing	162 44	
Rent	70 00	
Commission	84 63	
Prizes	1,377 25	
Office Rent	100 00	
Salaries	400 00	
Cash on hand deposited in Merchants Bank	37 64	
		$3,191 23

The report of the Secretary and financial statement were on motion of Mr. G. Cheney, seconded by Mr. W. B. Davidson, unanimously adopted.

Mr. Cheney made some complimentary remarks on the useful work done by the Society, and to show his appreciation, stated he would again offer a prize of twenty-five dollars for the best bunch of indoor grapes at next Exhibition.

Mr. Charles Gibb read the following report of the Library Committee for the past year.

REPORT OF THE LIBRARY COMMITTEE.

The Library Committee report 121 volumes added to the Library since the publication of the Society's twelfth report, or 174 volumes during the past year, of these 11 volumes were purchased by the Society,

174 do given,

31 do loaned by the Fraser Institute.

The Society has expended during the past year $34.98 for the 11 volumes above referred to, which was their cost price in London, and $23.20 for binding. The only large item the Society has ever expended was in 1885, the year of the epidemic, when binding to the value of $123.21 was done, and this account not being rendered at the time, appears in the Society's accounts of the present year.

The Country Gentleman, Rural New Yorker, Prairie Farmer, and other journals of that class, at the close of each year, are tied up and put aside, but not bound, as it has not been thought best to incur this expense.

Some very valuable works have been added during the past year. From Mr. Robert Benny we have received Lucas's Illustrated Hand Book, in 9 volumes, and Lauche's Deutche Pomologie, in 7 volumes. This latter contains 300 beautifully colored plates of the fruits of Germany, and owing to the many varieties of German fruits on trial in this country, are invaluable. From James Morgan, Jr., Lowe's Ferns, British and Exotic, in 8 volumes, containing about 560 colored plates.

In the Society's Library, may be seen Transactions of Horticultural Society of England, complete in 10 handsomely bound volumes with colored plates. It

cost £5 10s., and has not been entered in our catalogue in hopes that some one would fall in love with it and present it to the Society.

Reichenbachia, the new work on orchids, is being subscribed for by the members as a memorial to our late Secretary-Treasurer, Henry S. Evans, whose years of patient labor have added so much to the present prosperity of the Society. It is published in monthly parts at $2.75 per number, and 40 numbers will complete it, but to cover the expenses of binding we shall need about 49 subscribers.

The Library now contains 929 bound volumes, and 66 unbound, making a total of 995 volumes.

Moved by Mr. Walter Paul, seconded by Mr. J. B. Goode, that the report be adopted. Carried.

Messrs. Robert Harvie and James Brown were appointed scrutineers, and after having taken up the ballot papers, retired.

Moved by Mr. James McKenna, seconded by Mr. John Doyle, that hereafter a list of members be published in the annual report, the names to appear in order of seniority.

Moved in amendment by Mr. F. C. Emberson, seconded by Mr. James Johnson, that the names be arranged in alphabetical order.

A vote was taken and the amendment carried.

Mr. Cheney suggested that each member should get a book and receive subscriptions from new members, he would guarantee fifteen new subscribers next year.

Mr. J. W. Beall remarked that the city should be divided into districts, and the directors each take a part, he thought at least 1,500 could be obtained in that way.

The Chairman stated that if the directors had no other occupation that it would be a good idea, but unfortunately they had private business to attend to, and could not spare the time.

Moved by Mr. J. Fraser Torrance, seconded by Mr. James Torrance, that hereafter tickets of admission be given to members for all Exhibitions.

The Chairman stated that each member got a member's ticket for the September Exhibition, and four coupon tickets which were worth at least $1.50, also a copy of the annual report and other privileges.

Moved in amendment by Mr. Walter Paul, seconded by R. Brodie, that tickets be issued only for the September Exhibition. Carried.

The Scrutineers reported the following gentlemen elected Directors:—Prof. D. P. Penhallow, Charles Gibb, John Doyle, R. W. Shepherd, Jr., Walter Wilshire, William Evans, E. J. Maxwell, J. M. Browning, and Robert Brodie.

Mr. J. M. Browning gave a notice of motion that the following amendments be made in the By-laws of the Association:—

1. That article 15 be amended to read fifty instead of twenty dollars.
2. That the following words be struck out of article 14:—"A member of the preceding year."

Mr. William Evans stated there was a question of interest which should be discussed, viz: "The exportation of fruit."

Mr. R. W. Shepherd, Jr., stated that he had sent some Winter St. Lawrence apples to Scotland in barrels, and on arrival they were all in "mush." On another occasion he had shipped some of the same variety in Cochrane's cases and they arrived in good order.

Mr. W. Paul said the fault was a good deal in the packing. The packing in Ontario was sometimes done disgracefully and the Montreal packing was not much better.

Mr. R. Brodie suggested that in all cases the packers name should be put on packages, and this suggestion was heartily approved of.

The Chairman stated that since the Colonial Exhibition he had received numerous letters asking for information as to prices of fruit and the addresses of reliable exporters.

Messrs. Walter Paul and R. W. Shepherd, jr., were appointed a Committee to collect all possible information with reference to the exportation of Canadian apples.

Mr. D. R. McCord directed the attention of the members to the annual report of the Fruit Growers' Association of Ontario from which he read the following resolution refering to the death of their late Secretary.

Resolved,—That the Fruit Growers' Association of Ontario have learned with deep regret of the death of Mr. Henry S. Evans, late Secretary of the Montreal Horticultural Society.

By his removal not only has our sister Province lost one of her most able and willing workers, but a blank has been left in the entire horticultural community which it is hard to fill. We have all admired his estimable private character, his many christian virtues, as well as the untiring efforts he put forth so long and so effectually in furthering the cause of horticulture, and we regret exceedingly that he has in the Providence of God been removed at an age when he had apparently before him many years of usefulness.

We beg to tender to his widow and family our sincere sympathies in their deep affliction.

Mr. McCord and the Secretary, were appointed a Committee to draft a reply thanking the Ontario Association for this expression of their sympathy.

The meeting then adfourned.

CONVENTION OF FRUIT GROWERS'.

The annual meetings for the discussion of fruits were held in the Parliament Buildings, Quebec, on February 1st and 2nd, 1888.

FIRST DAY.

The Convention met at 3 p.m.

Professor Penhallow, President of the Montreal Horticultural Society and Fruit Growers' Association of the Province of Quebec, opened the proceedings, and called upon Col. Rhodes, Chairman of the Local Committee to take the chair.

There were present:—Mr. J. M. LeMoine, President of the Quebec Horticultural Society, Hon. H. G. Joly, Col. Rhodes, S. Lesage, I. J. Tarte, W. Lee, R. Campbell, Arch. Campbell, Colbert Martineau, of Quebec; E. A. Barnard, Three Rivers; Auguste Dupuis, Luc Dupuis and F. G. M. Deschenes, M.P.P., of L'Islet; J. C. Chapais, St. Anne Lapocatiere; R. Brodie and George Moore, of Montreal; W. H. Elder, Beebe Plain; Robert Jack and James Jack, Chateauguay Basin; N. C. Fisk, John M. Fisk and Charles Gibb, Abbotsford; R. W. Shepherd, Jr., Como; Rev. Canon Fulton, Maritana, Huntingdon Co., and others.

The Chairman called upon Prof. Penhallow, who made the following address:—

MR. CHAIRMAN, LADIES AND GENTLEMEN,—

We have gathered here to-day to discuss important questions connected with the fruit growing industry, and I feel that I must express my great pleasure at meeting so many representatives of horticulture from all parts of the Province. There are gentlemen present representing the warmer and others the colder districts, and they will all bring to the discussions we are now opening, the result of many years experience in the cultivation of many desirable fruits grown in this Province. We are also here to discuss subjects relating to the introduction of newer varieties of fruits which may be adapted to our climate and found to meet our wants. On the present occasion we are indebted to the Local Government which has generously placed this building at our disposal and otherwise facilitated the progress of this meeting; we are likewise under obligations for the liberal assistance in convening this meeting given us by the local Horticultural Society, a Society kindred to our own, and whose accomplished President, Mr. LeMoine, will fill the place of honor by opening the proceedings with a paper.

The work of any Society such as that under whose auspices this convention is gathered, is necessarily best represented by its history; and I, therefore, desire to call your attention to one or two facts in connection with our work, so that those who are here for the first time at one of our meetings may understand the line of work we are carrying out and the policy upon which we proceed.

The Montreal Horticultural Society and Fruit Growers' Association of the Province of Quebec is an organization which has, as it name implies, a dual function.

The Montreal Society, of course the older, the parent organization, of which the Fruit Growers' Association of the Province is the latest development.

As a Horticultural Society it is our function to cultivate a taste for choice flowers and to promote a more correct knowledge of their culture and uses. In this respect, our work is the same as that of our sister Society in Quebec, and like it, the function is a local one.

As the Fruit Growers' Association of the Province of Quebec, our function is an enlarged one, since to our care have been confided the fruit interests of the entire Province. Our function is, therefore, not local, but general and provincial, and I desire to direct your attention to the fact that it is in our capacity as the Fruit Growers' Association of the Province that we meet to-day, and not as the Montreal Horticultural Society.

This meeting is practically the outcome of a policy adopted some years ago. Just ten years ago, the Montreal Horticultural Society received from the Local Government a charter which gave to it provincial powers. It was at that time reorganized as the Montreal Horticultural Society and Fruit Growers' Association of the Province of Quebec, and since then it has been the aim of the Society not to confine its work to one locality, but to extend its efforts throughout the Province as far as possible. For some years it was difficult to realize that object, but now, happily, we have entered upon a new era of work and usefulness in which the line of policy I have referred to is being carried out. Two years before the reorganization of the Society, the Montreal Horticultural Society issued its first annual report in the form of what was called a fruit report.

That report, I am told by one of the gentlemen who was chiefly instrumental in bringing it out, was issued against the hearty protest of all those concerned, who, while protesting, nevertheless gave it a very vigorous impetus, so that the succeeding year a similar report was published with the gratifying result that its appearance led to our securing the charter under which we now work. Looking

back to the record of this Association, we can easily see what it has accomplished for fruit growing and general horticulture in this Province. I have here the volume containing the first nine annual reports. The first two of these are the fruit reports proper of the Montreal Horticultural Society; the rest are the reports issued by the Society as we now know it. Three other reports have since been published, so that in all twelve annual reports have emanated from this Society, and all contain a large amount of varied and valuable information with regard to the cultivation of flowers and fruits, the value of which is shown by the fact that our reports are called for from all parts of this continent. I think it is safe for me to say, so far as my general experience of Horticultural Societies and my knowledge of such work extends, that these reports rank amongst the most valuable publications of the kind on this continent; and this fact is evidenced, I may again say, by their being sought for far and wide. In addition to the publication of these reports, the Society has adopted the policy of holding public meetings.

Two years ago in Montreal, the first meeting was held during the winter for the discussion of fruits. At this season of the year when all nature is in repose and gathering new strength for the struggle for existence the coming season, we enjoy a period of quiet which is the fittest time to discuss the various problems relating to horticulture. The result of this first meeting was so gratifying that a second one was held last year at Granby, but owing to the unfortunate circumstance of a violent snowstorm which occurred just at that time, the success of the meeting was not as marked as we had anticipated; but, nevertheless, in spite of the inclement weather, the success was very considerable. The result of these two meetings has led the Board of Directors to feel that they should carry their work still more widely into different parts of the Province; and it is the intention of this Association to so extend their efforts, under wise patronage, that each part of the Province will receive in turn, so far as its fruit growing interests are concerned, its share of attention. In that way, we will be able to carry out in the proper spirit, the object of the Association and the one contemplated by the Government when granting us a charter.

In addition, this Association has been carrying on for the last ten years the work of annual exhibitions, which have been a great advantage, not only in extending a knowledge of horticulture, but in bringing to notice important varieties of fruits. The importance of this work in the direction of extending a knowledge of fruits can be readily appreciated when I tell you that at some of our exhibitions we have had as many as thirteen hundred plates of apples, and this largely owing to competition from adjacent counties.

There are in this Province five local Societies:—The Fruit Growers' Associations of Abbotsford, Brome, Shefford, Missisquoi and L'Islet.

While no definite act of affiliation has been accomplished between these Associations and ours, yet a natural affiliation, as it were, has been brought about, and the officers of our Society feel we have a right to claim these local Societies as a part of the organization at large. We desire in time, that they should consider themselves a part of our organization and entitled to call upon us for assistance. In that spirit it has always been our endeavour to extend assistance to these local bodies; and we have done so, not only by giving them what aid they called for from time to time, but by sending them each year a certain number of annual reports, together with surplus copies of reports from kindred Societies in the States and elsewhere. In this way they obtain valuable material and information of which, otherwise, they would not be able to avail themselves.

In all important questions directly affecting the interest of the Province, mutual action of the local Societies and of our Association must be of great benefit. This was well illustrated in the case of the London Exhibition. At that time, we were called on to prepare and send over specimens of fruits, in order to show the people of England what can be produced here. The local Societies heartily co-operated with us, and with their assistance we were enabled to send a very creditable exhibit, and to follow up this exhibit the succeeding year by shipments of early fruits. Very important and beneficial results flowed from these Exhibitions. It was anticipated that by making the fruits of this Province thoroughly well known to the people of Europe, a profitable trade would be developed; and that anticipation, I am happy to say, has been in part realized; for every season since, I have had letters from dealers in England asking for shipments of fruit, and similar appeals have been received by other members of the Association. This question of the foreign export of our choice fruits is one which should be carefully attended to; the opportunity to develope our foreign trade in this line should not be allowed to slip by, as otherwise we will be throwing away all the advantages gained from the London Exhibition. Another question which merits the attention of this convention is the introduction of fruits from abroad. As you are well aware, we have amongst us a zealous horticulturist, Mr. Gibb, who has paid much attention to the introduction of Russian fruits adapted to this climate. There can be little doubt that there are fruits in other parts of the world, especially in parts as cold as, or colder than any portion of our Province, which might profitably be introduced here; and it seems to me that this question merits our most careful consideration. Of course, we must expect that among the foreign fruits, many will not be suited to our wants; but still there must be many which are suited and will prove valuable acquisitions to our collection. We must bear in mind that it is in cold crisp climates like this where early maturity is induced and where plants are not forced into too rapid growth during the vegetating season, that we get fruits which possess the desirable qualities distinguishing our Canadian fruits above all others, and if we can add to them by bringing in others from similarly cold climes, we will be doing a great benefit to the cause of horticulture.

Another subject to which I will call your attention is the importance to fruit growers of having statistics showing the extent of the business in which they are engaged, and giving information as to the influences which must govern the market. I have tried several times to get information in this respect, but so far as I am aware, there are are at present no statistics relative to the yield of fruit in this Province, and its value. This Province is, however, not peculiar in this respect, as elsewhere I have tried to obtain similar information, and I have always found that both the fruit growers themselves and the officials connected with the Government seemed to have overlooked this matter. It seems to me that we should try to urge upon our Government the adoption of some measure looking to the collection of statistics of this kind; and I am sure the results which would follow would more than repay the labour and expense involved.

Mr. Barnard:—Will you permit me, sir, to say a few words on the subject of the speech we have just heard? Although I am anxious not to delay the reading of Mr. LeMoine's paper, I think it is worth while to state a fact or two with reference to the history of our Association, on which Mr. Penhallow slightly touched.

Ten years ago, Mr. Lesage and I were called upon officially to give our advice in reference to the organization of a Provincial body; and on the report which we

submitted to the House and which Mr. Joly strongly supported, a grant of $1,000 was obtained for the object in view. The Montreal Horticultural Society then ceased to be a local and became a Provincial Association; and I am glad to see now, after ten years have elapsed, that there is every appearance of life in the Society from a Provincial standpoint. Not only have we promise, but we have performance. I would like to say, as a word of explanation to the gentlemen from Montreal, that if we have not here a greater number of representatives from the District of Quebec, it is due to the want of sufficient notice. Had a month's notice been given, fixing the date of the meeting, instead of being one hundred present we would number over three hundred. Last year, for instance, at Granby, eighty leagues from here, one thousand persons met from all parts of the Province —from Carleton, Saguenay, Temiscouata and even from the County of Ottawa, forty leagues in the interior.

It is to be hoped that a month's notice will be given for the next meeting. Another point to which I will draw your attention is the preservation of fruits. This question is of first importance. We have fruits of excellent qualities, but unfortunately, often when they arrive on the market, they are spoiled and unsaleable. I believe there is a means of preserving them, and would like to see that subject added to the programme.

Mr. J. M. LeMoine, President Quebec Horticultural Society, read the following paper:—

ADDRESS OF THE PRESIDENT OF THE QUEBEC HORTICULTURAL SOCIETY WELCOMING THE MONTREAL FRUIT GROWERS.

MR. CHAIRMAN AND GENTLEMEN,

It gives me much pleasure to look on such an array of horticulturists, as I see here before me this day, and still greater satisfaction in glancing at the sumptuous bill of fare provided for this gathering, by the successful fruit growers of such a favored locality as the Montreal district. In the name of the Quebec Horticultural Society, as well as in my own, I bid you welcome in our midst—yes, thrice welcome. It were the height of rashness should I presume to stand up, in order to enlighten this meeting as to the most suitable fruits for our northern latitude, and as to the best mode of culture, &c. In mingling with such experienced specialists, it can only be on the footing of a well wisher as my French compatriots would say—*pour faire acte de presence*, to count one more in the advocacy of the patriotic project, discussed here this day. Quebec horticulturists feel indeed grateful for the trouble and discomfort you have subjected yourselves to, in order to discuss with the fruit growers in our district a very important agricultural interest. Leaving to more experienced hands the working out of the problem which you have submitted to this convention, I shall confine myself to one subject only: a short SKETCH of the VINE, and of the HEATED GRAPERIES at Quebec.

The use of glass houses and artificial heat, to ripen fruit and bring plants to perfection is not new by any means. From some texts in Plato and Columella, it has been surmised that the Greeks and Romans knew its use. Tiberius used to boast that he could grow cucumbers nearly the whole year round—*fere toto anno*, in his garden.

Speaking of gardens reminds one of the oldest on record: the garden of Eden, though its design must ever be an unfathomable mystery. Was it laid out

in the tonsile or Dutch style? Our first parents would most certainly have found no pleasure there if the fatidical apple tree had been carved to assume the appearance of a peacock, or of a sheath of wheat. Geometrical lines were not yet invented for parterres, the natural style was probably in use.

It would take us much more time than we can spare to make mention of the most famous gardens, from the hanging gardens of Babylon to those of Hampton Court, or the gorgeous though antiquated gardens of Versailles, which, it was once my good fortune to saunter through. We have none such in Canada, but we can grow grapes as luscious as those of the more favored climes.

The first mention of grapes, which occurs to me is the show which the green hills of the Isle of Orleans presented to the St. Malo mariner, Jacques Cartier, in September 1535—it caused him to christen the spot, Isle de Bacchus. Champlain, too, later on, had a fancy for gardens; a busy little market place, facing the church of *Notre Dame des Victoires*, has taken the place of the perfumed area, where the immortal founder of Quebec, cultivated roses, about 1615. Old Peter Kalm, in 1748, had a good word to say about Governor LaGalissonniere and his *Chateau* garden. But let us bid adieu to gardens, as the temperature* is not sufficiently inviting to enjoy them to-day and indulge in a hasty glance at the history of the vine, with some remarks on hot house grapes, round our good city.

Syria seems to have been the natural land of the vine; it took centuries to naturalize the welcome stranger, to bring it to perfection on the sunny slopes of Burgundy,—on the castle-crowned hills of Heidelburg, and breezy banks of the Rhine.

The vine is often mentioned in Holy Writ, as you are aware. Noah, a husbandman, planted a vineyard; of the gigantic bunch of grapes, brought back to Moses by his messengers from the Land of Canaan, you all recollect reading; it took two men to carry it between them, on a staff. Solomon, a long-headed sovereign, had invested in a vineyard, which brought him in "1,000 pieces of silver," a tolerably fair investment, you will admit. In heathen mythology, the vine was held in high repute, more especially, some think, for the generous beverage which came from its fruit. Chios and Samian wines were famous. A Bon-Vivant, whom we shall name Bacchus, was raised to the rank of a heathen god. He loved the vine not wisely but too well. One scarcely likes to say an unkind word of him, seeing he is not here to take his part, but still I cannot help at times picturing to myself, the rosy god and sturdy foreigner as some remarkably jolly, well seasoned old toper, worthy to preside to Sir Jonas Barrington's thirsty "twelve bottle men."

Even the divine Plato, judging from his writings, one would fancy, could relish his glass of Grecian wine. The vine in fact was so prized in olden times, that the ladies used the wood as head ornaments—in lieu of chignons. Blue-eyed Juno wore a wreath or crown, woven out of its fibres as became the consort of Imperial Jove, no doubt, with queenly grace. The Damascus and Persian grapes, it is said, bore bunches weighing 25 lbs; we, degenerate modern grape growers, are satisfied with Black Hamburg bunches of 5 lbs., though there is a record of a bunch shown at the Great International Horticultural Exhibition of Belfast weighing 20 lbs.

The number of varieties of grapes, is beyond computation. A French writer, Mr. Andre Leroy, of Angers, in 1881, gave the names of 417, though doubtless, the same grape appeared under different names. Mr. Hogg's compu-

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* A January temperature about 25 below zero.

tation in the fruit manual of 1875, giving 143 varieties carefully described, is nearer the truth. Every country, every district, almost has its variety peculiar to itself and adapted to its climate; there are Italian, French, German, Spanish, American and even Australian grapes. The degrees of sunheat to ripen grapes in France have been scientifically tabulated, for each variety, by an able French grower, Count de Gasparin. The Romans have the credit of having introduced the vine in Britain, in the reign of the Emperor Augustus about A.D. 10. Some years later, vineyards had become so numerous in Italy, as to replace the culture of other useful products; Domitian, A.D. 85, prohibited by edict that any more should be laid down. The Italian vines grow to a great size; Pliny states that they overtopped the largest trees, like the elm and the poplar, to which they were trained; hence these trees were said to be "married to the vines." Thus Shakespeare (or Bacon ?) writes in his "Comedy of Errors:"

> "Thou art an elm, my husband, I, a vine,
> Whose weakness married to thy strongest state,
> Makes me with thy strength to communicate."

The old monastic establishments in England and in France had their vineyards in open air; the Reformation in Britain spared neither the monasteries, nor their vineyards.

Great were the pains taken by the French monarchs to cultivate the vine in the Louvre, Fontainebleau and other royal gardens. Charlemagne, Philip Augustus and their successors soon discovered the suitableness of the mild climate of Burgundy for vineyards.

"Statues have been carved from the wood of the vine, pillars have been made from it and the large doors of the cathedral of Ravenna are also made from this wood. Pliny gives an account of a vine six hundred years old," (Chaptal, p. 142.)

Glass houses for the ripening of grapes are comparatively a modern invention. That luscious variety, the Black Hamburg, seems to have struck deep roots in England at an early date. Gilpin mentions one planted in 1758, and still flourishing at Ilford, in Essex, the oldest in England and the parent of the celebrated Black Hamburg vine, at Hampton Court, planted in 1769, which several of you have seen and which fills an entire grapery. There is another remarkable old vine at Cumberland Lodge, Windsor, said to yield 2,000 lbs. of grapes and nearly twice the size of its confrere at Hampton Court; you may also have heard of the Sillwood Park vine.

Probably the largest vine in the United Kingdom at present is the Black Hamburg, at Kinnel House, Breadalbane, Scotland, which is said to cover 4,275 feet of roof space. I read in the London *Journal of Horticulture* for August last, an account of a marvellous vine growing in the Manresa House, Roehampton, a Black Hamburg planted 26 years ago and raised from a cutting. It fills a house 224 feet long; its seven rods stretched out represent an aggregate length of 1,400 feet, that is considerable more than a quarter of a mile. 1,800 bunches were removed before thinning this year, leaving on 625—not a few of which weighed between 3 lbs. and 4 lbs. No such gigantic vines under glass exist in America, though grape vines of fabulous dimensions grow in the open air in Southern California. Hyatt's hand-book of grape culture describes under the heading "Mammoth Vine of Santa Barbara, California," a most wonderful specimen.

"The planter of the vine was Dona Marcellina Felix Dominguez, in 1780. This now-famous vine was once the riding whip of the Spanish lady, presented to

her by her lover,—which, after the ride, was planted by her, and has now developed into that grand memento of love, the grandest and most famous vine in the world. Besides the old vine is an offspring, fast approaching the dimensions of the parent, and fully as prolific. Under the genial branches of this youthful vine is a large dancing floor, where, according to the custom of the Spaniards, on Sabbath days and Sabbath evenings are performed the love dances of a new generation of Spanish lads and lasses in their fandangoes, enlivened by voluptuous swells of music and free drafts of Camulus. Close by reposes the ancient riding whip, spreading her venerable branches over an area of more than 1,000 square feet of ground, the tutelar guardian of the old rancho, whose branches intertwine with those of her offspring, and those of a neighboring fig tree, annually laden with blue figs. These people truly have long had the privilege (now passed away) of sitting as well as dancing under their own vine and fig tree. Some years it has borne over 6,000 bunches. The trunk of the vine in the thickest place measures 4 ft. 4 in. in circumference—its branches are supported by 52 trellises. Its yield for the last 60 years has been more than half a million lbs. The vine is watered by a stream from Hot Springs, a mile away."

Gentlemen, I am reminded to be brief. It were vain to look for graperies cold, or heated, at Quebec under the French regime. It took the English more than fifty years to wake up to ideas of progress in ornate gardening. What has been done round Montreal in early times? Perhaps some here are able to tell us. The information derived from that eminently respectable authority at Quebec, the oldest inhabitant, leads me to fix 1820 or thereabouts as the time of the erection of the first grapery, when the late Henry Atkinson selected the picturesque cape at Cape Rouge, where Roberval is said more than three centuries ago to have wintered. A pretty villa and grapery built by this gentleman stood and still stand at this spot. A large flower and fruit garden was added, as it were, cut out of the forest primeval. Mr. Atkinson in his onward course of progress had a worthy rival in an old friend at Woodfield—the Hon. William Sheppard—who ornamented his lovely domain with a vinery, a conservatory and an aviary. When, in 1828 the Spencer-Percival family ceded to Mr. Atkinson their lordly country seat—Spencer Wood—conservatories and graperies were added subsequently to the garden, laid out in the landscape style and much admired, by an eminent West Point Professor, Major Douglas, when a guest at Spencer Wood in 1848. The era of extensive heated graperies round Quebec, may be said to date from the arrival of a clever young Scotchman, head gardener to Lady Mostyn, of Portobello House, East Sheen, Surrey. He took charge of Spencer Wood garden and also furnished the plans and superintended the building of the Spencer Grange conservatory, grapery and orchid house. Time may have frosted his locks, but you may still recognize this intelligent fruit grower, hale and hearty, in the trusted steward and gardener at Cataracoui, Mr. Peter Lowe. Following in the foot-prints of the Hon. W. Sheppard and Mr. Atkinson, the proprietors of the most extensive country seats around the city, Messrs. Henry and Edward Burstall, Gibb, Gilmour, Young, Hamilton, Price, Rhodes, Stuart, Levey, and more recently Messrs. Dobell and Beckett, erected splendid conservatories and heated vineries, under the supervision of painstaking and scientific gardeners, whose gratifying results you may have admired at our late exhibition."

Mr. Barnard described a vine which he had seen at Rougement growing in the open field. It was a natural bush, and covered an elm tree sixty feet high. This vine had six branches, and at a height of four feet each branch was as thick

as his wrist. After the school children had helped themselves to the fruit there was still 80 lbs. obtainable from the vine. He affirmed positively that he had himself measured the branches.

Mr. LeMoine—Did you observe in the neighborhood a hot spring? I ask this because the celebrated vine of Santa Barbara in California is in the neighborhood of a hot spring.

Mr. Barnard—No, there was no hot spring, but on the contrary there are many springs extremely cold. The sun, however, has full play on this field, being reflected from a sandy hill, so that it is an extremely hot quarter.

Mr. Brodie—I would like to know why such a fine quality of grape was kept in hiding so long.

Mr. Barnard—It was photographed and published in the "Journal of Agriculture."

Colonel Rhodes said it was interesting to observe that whereas some ten years ago grapes brought in our market from 50 cents to $1 per pound, they could now, for two months in the year, be obtained at low figures and in considerable variety. This showed what attention to grape culture could do. The vine was indigenous to this country, as could be seen in the Sorel Islands, which at certain seasons were covered with wild grapes, some of which were quite sweet and produced a red wine with very much the flavor of claret. These vines grew with their roots in the water, and were much appreciated by the chasseurs. He instanced also the Island of Orleans, formerly called the Isle of Bacchus. The American vines were attracting considerable attention in Europe as they were free from *phylloxera*, and they were being used as stocks by European vine growers to recuperate their vineyards.

OUTDOOR GRAPES IN L'ISLET.

Mr. Auguste Dupuis, L'Islet, gave his experience in grape growing in that county. He said he had succeeded with the "Champion" and other sour varieties, The "Catawba" had ripened once in four years, "and the "Hartford" ripened occasionally, but very seldom. He would be far from encouraging the culture in L'Islet of vines other than the "Champion" and similar varieties. He expressed his surprise at hearing that a wild vine could furnish the quantity of fruit which Mr. Barnard said the one at Rougement had given. This was the first time he had heard of a wild vine being so productive.

Mr. Barnard—I do not say it is a wild vine in the full acceptation of the term. It is more likely from a seed which was brought there by accident and not by the hand of man.

Mr. Shepherd suggested that the Abbotsford, F. G. A. should take steps to show this wonderful fruit at the Exhibition of the Montreal Society next September. It was only by tasting the fruit we could decide on its merits. The size of the vine did not amount to anything if the fruit was not sufficiently good to be profitable.

Mr. Robt. Jack, Chateauguay Basin, read the following paper by Mrs. Jack, on grapes at Chateauguay :—

THE POET WHITTIER WROTE :—

"Two hundred years ago
The wild grape by the river's side,
And tasteless ground nut trailing low
The table of the woods supplied."

And I often think as I see the diminutive berries of the wild grape with its *tang* of sourness and crude rich juice, that in no other fruit is the march of civilization better seen than in the perfection to which grapes have arrived through culture, even in the cold north of this Province.

Our grape growing at Chateauguay Basin extends over a period of eighteen years. Before that time a single vine was considered a garden treasure to be carefully nursed and tended. When the first fruit was ready for market I remember going into a store in Montreal to make sales of a few baskets, when the dealer looked at me with an incredulous glance. "Are they ripe?" he asked, and then remarked that he didn't believe Concords would ripen in Canada. But the fruit pleased him when sent in, and I may here add with regard to ripening that only in exceptional years of early frost are unripe grapes left on the vines.

Being requested to give our estimate of the best fruits of this Province by *Rural New Yorker*, of Jan. 14th, I classed grapes in this way: For white—Duchess Niagara, Lady; red—Delaware, Brighton, Vergennes; black—Herbert, Wilder, Concord. Many others may be equally good but have not stood the test with me of one of the fickle winters that come to us sometimes of freezing and thawing alternately throughout the season. I have sent for your notice a grape called Jefferson that always gives me a feeling of regret for the shortness of our autumn season so often fails to ripen it. There is a something about a grape that will keep until April that recommends it to the fruit grower, and perhaps under more favorable circumstances it may do better than with me—this being the first season it has taken on a red tinge in October. But I have seen them for sale in the New York market the latter part of April, ripe and sweet, still clinging to the bunches. I think there is no life work so fascinating as the culture of grapes, whether by the amateur or for commercial purposes. The work is comparatively light, and the harvest can be gathered by women and children, for we have never yet found ourselves short of help in this pleasant occupation. Given a stony hillside, where the rootlets have to cling to the limestone and gain warmth and strength, and they will thrive and bloom and fruit with ordinary care. It is true they will repay you for ashes and soil, or black muck from the forest, which is their favorite food; and your vine will flourish the better if the soap suds of the weekly washing is given to stimulate it. Planted in rows 10 feet by 8 and kept clean with a one-horse cultivator there is no easier grown and surer crop. To tie up and pinch back superfluous branches is work that women can do in horticulture, and if the wires are kept tight and stakes driven in at equal distances, the result of a well kept vineyard is beautiful as well as profitable, and when la belle Canadienne sings at her work, as with crimson kirtle she moves among the rustling vines, dropping bunches of a magnificent Herbert or Wilder into the baskets, one might feel that our Canadian scenery can well compare with sunny France at that season of the year. For situation a southern exposure with western shelter is best, and I have often noticed that the berries ripen first that get the morning sunshine. The Duchess though not large will, I am sure, be appreciated in our own market before long, having the keeping qualities we desire in the grape. A variety that will not require to be at once sent to the market, but can be kept over with any especial packing until the Christmas holidays, should recommend itself to the notice of growers, particularly as it ripens early, being eatable a week before the Concord, and even with any other grapes we have tried. While it is an amusement for the amateur to test new varieties it is well for the commercial grower to see the *bearing vine* before investing, as many sorts are a success in flavor and beauty but a failure in productiveness. But to the careful

vineyardist there is both pleasure and remuneration in the culture and harvesting of grapes in the Province of Quebec.

Mr. Jack exhibited a plate of the Jefferson grape, in connection with this paper. This grape ripened on the 6th November, and was pronounced a presentable bunch of good flavor.

Mr. LeMoine—When have you the fall frost?

Mr. Jack—Generally about the first week in October, but there was no frost then this last year.

The following paper by Mr. Wm. Mead Pattison, Clarenceville, was read.

THE NEW VARIETIES OF GRAPES AND THEIR VALUE FOR THIS PROVINCE.

As a general prelude I would say that the summer of 1887 was unusually favorable not only for early ripening, but for exemption from any traces of mildew. An enemy has, however, appeared in the "English sparrow," yearly becoming more destructive to the grape, not only in its embryo state but to the ripe fruit, forcing us to resort to bagging the clusters before they begin to ripen. The season was notable from favorable results in a few new varieties, while some spoken of with favor in former years have shown deficiencies. Numbers of new varieties are yearly introduced and applauded by those pecuniarily interested, but an insignificant number survive the trial, yet I believe the acme of improvement in out-door grapes is by no means attained, though the name of Rogers may for some time stand foremost for the number and value of his hybrids.

The grape of the future must be of high flavor and purer quality! Consumers are not critical enough. They are inclined to judge from appearance and cheapness, not quality, but fruit dealers in the large cities of the United States say, "people are beginning to discriminate, and yearly the better class of grapes are more in demand and the poorer at scarcely remunerative prices." When the criterion is quality, more propagators of new varieties will bend their efforts in that direction, and the poor trash on our markets, in the shape of cheap grapes will be displaced by good fruit; as yet this matter largely rests with the consumer. Few men have been more fully alive to the new era approaching than A. J. Caywood and Son, of New York State, who have introduced three new varieties recently. We will now only deal with their Ulster Prolific and Duchess. The former a red grape has fruited here for three years, in size nearly twice that of Delaware, compact, medium sized bunch, in quality much preferable to Concord, with which we draw the comparison only as regards fruitfulness and vigor, it ripens here some time before it, and the canes being short jointed the vine may prove to bear more fruit in the same space; if this conjecture is realized Ulster will be a very profitable market grape; as to keeping qualities it continues good through January. While in red varieties I will say that Jefferson, a very handsome and excellent grape, ripened with me last year, but later than Concord, from this fact it will be of little value for general cultivation here. Mary continues to set its fruit imperfectly, consequently is of no value for market. Vergennes still very prolific and valued for winter use. Wyoming Red bears loose imperfect bunches, forbidding in appearance and foxy in flavor, but very early. Owasso is of excellent quality but bears imperfect clusters, ripening late. Challenge is of no value, so how can we judge by a name?

Of black varieties, "Jewel," originated by Mr. Burr, of Kansas, U.S., by his system of natural fertilization by grouping the vines, claims special notice. Principal parent supposed to be Delaware, which it closely resembles in flavor, a trifle larger

berry; its excellent quality and extreme earliness promise a valuable variety. It was sent me some years since by Mr. Burr with several others; last season it was the first grape touched by the discriminating English sparrow before the Champion was fairly ripe, and the fruit of one vine was largely appropriated by them before discovery, only enough was secured to satisfy me of its merits; though not as large or showy as Champion it possesses equal hardiness of vine and foliage, its leathery leaf not being devitalized by extremes of temperature and dewy nights towards fall. Its fruit does not flatten in flavor but keeps in eatable condition for a long time with very little tendency to shrivel. If it continues to do as well on further trial, the Champion will have to give place to it as an early table and market grape. The present proprietors, Stakman & Blast, of Kansas, placed the vines on the market in the fall of 1887. Another of Mr. Burr's seedlings fruiting here for three years past and shown in my exhibit in Montreal as "General Pope" is now named by him "Standard." This grape was one of the 40 varieties tested here for keeping qualities, noted in Montreal Horticultural Society's report of 1885 and kept well through December; it has not yet been put out but I believe will prove a valuable variety; is similar in appearance to his Early Victor but much superior in quality and earliness. Mr. Burr admits that his later productions eclipse Early Victor. The seedling of Mr. Garber, noticed in report of 1885 as a competitor for place of Champion, was from some cause injured the following year, but another vine came into bearing in 1887 and fully confirmed my high opinion formed of it, as an extra early variety of great promise, perfect in bunch, as good as Creveling. If it continues to do well the vines will be offered to the public as soon as its reputation is established beyond doubt. Norwood, noticed in previous reports as a Concord seedling, has done splendidly, closely resembles in many respects Worden but more showy in bunch to which the berry holds firmly when fully ripe. It bears equal to Concord or Worden, ripens with latter and has kept in excellent order through February. If it continues to do as well will in some respects surpass Worden. Rommel's black Delaware seedlings promise well so far. Several new black varieties, some previously noticed, have not on further trial developed any favorable points. Space and limited experience with them precludes noticing.

Of new white grapes Duchess has come to the front and is very promising. It has appeared in the collections of Mr. Jack and my own at the exhibitions of the Montreal Horticultural Society, and is generally known and being largely planted with favorable results, so it may be soon classed as a standard, reflecting credit on the Caywoods who originated it.

Jessica, since it has fairly started, has done better. It is a small early sweet grape, infinitely preferable to Rickett's Golden Gem. I have taken a special interest in it as a Canadian production, but, impartially; it is the best early grape of its size.

Pocklington is variable, some seasons doing better than others, favorably considered for quality and appearance, but rather late for general cultivation in this Province.

El Dorado is a grape of high character for flavor and size of berry, but so far sets imperfectly. It suffered from the open and severe winter of 1885–86.

Peter Wylie (of Delaware and foreign parentage) has fruited here for several years with promising results; its berry is somewhat larger than Delaware, hanging in large numbers compactly to the bunch, which presents a fine appearance, with transparent delicacy. It requires early bagging to preserve it from soiling by insects.

Empire State and Niagara vines had a set-back in the winter of 1885-86, and have not fruited yet; both strong growers, requiring checking in season to properly ripen the wood. From what I have learned of Empire State it is highly esteemed for quality and earliness, but bears sparingly. Mr. Jack has for two years exhibited very fine specimens of Niagara which he must have had several years in cultivation.

Mason's Seedling, originated from Concord seed in Illinois, U.S. It has fruited for three years; berry size of Concord, bunch not as showy, flavor of fruit much preferable; if it improves in bearing will be a valuable acquisition. The white varieties—Prentiss, Hayes, Rickett's Golden Gem, Lady Washington, Naomi, Undine, Faith, Grein's Golden, Rommell's July, Superior and Golden Drop, have proved here uncertain and of little value. Last year I discarded and dug up a larger number than heretofore.

Classification of varieties popularly recognized as "Standards," given in order as to estimate of value here.

WHITE.—Lady, Belinda, Antoinette, Martha, Carlotta, Sweetwater, Purity, and Allen's Hybrid.

BLACK AND PURPLE.—Champion and Hartford (only for earliness and market), Worden, Barry, Herbert, Aminia, Essex, Moore's Early, Burnet, Eumelan, Concord, Belvidere, Rockland Favorite, Adirondack, Creveling, Whitdale, Senasque, Peabody, Waverley, Cottage, Canada, Florence and Bacchus.

RED.—Delaware, Lindley, Massasoit, Rogers No. 8, Gaertner, Rogers No. 14, Vergennes, Agawam, Salem, Rogers No. 5, Brighton, Walter, Northern Muscadine, Rogers No. 30, and Underhill's Seedling.

It will be observed that some highly esteemed for quality are low down on the list, and others are given a prominence from the point of earliness. Defects, viz., lateness, unfruitfulness, imperfect setting, tendency to mildew, enfeebled roots and weak foliage are taken into consideration.

Mr. Gibb—A paper on this subject is furnished by Mr. Pattison every year. He gets hold of every early new grape of promise in the U. S., plants it at Clarenceville, and a few years afterwards gives us a statement as to whether it is doing well or otherwise. He has now tried over 125 varieties. Mr. Jack has not tested as many varieties, but he grows a greater quantity and is a better authority on market values. Both he and Mr. Pattison are in favorable positions, Chateauguay Basin and Clarenceville. The Jefferson, the grape on exhibition, is a little late; still I can ripen it at Abbotsford. This year I fruited 43 varieties. The past season was unusually favorable. Late varieties like Lady Washington and Burnet were sweet and good, in fact all ripened except Brant and Othello.

Mr. Jack—The grapes mentioned in the paper are those we cultivate. Of white grapes we grow the Niagara the most. Of all the black grapes the Concord is the most profitable, and probably the finest black grape is the Eumelan. The few years after it was first planted it was a very shy bearer, but when four years old it became a profuse bearer every year. It ripens with the Hartford and is not loose on the bunch. There is a difference of about eight days in ripening between the Concord and the Eumelan in favor of the latter. Probably the finest white grape growing is that brought out by Mr. Smith, the Jessica. Of the white grapes for the market the Duchess and the Niagara are the most profitable. The Niagara ripens with the Concord, about the 10th Sept. The Duchess is a grape we have kept in good condition until the 1st Jan. by simply keeping it in a basket.

Mr. N. C. Fisk—I am surprised that Mr. Pattison omitted in his list of dark grapes the "Adirondack," which took the first prize as the heaviest bunch at the Abbotsford show. It stands next to the "Delaware" in deliciousness.

Mr. John M. Fisk, President Abbotsford Fruit Growers' Association, read the following paper on

SOME OF OUR HARDIEST CRAB APPLES.

The hardiest fruit known in the shape of an apple is undoubtedly a species of Siberian Crab *(Pyrus Baccata)* called the berry or cherry crab. Next to this is *Pyrus Prunifolia*, or the Siberian Crab, of which there are many varieties of different colors and quality, some of real value to a country like our own, where in many parts it is useless to plant anything but the "Ironclad." One of the best of these is the Transcendent, which I believe is a true Siberian, a first-class cooking and jelly apple and well known in this Province.

The Siberian has also been crossed by some of the best propagated varieties of the apple by our enterprising "American Cousins," and has produced a race of hybrids combining the hardiness of the Siberian with a marked improvement in the quality of the fruit. In several instances the astringency or puckery nature of the Siberian is almost entirely removed. This class of fruit will thrive where our Fameuse will die, and is worthy of being planted by every one whose soil is inclined to the heavy or clayey nature. A few of the best of these which have come under my observation and fruited at Abbotsford are :—

Whitney's No. 20. Raised by Mr. A. R. Whitney, of Franklin Grove, Illinois. Fruit larger than Transcendent, red, and of good quality.

Gibb. Raised by Geo. P. Peffer, of Pewaukee, Wisconsin. It is a cross between the Siberian and Fall Greening, and named after Mr. Chas. Gibb, of Abbotsford, Que. The fruit is larger than Transcendent, yellow, with dull red on sunny side, juicy and crisp, one of the best crabs I ever tasted. Season from 15th to 30th Sept.

Orange (of Minnesota). Fruit about the size of Transcendent, yellow, with russety inclination of the skin, nearly as good as the Gibb Crab. Season, 15th Sept. to 15th Oct.

Early Strawberry (of Minnesota). Fruit about the size of Transcendent, striped with red, quite free from astringency, and a good eatable little fruit. Season, August.

There are many others quite as hardy as the above, and good crabs, but I look upon these as choice varieties.

Where the soil is congenial to the growth of the apple the crab is comparatively of little account; a tree or two for family use is all that is needed, and these should be choice varieties.

Mr. Shepherd—I am glad to hear Mr. Fisk speak so highly of the "Gibb" Crab, called after Mr. Charles Gibb, who discovered it in the seedling nursery of Mr. Peffer, at Pewaukee. It is the finest preserving crab in the lot, more like a peach when preserved than anything else. It does not break in preserving.

Mr. Charles Gibb, Abbotsford, read the following paper on

HYBRID SIBERIAN APPLES.

The old names of "Crab Apple" and *pomme d'ornament* are no longer suitable for these fruits. The little berry-like crabs of Siberia, and their descendants, have been pollenized and re-pollenized on this continent, retaining the hardi-

ness and fruitfulness of their female parent, the Siberian, yet bearing fruit in quality more like our best apples. In some cases, too, we have retained the thinness of skin, and the brisk sprightliness of flavor of the Siberian, while largely increasing its size and entirely getting rid of its astringency,.

I have fruited 29 varieties, mostly from Minnesota and Wisconsin. The six best I will mention, in order of ripening.

Early Strawberry (of Minn.) I recommend this for home use, as it ripens with Red Astrachan, and is better in quality than any apple I have which ripens at that season. When for the first time sent to the St. Hyacinthe market, nobody wanted it. It was sampled out to every one, and now and then somebody would buy a peck. Next week everyone was asking for "la petite pomme rouge." Last year twelve barrels were sent to the St. Hyacinthe market and sold readily.

Whitney's No. 20 (of Ills.), is a beautiful red little apple, rather than a crab, and only shows its Siberian ancestry in the texture of its flesh as it becomes mellow. It is of first quality as a dessert apple, better than Early Strawberry.

Gibb. Raised by G. P. Peffer, of Pewaukee, Wis., from the Yellow Siberian Crab, fertilized by Fall Greening. The skin is a bright deep yellow, sometimes bronzed in the sun. The flesh too is yellow. My friends are all fond of it and beg of me to send them some for canning. It cans like a plum.

Brier's Sweet (of Wis.) From Transcendent, pollenized by Bailey's Sweet. It is sweet and has not the Siberian character of flesh. The tree suffers when young from aphides.

Orange (of Minn.) A pale orange, thin skinned fruit of very fair quality, free from any astringency.

Lake Winter. A seedling, by Mr. J. C. Plumb, of Milton, Wis. Of fine quality, and keeps till November or later.

These six varieties are all hardy trees; all young bearers, except Early Strawberry; all heavy bearers; all good growers except Gibb; all entirely free from astringency except Gibb, in which it is very slight; all of good quality as dessert fruits. This is not merely my own opinion. When my friends are strolling through my orchard tasting everything they like the looks of, even though there may be Fameuse and St. Lawrence and lots of other good apples, I find that they taste and re-taste and say they like these so-called crab apples.

However, all these kinds except, perhaps, Lake Winter, after becoming ripe deteriorate quickly. This is the nature of the Siberian character of flesh. They should be marketed quickly.

Of the other 23 varieties I have fruited my favorites would be Meeder's Winter, Minnesota and Beeches Sweet; and of the varieties I have seen but have not myself fruited, the Rose of Stanstead and Rottot. This latter is a St. Hilaire variety of deep color and good quality. For jelly we need acid crabs of fairly deep color, astringency does not matter. For canning slight astringency, as in the Montreal Waxen (known also as Queen's Choice), can not be tasted, though strongly astringent varieties like Hyslop and Transcendent, people usually soon get tired of.

In the Western States the Siberian and its crosses have proved so subject to blight that their cultivation has been given up. Blight is rarely troublesome even in the warmer end of our province.

I would, however, warn my fellow fruit-growers that a tiny crab can produce as good a codling worm as the largest apple, and the habit of growing a lot of poor crabs which are not worth picking, may be the means of spreading in a wholesale way the worst insect foe with which the apple grower has to contend.

In conclusion I would recommend for trial in the colder climates of our province, these fruits of semi-Siberian origin, and if you think I have over-rated their qualities, then, next September, send a deputation to Abbotsford and await their report.

Mr. Shepherd—I have some of these crabs, and the Gibb, the Minnesota, and the Whitney No. 20, are almost as good as apples. The "Minnesota" frequently is as large as a medium Fameuse; and I think those three crabs, which can be recommended for their hardiness as well as their excelient quality, ought to be cultivated at L'Islet and colder districts.

Mr. N. C. Fisk—I am surprised at Mr. Gibb dropping the "Transcendent" crab. He dropped the "Adirondack" grape, and now drops the "Transcendent" crab. It is a hardy crab and thrifty, and produces the most fruit of any.

Mr. Elder—Except the Rose of Stanstead.

Mr. Gibb—I have nothing to say against the Transcendent, except that they are too astringent. The Transcendent may be a good saleable fruit, but we cut it out by something better. The Rose of Stanstead is remarkably fine in quality, delicate and fine in texture and a good looking crab.

Mr. N. C. Fisk—I speak of the Transcendent crab from a commercial point of view. Let people grow it for commercial purposes There are different varieties more palatable, but if a man wants to fill up a bushel, let him grow the Transcendent.

Mr. Brodie—The Transcendent takes the market best in Montreal.

Mr. J. M. Fisk—The Transcendent has produced 80 cts. a bushel while the "Early Strawberry" averages but 60 cts. a bushel, although it is better flavored. You can grow two bushels of Transcendents to one of any other sort.

Mr. Jack—Crabs were selling in Montreal at 60 cts. a barrel this year, and it cost 80 cts. to have the barrel filled.

Mr. Shepherd—I sold several barrels of Transcendents at $3, but I sold most of my crabs in baskets. Of Siberian Cherry I sold quite a number of baskets, as they were in great demand for jelly. People have an idea that only a red crab makes red jelly.

Mr. Dupuis—We tried the Transcendent and it did very well. I sent trees to St. Pierre Miquelon, and the trees did as well there as here; and they did not suffer from the cold. It is a tree which it is easy to raise in orchards, and it bears double the "Duchess" in two years. I have sent the "Transcendent" to Gaspé in barrels, and it can stand a fortnight's transhipment.

Mr. Chapais—Did you try the "Hyslop"?

Mr. Dupuis—Yes, it does very well, but the Whitney crab looks the best of any.

Mr. Gibb—My experience in selling is not quite the same as Mr. Jack's. I have six trees of Early Strawberry crab which bore twelve barrels. They sold at 60 cts. per bushel, or $3.60 per tree, besides what I gave away. I have therefore put it third on my list of apples for profit.

Mr. Jack—What does it cost to pack a barrel?

Mr. Gibb—Twice what apples cost; but I cannot tell what we pay for picking apples.

Colonel Rhodes thought the crab was a very good tree to plant near the fence, so as to divert the attention of small boys from the other fruits.

Rev. Canon Fulton—In the county of Huntingdon we plant so that the boys or men may pluck the fruit along the road. I have quite a large orchard un-

fenced where the people can take what they please, provided they do not break the branches or bag the fruit. It is as much trouble to plant a crab as a good tree, and I believe in planting a good tree for the boys.

Mr. R. W. Shepherd, jun., read the following paper on

THE SPLITTING AND DYING OF THE BARK ON THE TRUNKS OF APPLE TREES.

I purpose giving only a few facts about this unfortunate disease which is affecting our orchards, in the hope that it may be the means of at least promoting some discussion on the subject at this meeting.

The seventh report of this Society contains a short article on this subject by Doctor Hoskins, of Newport, Vermont. Up to the time that the report was published I had not noticed the disease to any extent in my own orchard, but last spring the very apparent destruction of many of my best and most promising bearing trees brought the subject forcibly into notice. The disease is a most serious one and seems to take two forms.

In one form the bark is split open a short distance above the ground and partly raised from the wood which becomes as hard as bone; and sometimes the bark is raised entirely round the trunk.

In the other form, the dying of the bark of the trunk, is in patches, the bark in many cases dying and adhering to the wood. This to my mind, is the most serious form, as the disease often extends up into the branches, causing the bark to die over an area of three to four inches in width by one to two feet in length.

Careful examination of the trees affected by this bark dying on the trunk discloses two things:

First, that the trunk, as a rule, was not often affected nearer the ground than one foot or 18 inches, or rather, I might say, below the snow level.

Second, of about 60 trees affected only one appeared to be blighted on the northern or northwest side—and in this particular case the tree was actually blighted all round the trunk. Therefore we may say that 59-60 were affected on the southeast or southern side—hence I would infer that the injury is caused in some way by warm sunshine in winter or early spring; warm days perhaps in March or April causing the sap to rise rapidly on the sunny side of the tree, and a sudden check to the flow of sap in the cold nights would appear to be the primary cause of the disease. Doctor Hoskins does not altogether coincide with my views, he says:

"In my own orchard, where all the trees in grass are protected from mice and rabbits by tying strips of lath or pieces of barrel staves around the trunks, this bark disease is just as common on trees thus sheltered from the sun as on those in tilled land which are not protected." I may say that I also make a practice of protecting my trees from mice by tying tarred paper around the trees, but this paper rarely extends higher than the snow level because it is not necessary, and it is noticeable that the disease in almost all cases declares itself above the paper. Trees which last winter stood in deep snow appeared to be less affected than those on higher ground where the snow was not so deep, which would seem to prove that the tree receives its injury when the snow is on the ground and not in the autumn or spring. Therefore it seems that some kind of protection to the trunk of the tree is a necessity. The disease affects mostly all varieties to a greater or less degree. Fameuse was badly injured, perhaps more so than any other. Even varieties which are known as "Ironclad" (Wealthy for instance) did

not escape. With the single exception of Duchess, I doubt if any variety in my orchard may be said to have wholly escaped last winter.

Old trees with rough bark, were not less injured than young trees with smooth bark. Trees in tilled ground as well as in sod; those on high land and on low land. One fact, worth recording however, is that when blighted trees were removed the roots always appeared quite fresh and vigorous, proving that the mischief is done above ground and not below, and that the soil was not at fault.

The question is one of great importance to fruit growers, and calls for scientific investigation, as, if the ravages of the disease were to become annually or periodically as disastrous as last winter, the question of profitable orcharding in this Province would not long remain an undecided one.

Mr. Gibb—I cannot agree with Mr. Shepherd. I pulled up about fifty Fameuse trees last spring, and will probably have to pull up fifty more, they are so badly affected. The upper part of my orchard is sheltered from the west winds and open to the south, and it is there that the damage has been done; on the western slope there has been very little damage, only a few Canada Baldwins, but when they reach a certain size we expect them to die. I have had some injury done on the north and northeast as well as on the south sides of my trees. There are times when we have a kind of bark bursting that seems to be caused by a sudden snap of frost in the fall, when the sap in the tree has not sufficiently descended. The injury Mr. Shepherd speaks of was done in my orchard two years ago, and the trees have made two attempts to grow new bark since but without success. Two years ago we had a winter when the temperature was one degree colder than the average winter in the city of Quebec, and the spring of that year seems to have been the time when the injury was done.

Prof. Penhallow—In the case of this dying of the bark on the southern slope was there also a killing of the branches at the extremities?

Mr. Shepherd—None whatever.

Prof. Penhallow—How soon after the snow disappears does this dying appear?

Mr. Shepherd—I never noticed it until after the snow disappeared.

Prof. Penhallow—Did you notice it before the buds burst?

Mr. Shepherd—I think I did.

Prof. Penhallow—This question is one about which we know practically nothing, but the statement of facts Mr. Shepherd has made suggests one or two considerations from a physiological standpoint. The fact that the bark turns black is an evidence of course of the last stages of dissolution; it is an evidence of decomposition, and since decomposition requires time for accomplishment, the actual death must have taken place at some previous time. I should be inclined to refer that killing back to the immaturity of the wood the previous autumn, the cold of the winter killing the immature wood.

Mr. Shepherd—Yes, on the ends of the branches; but it does not affect the branches.

Mr. Penhallow—It might apply to the trunk also if the tree had not reached sufficient maturity. Mr. Gibb referred to a point on which a few remarks are appropriate, and that is that the sap goes up in the tree in the spring and goes down to the roots in the fall. The sap, on the contrary, flows up continually during the growing season, that is, during the early summer, but flows down in the bark at the same time. There is no distinct upward flow in the

spring as distinguished from the downward flow in the autumn, and we cannot explain the dying on that ground. The principal change we notice in the volume of sap as between the spring and autumn is this: in the spring, when you have the maximum rapidity of growth, you have the greatest volume of sap. During the months of May and June, you have in the trees somewhere about 50 to 55 per cent. of water, which gradually decreases, and in September and October you have from 5 to 8 per cent. less. That is the only variation in the amount of sap. The upward flow gradually ceases as the leaves mature, and ceases absolutely when the leaves fall. There is a cessation of all activity in the plant when it enters on its period of rest in the winter.

Mr. Brodie—I have a sandy soil through which you can dig down forty feet and I have never lost a tree by bark bursting there. In another orchard, fifty acres back, where there is a sandy loam, moist all the year round, I have lost fifteen or twenty trees by bark bursting, and amongst them were some Duchess. In the front orchard I picked my apples a week earlier than in the rear orchard.

Prof. Penhallow—A relatively dry condition of the soil will tend to hasten maturity, whereas a relatively moist condition would be apt to promote growth; but on the other hand, an excess of moisture would be as bad as an absolute deficiency.

Mr. Shepherd—The trouble with me is not so much the splitting as the dying of the bark in bits on the trunk of the trees. I have an orchard of Wealthy apples on sandy soil, about sixty trees, planted eight or ten years ago, and of those I lost twenty. I had great expectations of the Wealthy, but they became badly affected. They are growing on sandy soil, thoroughly drained, yet the trees are affected by the dying of the bark in bits on the sunny side of the trees. In June the bark was dying, and I cut off the dying parts and painted the whole with shellac to induce the green bark to heal, but the trees were so badly affected that I had to pull them out.

Mr. Brodie—Mr. James Drummond, of Petite Cote, told me he laid a board against the south side of the tree to protect it, and was never troubled with the bark bursting.

Mr. N. C. Fisk—There are two distinct forms; dying of the bark in spots and bursting of the bark; in my orchard I had both forms. It was open ground and rather rich. Two years ago, in the month of December, we had a spell of very warm weather, and then it became exceptionally cold, and as these trees had made but little growth the frost actually killed the leaves.

Mr. Chapais—The fact that in many places where old orchards which were never affected before have been affected these last years, would show it is not due to atmospheric influences, but to some fungus making the tree sick.

Prof. Penhallow—The subject of plant diseases is a very complicated one, and one to which the Germans have given great attention. The disease, as Mr. Fisk describes it, is to a large extent what we recognize as ordinary blight; and that is the product, according to some authorities, of a distinct organism. According to others, it is due to bacteria as a secondary cause, and to some constitutional disorder as a primary cause. There are, moreover, various conditions of soil and climate to be considered as influencing the operation of an active agent. We cannot tell at present just what this disease comes from or how to control it, because we have not yet determined the actual cause or how the secondary cause commences. We must also bear in mind that fruit trees exhaust the soil like other crops. There is no part of the plant which is so exhausting as the fruit itself,

and if we carry that fruit away, we carry so much away from the soil. The popular impression has been that it is not possible to exhaust the soil, because fruit trees show otherwise vigorous growth; but it is possible to exhaust the soil of one particular element of plant food and leave it strong in the others. As the result, you have a well pronounced disease. This has been proved in some cases where actual remedies were effected. Fruit trees may be regarded as among the plants which exhaust the soil most slowly but their effect is felt in the long run.

Mr. Fisk—I cannot agree with the President that the exhausted condition of the soil occasions the blight, because it is confined to two or three varieties of trees. At least it is in my orchard. In my orchard it is confined almost exclusively to the Canada Baldwin.

Mr. Shepherd—And the Fameuse?

Mr. Fisk—Not with us. The Canada Baldwin is an early tree; it puts out its leaves as early as the Transcendent, which is about the earliest.

Mr. Brodie—In the soil where I found these blighted trees, the land had given me two hundred barrels of Fameuse to the acre, and I do not think it was deficient in any way for want of manure. It was heavily top-dressed, and I used hardwood ashes and other manure.

Prof. Penhallow—That is where Mr. Brodie makes the common mistake. The soil may be exhausted with reference to one particular crop and yet be well suited to others. You may have all the elements necessary for one class of plants and there will be one or more elements wanted for another.

Mr. Jack—If I understood Mr. Shepherd aright, it was young trees, he said, were affected?

Mr. Shepherd—The trees worst affected were Fameuse planted in 1875.

Mr. Dupuis—Protection has a good deal to do with it. I planted a number of Baldwin trees, and they were all winter killed, the bark dying on the south and south-west sides. I planted then in rows twenty feet apart; the other varieties, the Duchess and Red Astrachan, did not suffer at all.

It being six o'clock the Convention adjourned.

The Convention reassembled at 8 p.m., Col. Rhodes in the Chair.

Mr. Lee—If it will not be a digression I would like to say a few words with reference to the able address of Prof. Penhallow. I remember well when the charter was obtained some ten years ago, I felt rather inclined to oppose the project, because I thought it selfish on the part of our western friends to monopolize a society of this kind under local auspices. I am glad to see however to-day a step in the right direction of holding the Conventions in different places, and would like to see a further advance made, by the Society occasionally giving an exhibition in the city of Quebec, say once every three years.

Mr. Barnard shared the opinions of the speaker, and thought that district associations should be formed to co-operate with this Society.

Mr. Auguste Dupuis, L'Islet, read the following paper on

THE MOST NORTHERN ORCHARDS IN THE PROVINCE OF QUEBEC.

I have been asked to give some notes on the orchards in the northern part of the Province. My information is very incomplete on this subject, also the notes which I have taken have not been prepared to impart information, but with a view of obtaining it from the practical horticulturists present, who, like myself, have a desire to acquire a knowledge of the culture of fruit trees.

The severity of the climate in the eastern part of the Province of Quebec is a drawback to the progress of fruit culture.

It is known that our ancestors who came from France brought trees of the apple, pear, plum and cherry, which have been successfully cultivated here for a long time.

From the traditions and the reports of the old cultivators we learn that there existed at the commencement of the present century, in the old parishes on the banks of the St. Lawrence, apple trees of enormous size, producing abundant crops—Calvilles, Reinettes, Rambos (Pommes de Cire et Pommes grise).

The names of these apples have been preserved among the cultivators and are given to-day to varieties which do not respond to the description of the authors and the pomologists of France or of Belgium. The original trees have perished and their names have been given to the trees produced from their seeds. After much research in the County of L'Islet we have found of the varieties brought from France, only the Summer Calville which is still found in many orchards. This variety is propagated by grafting at St. Jean and St. Roch. It is a delicious apple and the tree is vigorous. The descendants of the first colonists neglected their orchards, or the change in climate caused by the destruction of the forests destroyed the first plantations of apple trees. It became impossible to grow them in the open field. The trees were planted thickly together in the shelter of the houses and other buildings and seedling trees replaced those first imported.

The trees raised from seed produced both good and bad apples. The number of varieties of good quality is very limited. The Calville d'Hiver is the most esteemed. It is of a pale yellow, tender, juicy, and keeps until April. Another fine variety, a seedling of the Fameuse, originated with the late Alfred Mivelle, of St. Roch. It is of the form and size of the Fameuse, red striped, delicious quality and keeps until March. It is called L'Hermine. Another raised by Elzear Hurton, of Ste. Louise, produces a large russety apple resembling the Bourassa, of very fine quality and keeps until spring.

During the past 25 or 30 years a marked change is in progress, the cause of this is attributed to

1st. The introduction of new varieties recommended by the provincial agricultural journals which give instructions on the planting, culture, grafting and pruning of fruit trees.

2nd. The foundation of the Montreal Horticultural Society and Fruit Growers Association of the Province of Quebec. The exhibitions held by this Society and the annual reports published make us acquainted with the hardy varieties.

3rd. The reports of Mr. Charles Gibb, Abbotsford, his writings and his lectures on the fruits of the North of Russia, the importation of scions which he has made for gratuitous distribution, have done a great amount of good and have guided the planters in making the most judicious choice so that they may have trees suited to the soil and climate. It is impossible to allow this occasion to pass without rendering a testimonial of gratitude to Mr. Gibb for the good which he has done to Canada, and the Province of Quebec in particular, in imposing on himself the sacrifice of two journeys to Russia, spending his time and money with the patriotic object of aiding his countrymen in the march of progress.

4th. The Horticultural Society of Quebec and the county societies by their exhibitions and by their distribution of plants have given an impetus to the culture of good fruits.

The flowers and fruits exhibited at Quebec last autumn were admired by thousands of persons. There were apples of prodigious size, notably Alexanders and Twenty-ounces. I asked one of the exhibitors from Huntingdon if these varieties were profitable, he replied: "No, the trees do not bear enough, the most profitable kinds are the Fameuse and Duchess of Oldenberg."

In the Counties of Montmorency, Quebec, Montmagny, Kamouraska, and Temiscouata, the Duchess is considered the most productive and profitable.

Those who visited the fruit tent could not fail to remark the fine branch of Duchess apples exhibited by Dr. Bolduc, of Montmorency. I remarked during the exhibition at Quebec that the Canadians liked, and knew how to choose good fruits, also the best arrangement to catch the eye in the arrangement of the plates.

We must confine ourselves to planting the best kinds, and we have proof they will be appreciated by the citizens of Quebec.

The five varieties of apples which are best suited to the climate of the County of L'Islet are:

1. Fameuse.
2. Duchess of Oldenberg.
3. Red Astrachan.
4. Yellow Calville.
5. Tetofsky.

The most promising new varieties are the Wealthy and McIntosh Red.

Mr. Barnard read the following paper by the Rev. F. A. Paradis, St. Raphael

APPLE CULTURE IN BELLECHASSE COUNTY.

Orchards are now more numerous than formerly in the County of Bellechasse. It is only during the past fifteen years that the culture of fruit has increased, and the extension has been principally confined to the apple. Before this period an aged curè of St. Gervais (M. Pascal Pouliot) had planted in his garden many grafted fruits of good varieties, and at present we can see some trees of Fameuse and St. Lawrence which after having been planted 36 years still produce some fruit each year but are now commencing to decay.

We have cultivated here at St. Raphael about forty varieties of apples. After observation and the experience of many years we have arrived at the following conclusions:

With our rigorous climate we require trees of rapid growth and which ripen their wood early before the first cold of autumn comes. The varieties which appear to offer the best chances of success are those which we will indicate further on. We do not pretend to give here axioms of "incontestable truth," but simply offer the fruit of serious and conscientious observation during the past fifteen years.

Fameuse. This variety has been our favorite until the past few years, but the black spot which affects its delicious fruit makes us fear for its future. In 1886, a year remarkable for the cool temperature of the summer, the spotted fruit lowered the value of the crop considerably, while last year with a prolonged dry summer they were sound. The cause of this disease appears to be due to the state of the atmosphere, in this case we may hope a more favorable temperature will permit us to leave the Fameuse the place of honor which it still occupies.

Duchess of Oldenberg. Is popular here; we find it in all the new orchards.

Strawberry (of Montreal.) With many this is a rival to the Duchess. In fact this variety planted on our best land is, without contradiction, the greatest ornament of the orchards. The tree is very productive, fruit of a good size and of so brilliant a color that we prefer them to the Duchess; it is also less acid. Nevertheless the culture of this fine variety is not so general as that of the Duchess, as in dry gravelly soils it becomes less valuable.

Wealthy. Although described after many others this is not the least esteemed. It is an early winter variety which appears to us at present the most likely to supercede Fameuse if this should fail. The culture of the Wealthy is nearly as extended as that of the Fameuse, but we prefer the latter, which from its strong growth is in a state to produce a larger crop and the fruit of which is more esteemed.

Alexander, Peach. After the varieties which we have named these come next in order in the composition of our orchards.

Tetofsky, Yellow Transparent. These are planted in preference to all others by those who have but a limited space in which to cultivate fruit trees.

Canada Baldwin. We placed our confidence in this variety and have tried it in several orchards in our neighborhood. Planted in our coolest ground the trees grew vigorously and have given us good results in fruit of excellent quality which keeps until May or June, but during the past three or four years, when the trees were of a size to produce abundantly, they have not borne what they promised. After the dryness of last season we are convinced that the soil of our mountains does not suit this variety and that it requires a heavier or more clayey soil.

What we most require is a good late winter variety.

At present we are trying many varieties reported to have the necessary qualities to fill this want but are not yet able to judge of their merits.

During the past few years our attention has been principally directed to the cultivation of the new Russian varieties, which appear to be able to stand with impunity the rigor of our Canadian winters, the heat of our summers, and to be able to ripen their wood to withstand the frosts of November.

This is what we require, and if the apples of Russia continue to prosper in our climate as at present, we may say, and with assurance, that the culture of apples in the Province of Quebec will be a success, and this inappreciable advantage to our country, we say, is due in great part to the noble and generous efforts of Mr. Charles Gibb, of Abbotsford, who devotes his time and means to the advancement of our horticultural interests. The work of Mr. Gibb is of incalculable benefit to the Province, and to the district of Quebec in particular, which holds the older varieties of the Russian apples as being among those which can be profitably grown here. This is the solution of a problem of the greatest importance to our regions least favorable to a certain and profitable culture of fruit.

We would include in our thanks the members of the Montreal Horticultural Society who have chosen Quebec as the seat of their deliberations this year. This delicate attention is a convincing proof that your Association works for the general good and that it nobly pursues the realization of the words " Miscuit utile dulci."

The Secretary read the following paper by Mr. D. Westover, Frelighsburg, Secretary of Missisquoi Horticultural Society. :—

NOTES ON APPLES IN MISSISQUOI COUNTY.

The following notes are given as the result of careful observation and practical experience with the varieties named, under ordinary orchard cultivation,

extending over a period of more than twenty years. Our object is to furnish a guide to growers in our immediate vicinity and possibly to others. Soil and exposure must be considered in the cultivation of the apple, and hence the need of judicious selections in different parts of the Province.

Alexander.—A large showy apple. Tree hardy, good bearer, one of the best for profit. September and October.

Ben Davis.—One of our best winter keepers; of good size, always smooth and clean, and of good color. An excellent apple to ship, is being generally planted. I have four trees eight years planted which have given me three heavy crops and the trees look thrifty and healthy. Would plant largely for profit.

Benoni.—An early and fine flavored apple; dark red; when ripe of a mild sweet, or sub-acid flavor. Known by many as "Sops of Wine" A very nice dessert fruit for family use.

Blue Pearmain.—Would not recommend this for general planting; seems to be hardy, fruit keeps well, but is a long time coming into bearing, as well as being a shy bearer. Apples large with a purplish bloom over them.

Bourassa.—Planted six trees of this variety eighteen years ago. Two lived to bear enough to know they were true to name, but all are dead now.

Blunt Seedling.—A new sort. Tree is inclined to be scrubby and tender. Have had it for eight years but have not had a crop yet. Apple large, good flavor, but a good many ill-shapen specimens.

Canada Baldwin.—Has not been much grown in this vicinity; does not seem hardy, although an occasional tree is found growing well and bearing heavily. Very susceptible to sun scald. Fruit number one for winter. Keeps fresh and juicy until spring.

Duchess of Oldenberg.—One of our hardiest and most profitable trees; bears young and nearly every year.

Fameuse.—Generally referred to as a standard of hardiness and general good qualities. Of late years much of the fruit has been damaged with spotting so as to be almost unmarketable. Neither location nor cultivation seems to have any remedial effect. One hundred trees of my own I have commenced to top graft with other varieties.

Foundling, or Late Strawberry.—A good thrifty tree, heavy bearer. Fruit large, but somewhat irregular. A fair market apple. Season September.

Golden Ball.—I have but one tree, eight years planted. Has borne but lightly yet. Fruit round, yellow, and of good flavor.

Golden Russet.—One of our best winter apples. Tree is as hardy as Fameuse with me. Bears heavily every alternate year; fruit should be kept in covered boxes or barrels in a cool cellar. Would plant largely for profit.

Haas.—I have but one top-grafted tree, quite hardy. Fruit well colored, good flavor and keeps till January.

Mountain Beet.—Two trees of this variety, hardy. Fruit medium; highly colored, flesh stained throughout with red, pleasant when fully ripe.

Northern Spy.—A very excellent winter fruit, but tree fails before it arrives at a bearing age.

Peach (of Montreal).—A hardy, productive tree, bears heavily every alternate year. Fruit too delicate to ship well, and must be carefully picked.

Pewaukee.—Have only grown this in the nursery where it seems a hardy and strong grower.

Pomme de Fer.—This is often mistaken for Canada Baldwin. The fruit is much the same in color and form. It is a really good keeper and of good quality. Tree fairly hardy and fairly good bearer.

Pomme Grise.—A favorite dessert apple. Tree is hardy, shy bearer, and fruit too small for profit.

Pound Sweet.—Does well as a top-graft, but too tender when on its own stock.

Red Astrachan.—Fifty trees eighteen years planted of this variety, have given me the highest average profit. It is the earliest in market, therefore commands a good price and ready sale.

Rhode Island Greening.—Have tried this in orchard and nursery. Invariably kills back or dies outright before bearing.

Scott's Winter.—Has been extensively planted and used for top-grafting within a few years. It is a strong grower and apparently hardy.

St. Lawrence.—Although this tree is quite hardy and bears fairly well, it has proved unprofitable, its fruit being unmarketable from cracking and spotting so badly. I must qualify this however by adding that in other sites and on stronger soil it is much better.

Strawberry (Chenango).—As a top-graft it succeeds well. Three trees in a rather favorable location, eight years planted, are sound and healthy. A rich and high flavored apple, too delicate except for home market.

Tetofsky.—An ironclad of compact and upright growth. Ripens with Red Astrachan, not so large and milder in flavor. A good variety where economy of space is necessary.

Talman Sweet.—Is to be found in every orchard in this vicinity and invariably called hardy. It is no unusual thing to find trees twenty or thirty years old in good preservation and bearing fair crops nearly every year. Fruit of fair size, light green when gathered, but turns yellow in the winter. Keeps till May. An excellent baking apple; worthy of cultivation.

Walbridge—Two trees, eight years planted. Tall, irregular headed trees. Fruit small—altogether disappointing.

Wealthy.—One of our most promising varieties. An early prolific bearer of good sized and attractive red colored fruit. Drops badly before ripening; will keep same as Fameuse.

White Astrachan.—A hardy tree; fruit water cores badly, often mistaken for Peach but not as good.

White Winter Calville (of Abbotsford.)—Several trees of this; are compact, upright growers; have not borne much. Fruit small and inclined to spot. Drops some; will keep till February.

Mr. N. C. Fisk, Abbotsford, read the following paper on

AN APPLE ORCHARD AS A COMMERCIAL ENTERPRISE.

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

To the farmer who has land suitable for an orchard, and who is desirous of entering into fruit culture, the question naturally arises, which is most profitable, to grow apples or cereals? He may read the different horticultural reports of the Provinces and States, and in almost all of them he may find reports on fruit cul-

ture by different men who assert that orcharding is more profitable than growing grain. But as to what per cent. it is more profitable he is left to draw his own conclusions.

You ask the farmer what is the net profit on an acre of oats or barley, he answers, "That depends a great deal on the season." It varies all the way from $5 to $20, and sometimes there is no profit. And so it is in all agricultural and horticultural pursuits. It is impossible to say what percentage an orchard will yield, or what net profit an acre of oats or barley will yield. The majority of farmers when they have realized $12 to $15 net profit on an acre of oats or barley feel quite content.

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

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

I have maintained for the last 30 years that the Province of Quebec can, and should, grow its own apples, and I have seen no reason to change my mind. It is true there has been no united effort until the last few years. But recently the Montreal Horticultural Society has published some valuable reports, and one can now make a selection of better varieties of fruit trees, and plant an orchard which will be far more successful as an investment than those so planted in former years.

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

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

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

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

Anyone wishing for a description of this orchard and its produce in previous years, can refer to the Montreal Horticultural Society's Report for 1881, page 142.

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

With the experience of the last 25 years of the different orchardists, and their reports as to the most hardy and profitable varieties for this Province, as published in the Montreal Horticultural Society's Reports, there is no doubt that one can enter into apple culture, as a commercial enterprise, with far better results than the above figures show.

Mr. Barnard said the great difficulty to overcome was the cold storage question. We should be able to ship to the English market at all seasons.

Prof. Penhallow—That is a very important point. The result of the shipments to the London Exhibition show it is quite possible to send our earlier fruits over in perfect condition. The question is simply whether the steamers will give cold storage or not. The Association should so represent the matter to the companies that they will feel obliged to provide the same storage for fruits as they do for other perishable forms of merchandise. I am very glad Mr. Fisk has presented the matter he has given us in his paper. I only wish he had gone a little more into his figures, because they illustrate very well what I have been always aiming at. I have always felt that agriculturists should adopt some system of accounts. Every farmer should know whether his business is a paying one or not. No merchant, however humble, thinks of running his business without a system of accounts, and a farmer, whose business is as important and far more complicated, should feel the necessity of at least having a simple system of accounts, so that at the end of the year he would know exactly how he stood.

Mr. Dupuis—What variety is the most profitable?

M. Fisk—The most profitable variety in my orchard is the Fameuse. For a fall apple the Fameuse is the most profitable; for an early apple, the Duchess.

Mr. Dupuis—It gives you about 50c. a bushel; that is very low.

Mr. Fisk—You must understand this is the whole of the sales, and not the sales of a few bushels. I have sold at from 25c. to $3 a barrel.

Mr. Dupuis—On one acre of Fameuse last year, on which the trees were only ten years old, the harvest was worth $57. In that acre I had about two-thirds Fameuse, the rest being Crabs which we sold very cheap.

Mr. Barnard—Ten years from the seedling?

Mr. Dupuis—Ten years from the nursery and thirteen from the seed. Before last year, we were of opinion that the Duchess of Oldenberg was more profitable than the Fameuse, and the trees four years planted are, but the Fameuse pay better when they get older.

Mr. Fisk—The Duchess of Oldenberg is a new apple with us, and we have not got any trees as old as the Fameuse, so that we cannot make a comparison. The Oldenberg begins to bear early, and I am inclined to think it will never reach the age of the Fameuse. The Fameuse, for a fall apple, is ahead of anything we have got. It takes about eight years from planting before fruiting.

Mr. Barnard—While the Oldenberg gives fruit the second year.

Mr. Dupuis—Yes, but nothing of consequence before it is four years planted.

The Chairman—The actual President, Professor Penhallow—for I am President only *pro forma* of this meeting—has to catch the train at ten o'clock, and before he leaves he would like to address a few words to this meeting.

Prof. Penhallow—I will ask your indulgence for a moment, as I am obliged to return to Montreal to-night and, as President of this Association, I cannot leave without saying a few words with reference to this meeting. You are aware, of course, that the holding of a meeting here this winter was an experiment with us; but I am quite safe in saying on behalf of my colleagues, that the result of the meeting has justified the experiment, and I feel quite satisfied, from the success which has attended these proceedings, that another convention will prove equally successful. If any thing were needed to make us appreciate the importance of such work, it would be the fact that such a gentleman as our esteemed colleague, Mr. Dupuis, has made the strenuous effort he did to come here, having travelled five miles on snowshoes to reach the railway station.

With regard to the remarks of Mr. Lee and Mr. Barnard concerning the Provincial work of the Association, I may say they are quite in harmony with the views entertained by the Board of Direction; and I feel safe in assuring them that if they will only co-operate at this end with us, through their local associations, we will be able to inaugurate a new era in the horticultural interests of this Province.

The Chairman—Prof. Penhallow, I am sure, has expressed the feeling of this whole meeting, and his departure from us will certainly be a loss which no one present can replace. We have found on several occasions to-night the advantage of a superior education on the subject we all have at heart. We have a good deal of practical knowledge and experience, but there are points on which a man of superior education, such as a professor of botany in McGill College, can throw new light and lead us out of difficulty. The Professor has on several occasions to-day shown the abundance of knowledge he possesses as a scientific man. I beg to return him the thanks of the meeting, and must express my regret that he is obliged to shorten his stay.

Mr. Shepherd—I would like to make a few remarks about the Duchess and the Fameuse. From my experience, I place the Duchess first on the list for profit. Mr. Fisk places the Fameuse first. Of course a great deal depends on the proximity of your orchard to the market. Mine is situated at Como, 30 miles from Montreal, so that in three hours I can place my fruit on the market, and I have derived a greater profit from the Duchess than from any other variety. I market all the Duchess in baskets of half a bushel each, made at the Indian village of Oka according to a pattern that I gave. They are neatly done up and labelled, and sent to first-class grocers in Montreal. They realized last year 75c. a basket, and the packing and freight cost about 15c., thus leaving a profit of 60c. There are seven baskets in a barrel, making $4.20 per barrel. The first quality of Fameuse I sold at $3.50 a barrel which, deducting the price of the barrel, only left $3.25 net. You get a larger crop of Fameuse, but you get a larger quantity of seconds. My orchards have produced about the same quantity of seconds as firsts; with the Duchess there is a very small percentage of seconds, and nearly all, if the trees are in any kind of condition, can be marketed in baskets. Fameuse comes next and then the Wealthy.

Mr. Fisk—I planted my trees 15 feet apart, and I found the second year I had some very nice fruit. Had I waited for the Fameuse I would have waited for eight or ten years, and perhaps got none at all.

It is important when planting trees in a new orchard to fill up the spaces at once. Let us keep down weeds and allow nothing to grow but the fruit and we need not stir the orchard very often. Plant close, and when the trees begin to be too close, remove all those you can with profit to the others. The Duchess after ten or fifteen years will have paid the full plantation of the orchard.

Mr. Brodie—My experience with the Duchess agrees with that of Mr. Shepherd. I sold them in baskets and they netted me $4 per barrel. My first Fameuse I sent to Quebec and they netted about $3.20, and my seconds $1.80 to $2, and the culls for which I could not get any price in Montreal, brought me about $1 per barrel. One of my neighbors made a few shipments to the old country. The first sales netted about $3 a barrel and the next $2.50, so it was not as encouraging to ship to the old country as to Quebec. It is very unsatisfactory to send apples to Liverpool to be sold on commission.

A shipper in Montreal bought 30 barrels from me and sent them to the old country. He made a good profit. He then bought 50 barrels more and

procured elsewhere the balance to make up 200 barrels, which he sent home under his own brand, for he would not allow me to use mine, and he lost $1 a barrel on the whole shipment.

Mr. Jack—I think the most profitable apple is the Duchess.

Rev. Canon Fulton—The figures just given would be very misleading to any one who has to pay, as I have, cartage to the railway station and freight from Huntingdon to Montreal. I have had experience in shipping to England for the last twenty years. The first shipments were well, but of late years they have not been so satisfactory, and I think it is very important we should have an agent in England and a depot for the storage and sale of our fruit. Let each fruit grower brand whatever he sends, and let him be responsible if the goods are not up to the average. The agent ought to be able to guarantee that the goods are true to the name and according to the brand. Unless we co-operate and establish a depot as the Americans have done, we will never succeed in making our shipments profitable. I know a neighbor of mine who will tell a different tale from those we have heard to-night about the returns of shipping Fameuse to Montreal. They have really had to cease shipping there. So far as I am concerned, I have never lost anything by shipping either to London or Glasgow. When I was over about nine years ago, I noticed that from Paris the apples were sent in boxes, and I think I rather improved upon the boxes. They hold a bushel and a half and are made tight, and all you have to do is to nail them up. They are handy to put in waggons and must be handled instead of being rolled, so that I never lose anything by damage. There is not the distinction made on the other side that ought to be made with regard to really first-class apples. Other shippers will send ordinary apples in barrels, and realize, no doubt, more than I would, after the trouble I have taken. I am satisfied there ought to be co-operation amongst the large growers to place an accredited agent on the other side who will see to the proper sales of our apples and not put them under the hammer.

Mr. Barnard suggested that representations be made to the Government in order that this subject might be taken up as a Government matter. The Government agents on the other side might be utilized in this connection.

Mr. Dupuis—Have you tried to sell the Fameuse in baskets?

Mr. Shepherd—Not to any extent. I sell the Fameuse in the fall at first in baskets. Most of my orchard is in grass, heavy clover, and when the apples fall they do not get much injury. They are sold in baskets, and sell at the same rates as the Duchess. The Fameuse are too plentiful to sell in baskets during the season. The Duchess come at the beginning of September when apples are in demand, and as yet we have not been able to flood the market.

Mr. Fisk—I believe that the Duchess for the season of the year is more profitable than any apple we have. Mr. Shepherd, by his mode of shipping in baskets, has an advantage over those who are further away from the market. I shipped a number of barrels of apples to the Montreal market this year, and I did not realize $2 a barrel. When I was speaking of the Duchess and the Fameuse, I was speaking of them from a commercial point of view. The season of the Duchess is only about a fortnight or three weeks, whereas the season of the Fameuse is about three months, so you see that a man who plants an orchard, not only wants the Duchess, but the Fameuse and the Wealthy as well. Where we ought all to put in our best oar is to search for a late keeping apple, something that will produce heavily and give good fruit. When I first introduced the Canada Baldwin, I thought I had got what the country wanted. In many places it is doing well, but there is a blight peculiar to that tree, and on early soil it is not a success.

Mr. Brodie--Mr. Fisk mentioned a while ago that he was afraid the Duchess would not live as long as the Fameuse. I know of some trees 25 to 30 years old at the Cote des Neiges. They went under the name of Early Joe, but they are identical with our Duchess.

Talking about cold storage, I made inquiry from some of our shipping companies, and they said if I would guarantee the freight they would furnish the cold storage.

Rev. Canon Fulton—That is a question for co-operation. From the time our very first apples come in, they could be sent to an agent in cold storage. We can not only supply our own home consumption, but can grow any quantity for shipment. I have 25 acres myself of Fameuse, some 25 years old.

Mr. Shepherd—As to the relative profits from the Duchess and the Fameuse, that depends a great deal on where the orchard is. As far as I am concerned, I am not going to plant any more Fameuse. I have seven hundred Fameuse trees, and I will not plant any others. I find some are dying, and the others are not doing as well per acre as the Duchess. Had I planted seven hundred Duchess, they would have brought me more than the Fameuse have realized.

Mr. Jack—You ought to take in consideration likewise the age of the trees. The Fameuse are more profitable at 18 years than the Duchess.

Mr. Brodie—I question that, per acre. You can plant the Duchess 16 feet apart, so that, per acre, I doubt if the Fameuse are more profitable.

Rev. Canon Fulton—Do you not think that if you were to plant Duchess more extensively than you do, you would reduce the price very materially. As it is, the market is glutted with them.

Mr. Shepherd—The Montreal market has never been glutted with first-class Duchess. The Duchess that come from Ontario are not in a condition to be put on the market to compete with ours. When I send a basket of Duchess down by the steamer, the apples are quite fresh and a fine sight, far superior to those from the West. They have to pack them in the West before they are ripe, or they cannot be shipped in barrels, so that their apples never have the color ours have. We can compete with the western apples in the summer, but not in the fall or winter. Near cities it pays better to grow early fruits than fall or winter fruits.

Mr. Charles Gibb, Abbotsford, read the following paper on

RUSSIAN APPLES FOR THE COLDER PARTS OF THE PROVINCE OF QUEBEC.

Did it ever occur to you how few "tree-fruits," that is, fruit bearing trees, we have, that are *natives* of this continent? We have no apple, except the sweet scented crab of the South and West. No pear. In plums we are better off; we have the wild plums of Canada and the North-Western States, the Chickasaws of the West and South, and the Beech Plum of the coast. Of cherries, we have the Choke Cherry, Bird Cherry and the Wild Black. We have mulberries, but no approach in quality to those of the old world. Persimmons, but not equal to the Kaki of Japan. We have a bitter orange, but no fig, pomegranate, peach, nectarine, quince or apricot. While the Chinese and Japanese and the Romans and other early peoples in the old world were slowly developing these fruits from their wild forms, we had an Indian population who lived by fishing and hunting. Had there been an aboriginal population like the Chinese or Japanese, horticultural in their tastes, then our wild grapes would have been fully equal to any in the world; our crab apple at least better than it is; our haws the size of small apples; our choke cherry free from astringency; butternuts with shells as thin as Spanish walnuts; wild black cherries equal to the Black Tartarian, and wild plums fully equal to the Washington and the Green Gage.

Where did our fruits come from? Where originally from, I will not enter into. Let us go back to the time when the peasants of Normandy and Brittany were gathering the seeds and perhaps the scions of the fruits they loved most in their native land before embarking on their long and perilous journey to New France. Later on the Englishman introduced his favorite fruits, the Scotchman his, and we soon had in New England and in Canada the fruits of the *mild moist* portion of Western Europe. The uncertainty of these fruits of Western Europe in the colder parts of this continent, both in the Eastern States and on the Western prairies directed attention to the colder districts of Eastern Europe. The U. S. Department of Agriculture at Washington imported from Dr. Regel, of St. Petersburg, in 1870, 252 varieties of apples. These were planted and fruited upon the department grounds, but the climate of Washington was such that the latest of them ripened and dropped from the tree by August 4th. They were, however, widely distributed for six years, and in one year 100,000 packets were sent out. Many varieties proved to be Duchess. There were evidently many mistakes, attributed in the west to the carelessness of the Department, which, however, was not so. The collection at that time rather fell into disfavor. I will allude to this again.

Prof. Budd, of the Iowa State Agricultural College, in 1879 imported from Dr. Regel, St. Petersburg, 73 varieties, and from Dr. Shroeder, of the Agricultural Academy of Petrovskoe Rasumovskoe, near Moscow, about 154 varieties. Exact information about these apples we could not get. The only thing to be done was to go to Russia and get it. Some one had to go. Mr. Budd and I went. This was in 1882. We found the Russian fruits not looked up by the Russians as we had expected. We found St. Petersburg and Moscow not specially favorable to orcharding, but 430 miles to the east of Moscow, in latitude 54°, 600 miles nearer the North Pole than Quebec, we found apple growing the great commercial industry of the people. We wandered from village to village along the Volga in a little sail boat, then in a tarantass, a basket on wheels without springs, with hay on the bottom, driven by three horses abreast; sometimes living on black bread and sleeping on a bundle of hay. Here the winter temperature for the three months is 9° above zero, which is the mean for the winter quarter for a period of no less than 59 years.

Mean temperature for the Winter and Summer quarters for several stations in Quebec, with the average highest and lowest temperatures:

Stations.	Mean Temperatures.				Extremes. (Average.)	
	Winter.		Summer.		Highest in Summer.	Lowest in Winter.
	Temp.	A	Temp.	A'		
Quebec	15·9	.....	62·5	.....	89·7	—22·9
Chicoutimi	11·9	—0·6	60·8	—0·3	96·3	—32·2
Cape Rosier	14·5	+4·7	55·5	—1·9	74·0	—15·0
Anticosti, S.W.P.	17	—0·6	56·9	—0·3	71·0	—14·6
Father Point	15·5	—1·0	54·9	—0·4	80·3	—23·8
Cranbourne, Dorchester Co.	15·6	—0·6	59.2	—0·3	90·0	—27·8
Dalhousie, N.B.	13·3	—0·6	55.6	—0·3	92·2	—20·5

The figures A and A' represent a correction, which should be applied to the given mean for the station to reduce it to the mean of a larger number of years, and is derived from the observations at Quebec.

That is nearly 7° colder than the City of Quebec. The temperature tables which were published in my report in 1882, were very kindly prepared for me by Robt. H. Scott, Secretary of the Meteorological Office in London. To Prof. Carpmael, of Toronto, I am indebted for temperatures as herewith given of Chicoutimi, Cape Rosier, Anticosti, Father Point, Cranbourne and Dalhousie, N. B. Of these the lowest reading for the winter quarter is at Chicoutimi, and yet it is milder than Kazan in Russia by three degrees.

Let me comfort you then with the fact, that in no part of the Province of Quebec where we are likely to grow apples is it colder than in the extensive orchard regions of Kazan. You have great diversity of site in this Province. Choose your hill-sides, not your bottom lands, unless near large bodies of water, thus avoiding late spring and early autumn frosts; and if possible plant where you have protection from prevailing winds. Too warm a southern exposure is often more risky than open exposure to the north. As you go north your difficulties will increase, yet you have no such difficulties to cope with as they have on the Western prairies. To test the hardiness of the Russian apple trees, at their worst, in bleak open prairie exposure, at the Minnesota State Experimental Station at St. Anthony, near Minneapolis, 65 varieties were planted. The soil was rich, and under good culture they made a growth in 1886 up to 20 and even 26 inches, which, however, ripened well before winter. The winter of 1886-87 was unusually severe. Not one variety started from its terminal buds. Sixteen varieties lost one inch or less of growth. Duchess killed back sometimes to the old wood, but usually started buds from the base of the new wood. The verdict was 16 varieties hardier than Duchess! Minnesota experience is most valuable to us.

The value of these experiments, carried on with scientific accuracy, as in these experimental stations, is very great. Allow me to digress a little to glance at some earlier attempts at experimental horticulture. Over two centuries ago, when the Portuguese, Dutch and Spaniards were founding colonies in the East Indies, after order had been established, one of the first things to be done was to plant a garden for the testing of food plants. These experiments were enlarged as the colony increased, and were the forerunners of the beautiful botanic gardens of the present day. A little over 100 years ago when the British, French and Spaniards were fighting like tigers for the possession of the West Indian Islands, a French vessel laden with plants from the Isle of Bourbon, near Mauritius, to found a botanic garden in the West Indies, was taken by the British and towed into Port Royal, Jamaica. This was the beginning of the experimental work in that island. The Mango, an East Indian fruit, is now the commonest forest tree in Jamaica; the Banana, also an East Indian plant, a chief food plant of the West Indies. The East and West Indies have interchanged for over 100 years. The enormous export fruit trade of the tropics is the result of this. That we have oranges and lemons, bananas and pineapples in our markets, at reasonable rates, is due to this. All the British colonies in the tropics and sub-tropics have (call them what you will) their testing grounds, botanic gardens, experimental stations. We have now at Ottawa a central experimental farm, begun over a year ago, and branch stations will be established, one for N. S. and N. B. at Nepan, 5½ miles E. of Amherst, N.S., one each for Man., N.W.T. and B.C. Prof. Saunders is just the man for such important work. But that Canada should have remained so long without any experimental station, is a fact without parallel in British colonial history.

Fortunately for us we had good neighbors. The U.S. Department of Agriculture have long been experimenting. (See their reports, beginning with their

first report in 1847, in the library of the Montreal Horticultural Society.) Of late years State Experimental stations, ofter under the State Agricultural Colleges, each taking a line of its own, are doing a grand, good work now, since the passage of the "Hatch Bill" by Congress, allowing $15,000 per annum to each State Agricultural College for such special work, we may expect still more important results. I said that the East and West Indies had interchanged their products for over 100 years, but it was not till 1870 that a collection of the apples was sent from our like climate in the old world, viz., Russia, and then imported, not by us, but by the U.S. Government. This importation by the Department at Washington was received by Dr. Regel from many different places in Russia. Between 1861 and 1870 Dr. Regel had been receiving scions and samples of fruit from 39 sources, though sometimes two or more in one place, and although not so thought at the time, this collection contained the greater part of the best apples of the colder parts of Russia. Prof. Budd, at the Iowa State Agricultural College, has been importing ever since, gathering in quantity, propagating and scattering in all directions. Thousands of growers are testing these Russian fruits, and it is a comfort to feel that one is not working alone but that all are co-workers in a common cause. I have over 100 varieties of Russian and German apples on trial; 75 varieties I have already planted into orchard, each tree labelled and in my orchard book, a note as to place from which each tree was received, so that whatever should happen my link in the chain should still hold good.

The introduction of these Russian apples has been beset with drawbacks, nomenclature is uncertain in Russia, and varieties have been propagated by Russian names spelled in all sorts of queer ways, or by translation either unmusical or wholly wrong.

The last report of the American Pomological Society contains lists of these fruits imported from Russia and Germany, written by me. This work was undertaken at the request of that Society and appears as a *suggestion* to our authoritative body. A similar report, but in alphabetical order, has been made out by Hon. T. T. Lyon, President of the Michigan State Horticultural Society, for the report of the Division of Pomology of the U.S. Department of Agriculture. Thus my suggestions have become fixed and unchangeable; that is, owing to their appearance in the Am. Pom. Soc.'s report and at the same time by Mr. Lyon in U.S. report, it will be found unadvisable to make any changes except for some glaring mistake. Thus another drawback is being removed.

As to varieties, I shall refer to my remarks in the 12th report of this Society on p. 14. I am, I find, specially asked for a short list best adapted to our colder climates. I give this with a good deal of hesitation, from unripe experience, but give it in part from their behavior in my own orchard, and in part from trees I have seen in fruiting in Wisconsin and elsewhere in the U.S. In order of ripening, (i) either Yellow Transparent, or Thaler (Charlottenthaler); (ii) Raspberry (Malinovka); (iii) Titovka; (iv) Golden White; (v) Longfield; (vi) Arabka (of Ellwanger and Barry.)

The Chairman congratulated the Society on having brought out, as was evident by the paper just read, a specialist on the subject of the growth of fruit. He dwelt on the benefit to be derived by the country from the labors of its young men who devoted their energies to striking out a path for themselves and obtaining knowledge on some particular branch of great utility to the whole community. Mr. Gibb's trip to Russia was one which could not fail to be fraught with great advantage to Canada. In scientific circles in Russia, considerable surprise was

felt that a remote country like ours should have sent a traveller through the northern part of Russia in order to see if any thing might be obtained there which would be of advantage to Canada. Mr. Gibb has fulfilled his mission, at considerable risk and inconvenience, very successfully. He is now a specialist on this subject, and it is much to the credit of this Society and to the advantage of the whole Dominion that we should possess in our ranks a gentleman of his calibre and attainments. He would therefore move a vote of thanks to Mr. Gibb for the work he has done.

Hon. Mr. Joly said: There are few men in Canada better entitled to the gratitude of the people. When I heard the simple language in which he told us what he had done, when I just heard him say: "Somebody had to go to Russia and I went," I thought that showed the whole character of the man. We could judge of his modesty, devotion and courage just by those simple words. This is one of those occasions when perhaps, in a small way, we are trying to express to Mr. Gibb the gratitude we feel, but I know that gratitude will be expressed in a more practical manner before long. In the meantime Mr. Gibb enjoys the consciousness of having done his duty faithfully to the country and at the same time set an example which will encourage others to walk in the path he has opened out for them.

Mr. Auguste Dupuis, L'Islet, put the following questions, and on motion of Mr. Barnard it was decided to adjourn until the following morning for the discussion of these questions.

QUESTIONS.

1. What is the best time for the planting of trees?
2. At what depth shall we plant in sandy soil, and in clay soil?
3. What is the most economical method of draining orchards?
4. What is the best way to preserve orchards against the wind and cold?
5. At what distance apart should apple trees be planted?
6. What is the best time to prune trees?
7. What is the best means of destroying the borer in apple trees and of preventing its ravages?

SECOND DAY.

The Convention met at 9.30 a.m., Mr. Charles Gibb, Vice-President, in the chair. The questions submitted by Mr. Dupuis, L'Islet, at the previous sitting were then discussed.

1st Question—What is the best time for the planting of trees?

Mr. Brodie—I have always planted in the spring. I have been pretty successful, for out of 200 apple trees which I planted one spring, I only lost two; but I mulched them and watered through the mulch. Last season I set out about 100 trees and lost very few, although I consider it was the most unfavorable season we have had for years.

Mr. J. M. Fisk—If people who plant trees in the spring would order them in the fall, it would prevent the rise in sap which is often complained of. If you leave a tree standing in the nursery until the buds start and then transplant it, you run a great risk.

Mr. Brodie—It depends altogether how they are heeled in, and on the sort of season you have. We have had trees freeze and thaw during bad winters.

Mr. Shepherd—I recommend all those who purchase trees from me to get them in the fall, heel them in and have them on their farm to plant in the spring. You raise a tree from the nursery in the fall and you heel it in for the winter; there is a healing process goes on during the winter, and that tree is in better condition to grow than if raised in the spring. The shock a tree gets in the spring by its roots being torn is never recovered from during the summer. Never plant a tree in this climate without mulching it well. Frequently June is a dry month, and the tree planted without being mulched is done for. Planting Indian corn in the orchard the first year will protect the trees.

Mr. Chapais—I have made experiments in the fall and spring 90 miles below Quebec. I find that if I could take out a tree without breaking any of the roots and without being obliged to cut any of the branches, I would plant in the fall; but it is quite impossible to take a tree out without breaking any of the roots. All the trees I planted in the fall did badly. In the spring the wood and bark split, and they never heal during the summer, but the bark gets rotten and the next year the tree dies. The rain we have in the fall followed by the heat of the sun dries the wood and causes it to split, and the frost finishes the work.

Mr. N. C. Fisk—If planting is done properly, the fall is the time to do it, but in most instances the work is badly done. As far as my experience goes, it is better for most people to order their trees in the winter, let the nurserymen have time to take them out before the sap starts and plant them as early as they can. If I were going to plant myself, I should plant as soon as the leaves fall, and by doing the work properly the percentage of loss is very small.

Mr. Jack—Describe the proper mode of fall planting.

Mr. N. C. Fisk—It is the same as the proper mode in the spring. You must plant your tree about two inches lower than it was in the nursery. Have at least two inches of solid earth above the top root after you have done planting, and intermix the soil thoroughly with the roots. Do not dump the soil and put it in a heap, but spread the roots as naturally as they would be when in growth.

Mr. Dupuis—Is two inches enough in the fall when the ground has been loosened and exposed to the frost.

M. N. C. Fisk—When in the nursery the highest root is generally about two inches below the surface of the earth. You require to plant so that you will have at least two inches of packed earth above the highest root, and therefore you will have to use more earth.

Mr. Shepherd—I have tried fall planting but have not succeeded as well as in the spring. I have planted as carefully as Mr. Fisk says, and heaped more earth than two inches over the roots, because I reasoned that when the earth was loosened the frost would penetrate, but the trees did not succeed. I lift the trees out of my nursery in the fall, heel them in and take them out ready to plant in the spring.

Mr. J. M. Fisk—A good deal depends on the season. If the tree continues to make growth late in the season, the wood is not sufficiently ripe to stand transplanting successfully. One season may be favorable for planting in the fall, whereas a wet season may be unfavorable. In our climate spring planting is the safest.

Mr. Lesage—What is the best time to heel them?

Mr. Shepherd—As soon as you take the trees out of the nursery. Make a trench deep enough to take the roots, and incline the trees at an angle of about 45°. Do not put them on top of one another. Heap up the earth leaving the branches out.

Mr. Jack—What Mr. Brodie has advanced in regard to taking up the trees in the fall and putting them in a trench is certainly correct; even if you put them in the cellar they will do equally well. But to what he has said touching planting in the spring I would add: prepare your land in the fall; dig the spots where you are going to put your trees. In the spring the earth taken from the holes will have become mellow, and a shovelful will fall around the roots and make a perfect covering. When I commenced to plant, my hands struck after the first day's work, on the first ten acres I set out, and I determined I would not be caught the same way again. In the fall of the year, therefore, I took a double mould-board plough and laid off my land; as soon as I did that I put the land horse in the furrow and ploughed three furrows on each side, which left the centre deep enough to plant my trees. Here was nice mellow earth, just the thing wanted to put around the roots, when I planted in the spring.

Mr. Gibb—When planted in the fall, the tree has to stand two shocks, the shock of winter and that of transplanting, and it has to stand both in the same season. I find that the trees planted in the fall will shiver during the winter, and the warm sun of the spring does not start them into rapid growth. My plan has been to get my trees in the fall, heel them in, and plant them in the spring. I once planted 144 trees one afternoon and all did well except one, which was a doubtful one at the outset. They were budded trees, and therefore the stems were slightly curved and this curve was an index as to which side of the tree was up and which down when "heeled in," and for two years in my orchard you could tell which side of each tree had been nearest the ground when "heeled in" for that side made double the growth the other did.

Mr. Shepherd—They were not properly heeled in.

Mr. Gibb—Only the branches were above the snow. In Minnesota, where the winter is colder than ours, the plan is to cover even the tops of the trees when heeling in.

2nd Question—At what depth shall we plant in sandy soil and in clay soil?

Mr. Gibb—My idea would be to plant perhaps a couple of inches deeper than the trees grow in the nursery.

Mr. Shepherd—I would not plant at all in clay soil. I never saw a successful orchard in clay soil yet.

Mr. Brodie—I have seen a very fair orchard in clay soil, but it was drained under each row of trees.

Mr. Barnard—How old was it?

Mr. Brodie—It had some trees 25 years old and some only 5 years.

Mr. Moore—In the counties of England the orchards are generally on clay soil, so to condemn it entirely for the growth of apples is wrong. The difficulty is, it is not well drained.

Mr. Jack—Probably one-half of my orchard is in clay. It has been planted over 30 years, and the portion in clay is the best part of it.

Mr. Barnard—Is it drained?

Mr. Jack—Only partially.

Mr. Shepherd—Is it on a slope?

Mr. Jack—No, as flat as the floor here. Just the same clay as on the banks of the St. Lawrence from here to Montreal. There is no better soil to plant apples in, if not wet, than that clay soil.

Mr. Fisk—My experience is that the apple can be grown on any soil, provided that there is natural or artificial drainage. As for planting, the top root of

the tree should be about two inches lower than it was in the nursery, when the soil is suitable.

Mr. Brodie—On the west side of our orchard is a kind of clay soft soil, and we can never get apples to succeed as well there as where there is sand. I have given up planting on that spot.

Mr. Gibb—I have known lots of orchards which were on clay.

Mr. Shepherd—I have some experience on clay soil. I have one orchard of Fameuse trees (300) that I put in in 1879; it extends over a hill. Two-thirds of the orchard is gravel on a rise, and one-third is on a level which is clay. On that low part the Fameuse have all died. I have taken them out and put in Duchess, which I hope will succeed, because they seem to succeed better than any other variety. The orchard is very well drained with stone drainage and hemlock boards.

Mr. Gibb—There are several questions to be considered in this connection; some low bottomed lands have been condemned because they were clayey, when failure was due in part to wet land and in part to low lying land where the cold damp air flows down from adjacent hillsides. Again, some varieties of apples will flourish where others will not. I have seen the Canada Baldwins do well on clay when the Fameuse planted alongside of them died out.

Mr. Jack—In the County of Chateauguay, I know of an orchard which was planted fifty years ago by Père Bruyère, and which is still in existence, and most of it is on clay soil.

Mr. Shepherd—Are there Fameuse in it?

Mr. Jack—Yes.

Mr. Gibb—Along the Range, St. Ours, Abbotsford, some parties sold ungrafted crabs which have done very well, where the apples would not thrive, so that the crab will grow where the apple will not.

3rd Question—What is the most economic method of draining orchards?

Mr. Jack—Tiles for efficiency and economy.

Mr. Brodie—We have stone drains on our farm made by my grandfather seventy-five years ago, and they are in use yet, while tile drains that I put in fifteen years ago I have to take up every now and again. They get blocked up with little river sand. I have tried drains made of tamarac and found they last very well.

Mr. Jack—I have stone drains I put in over fifty years ago, but they are not efficient, they harbor mice.

Mr. Shepherd—When you have stones on your farm, it is a good way of getting rid of them in making a stone drainage. As far as mice are concerned, you can guard against them by wrapping your trees with tar paper.

Mr. Fisk—The roots get in among the stone and block the drains up.

Col. Rhodes—There are two kinds of tile: the ordinary horse shoe tile and the pipe. I found that the horseshoe tile drain is liable to get choked up, particularly by the roots of trees; if you find the elderberry growing near the drain, you must get rid of it, or sooner or later it will push its roots into the tile. The birch will also work down into the drain, and once it gets down it will begin to form a mossy, rooty substance which finally chokes up the drain. I use a common pipe for it is the most convenient, and if the drain is properly made there is such a flush of water in the spring that every thing is cleaned out. I have tiles which I laid in bog land, and for forty years they have not got out of repair. The tile is at the bottom, and there is a French drain of stone on top, so that you

have the benefit of the French drain and the tile. Of course that costs money, because you have to buy the tiles. Latterly I was employed in valuing land between Quebec and Ste. Ann's, and on some low lands I found that the owners had a cheap and ingenious method of draining. They took sapin trees about six feet long and scooped out the centre with the axe, so that when the tree was scooped out and turned over you had a tile. A drain of that kind would last 20 or 30 years, for there is so much tannic acid in wheat lands—which is the kind of land these drains were used on—that any thing you place there has a tendency to be preserved.

4th Question—What is the best way to preserve orchards against the wind and cold?

Mr. Dupuis—I find that hardy trees such as the Duchess and the Wealthy do very well when near fences, for there is some kind of protection, but in the middle of a field they are often winter killed. If we had some kind of hedge to act as a screen, our trees will do just as well in the middle of the field as near the fences.

Mr. Brodie—I find the same experience in our way, and I account for it by the fact that the snow lays deeper near the fences than in the middle of the field. In planting a young orchard, a good plan is to draw brush from the bush and put it in the orchard so as to collect a good covering of snow all over.

Mr. Barnard suggested that moveable fences might be used.

Mr. N. C. Fisk—The best protection is a northern exposure.

Mr. Shepherd—I was in Owen Sound last season, and saw there an orchard of four thousand trees in one block and that block was surrounded by Lombardy poplar, about ten feet apart. The poplar must have been planted twenty years, and they made a tremendous hedge. The proprietor had run a barb wire through the trees, and as a wind break it was a great success.

Mr. Jack—I think the spruce is superior to Lombardy poplar, especially as a wind break. I had some planted in 1860 and they are sixty feet high.

5th Question—At what distance from each other should apple trees be planted?

Mr. C. N. Fisk—My experience is we should mix up our trees, the heavy growers with the light. We all know that the Duchess does not reach the size of the Fameuse. Therefore intermix them, so that you can get the trees closer together.

Mr. Shepherd—I would not put in Duchess with the Wealthy or Fameuse. I put all my summer apples together, and my fall and winter apples together. That saves a lot of trouble. It is better, if you are planting the Duchess or the Tetofsky, to plant them 15 or 16 feet apart, and the Fameuse and Wealthy 25 or 30 feet apart.

Mr. Brodie—I plant them 30 feet apart, and plant plum trees between which die out before the apple trees require the whole space.

Mr, Jack—I believe it is an advantage to plant Duchess and Fameuse in alternate rows 18 feet apart. The orchard will then pay when five or six years old, and by the time it is eighteen or twenty years old you can take out the Duchess trees.

Mr. Joly—I do not think the willow was mentioned as a wind break. There is no cheaper or better wind break. In three or four years you will have one ten or fifteen feet high.

Col. Rhodes—But they bring a large quantity of insects.

Mr. Chapais—The willow will exhaust the soil for fifty feet from the tree. I found the roots growing as far as fifty feet from the tree.

Mr. Shepherd—Mr. Jack's theory as to planting in alternate rows may be very good, but I question whether he would care to remove his rows of Duchess at the end of fifteen years. He would probably find the Duchess the healthiest tree in the orchard. I never plant to remove any.

Mr. Jack—I have set out three acres in the way I have said, and I do not think there is the slightest objection, when the trees are in alternate rows, to go into the orchard in gathering the fruit. As to planting willows, I do not do it; the roots spread too much.

Mr. Fisk—The further you get the willows from the orchard the better.

Mr. Gibb—It seems to me the distance at which you plant trees from each other depends partly on climate and partly on variety. The Fameuse in exposed places at Abbotsford will not grow to the same size as those in the sheltered gardens of Montreal. If we are going to plant trees in mixed orchards as Mr. Jack suggested, we might plant such varieties as the Foundling between the Fameuse. The Foundling will bear early and heavily and be sure to die before the Fameuse requires all the space.

6th Question—What is the best time to prune trees?

Mr. N. C. Fisk—I believe in pruning at any time after the leaf falls and before the month of April.

Mr. Shepherd—I cannot agree with Mr. Fisk. Any time after the leaf falls is rather too much. I have tested this question carefully, and have concluded that the best time to prune is in the early part of April, before the sap begins to run—when the ground is frozen and there is some snow on it. That is a better time to prune than in June, because you can then take in the symmetry of the tree by moving around on the crust, and there are no leaves on the tree. Never cut a branch without covering the wound with some paint. I use shellac dissolved in alcohol to the consistency of paint. I never prune in the fall; I often prune in June when the men have neglected their work in the spring. June is a very good month; the sap is in flow and the tree is making rapid growth and the wound heals over at once, but to my mind April is the best month.

Mr. J. M. Fisk—My experience is that April is about the best month. I have had some experience in winter pruning and I found in the wounds made in January about one-eighth of an inch of the bark was completely killed, whereas the wounds made in April began to heal at the edge. It is a mistake to do much heavy pruning at any time.

Mr. Brodie—I get my orchard pruned every spring before the leaves come out, generally the month of April; but I find I can cut out dead branches at any time. By attending to your orchard every year I do not think you need cut out large branches.

Col. Rhodes—I have had some experience with Hawthorn hedges. We let the hedge make all its growth, and after that we prune. The plant has some growth left, enough to cover over the wounds made in the pruning process.

Mr. Dupuis—Pruning a plum tree does not injure it when done early in the spring. We are obliged to prune the plum when a branch does not give fruit. I am now speaking specially of the Damson.

Mr. Chapais—At 90 miles below Quebec I find that each time I prune, either in summer or early fall, in fact in any month except April, I always get a *gigot*,

or a bit of dead wood that will not heal at all. I have never experienced that when I pruned in April.

Mr. N. C. Fisk—Have these gentlemen ever noticed a leakage of sap when pruning in April? Some varieties have a great tendency to leak, just the same as the grape vine. All our grape pruning is done in the fall, and our apple pruning should be done before the sap starts in the spring.

Mr. Chapais—April in our district means March in yours.

Mr. Fisk—That may be. In the month of April generally the sap begins to move with us.

Mr. Jack—My experience is in accord with that of Col. Rhodes. Fall pruning is best. I am under the necessity of pruning in the month of March, but my experience stands altogether in favor of fall pruning, and you will not want then to cover the wound with shellac.

Mr. Moore—Mr. Jack does not mean after the trees are all denuded of their leaves, but after they have made their growth; and I think the reason is this: The sap decreases in quantity towards the end of the season, and if the pruning is done before the sap has entirely ceased or become dormant the wound will heal without the assistance of any artificial covering; but if the pruning is delayed until winter, then the danger of losing the trees and pieces of your branches where cut will be great, because the frost and cold will have the effect of destroying where there was nothing to counteract their effect, there being no healing process going on.

Mr. Gibb—You have spoken, Mr. Jack, of fall pruning. What season do you mean?

Mr. Jack—Any time after the month of September, while the leaf is still on and when the fruit is on the trees.

Mr. Gibb—Your idea is to prune while there is a certain amount of life in the tree, so that the wound will partially heal during the winter?

Mr. Jack—Yes.

Mr. Brodie—Some American pomologists believe in pruning at any time, whenever you knife is sharp.

Mr. Jack—No doubt the month of June is the best time to prune a young tree, because the wound will heal immediately.

Mr. Shepherd—When pruning in the month of April and using shellac, I have never seen any ill effects. I believe in pruning before the sap has risen and in using shellac.

Mr. Gibb—Mr. Brodie has spoken of "pruning when your knife is sharp," but the further you go north the more danger there is in pruning, and the less pruning we do the better. I think a good rule is to prune when the sap is gummy and not when it is flowing. If we prune in the summer when the tree is growing we check the growth of the tree and promote the growth of the fruit.

Mr. Brodie—The trouble of April pruning is that the sap is often in a flowing condition. We have to prune very early.

Mr. Gibb—I notice you have to prune pretty early, but if the tree is in good condition, a little flow of sap may not do any damage. If you have a very unhealthy blackhearted tree, do not prune it.

Mr. Jack—I think it is more advantageous to prune at any time when the leaves are on.

Mr. Brodie—Rub off all the suckers, just as they are beginning to sprout, and you will save a lot of pruning.

7th Question—What is the best means of destroying the borer in apple trees and preventing its ravages?

Col. Rhodes—I have been trying to prevent the ravages of the borer in my gardens and have had no success at all. In this section we have these insects in great abundance in our forests. Our forests are very mixed. Every tree grown in the orchard is grown in the wild state, and they are all infested by these insects. I have not seen a healthy apple tree in this district for the last thirty years. The mountain ash, which belongs to the apple family, is full of these insects, and the mountain ash is abundant in our forests. Some years ago we grew a very good cherry called the "Cerise de France," but these trees have now got what is commonly called the "blackknot" and you will find the same disease in the wild cherry. It is the same way with plum trees. I shall be glad if any gentleman can give me a word of encouragement as to the getting rid of this pest.

Mr. Moore—I hope to be able to assist Col. Rhodes a little on this subject. Some years ago, in the United States, I was in a place where apple trees were grown and they were attacked very largely by borers. The experiment was tried of using the gum that exudes from the balsam fir, and painting the tree with it two or three inches below the surface of the earth. In the spring we painted these trees, digging three inches into the earth and painting them six above it. When we found this coating of paint was destroyed by any means, we renewed it until June or July. This was done during two or three years, and the result was that the trees escaped the borers. The experiment is worth trying here.

Mr. Chapais—We would require to make the experiment in the nursery, because I have often bought trees three or four years old that had borers in them.

Mr. Shepherd—I have had some experience with the borers. Every orchard I have has a natural hedge or shelter of forest trees, and of course they are a harbor for borers. They attack the trees just below the surface of the ground, and I lost a great many young trees. I procured great quantities of wood ashes and adopted the plan of examining every tree once a year. If the borer is in a young tree we can easily see where it is and with a wire pull it out. Just put a handful of ashes around the trunk, touching it on the surface of the ground. Then get a barrel of soft soap and wash the trunk of every tree. After doing that I had no trouble with borers, but as my trees became older my man neglected to examine them every year, because he thought the borers would not attack the older trees. They did however attack the older trees, but did not injure them much. Last year I was troubled with a new borer, a black beetle, which attacks the branches, and I attribute its presence to the fact that we had not washed the bark of the older trees. By placing a little ashes around the trunk I do not think you will have any trouble with the borer.

Col. Rhodes—The difficulty I find is with the native woods. I would have to cut down the mountain ash, of which my neighbors over the hedge have a fine crop, but in this section we do not control our neighbors. It is useless to plant apple trees alongside the mountain ash. The gum to which Mr. Moore referred becomes dissolved with water, and we will have to apply it once a month in the rainy season when the borer is most active. I have scraped the tree and used lime and used tar, but in a short time the borer was as active as ever.

Mr. Fisk—In our section we are not troubled a great deal with borers, but they go in just at the edge of the ground, and lime and ashes piled up six or eight inches around the tree is a great preventive.

Mr. Moore—I think the gum I spoke of would be preferable because it is purely vegetable and contains no alkali.

Mr. Shepherd—It is that which destroys the egg of the borer.

Mr. Moore—Yes, but would it not injure the bark and the growth of the tree ?

Mr. Shepherd—It would not be well to apply to a young tree with smooth green bark.

Mr. Dupuis—The best way is to whitewash the tree. You will then be able to find the worm by the dust he makes, and you can take him out. You might then, having visited the trees in June or July, try the gum ; but if you put the gum on top of the borer I do not think that will kill him.

Mr. Moore—I do not mean to say that if the borer is there the gum will destroy it, but it will prevent its ravages, because the beetle will not want to deposit its eggs on the gum.

Mr. Shepherd—The flat headed worm, in my opinion, is fully as dangerous, and even more so, because it attacks the branches. I think the washing process with soft-sap and lime is a great preventative.

Col. Rhodes—You might take a very fine squirt with coal oil or alkali and squirt into the hole.

Mr. Jack thought by encouraging families of woodpeckers the borer might be got rid of.

Mr. Gibb—The great trouble seems to be that greater perseverance is needed to get rid of the borer than the orchardist can afford to give. It is a troublesome question and a number of remedies are suggested, and I suppose we will only have to do our best.

Mr. J. M. Fisk read the following paper on

OUR HARDIEST APPLES.

In taking up the question of our hardiest apples, and speaking from my own experience and observation, I find that our hardiest varieties are those of Russian origin.

We have nothing more hardy (unless it is our crabs) than the Duchess, Tetofsky and Alexander, which have been on trial in this Province for a number of years.

Next for hardiness I would name Wealthy, Haas, Peach and Winter St. Lawrence. Then follow Fameuse, Golden Russet, St. Lawrence, Canada Baldwin, &c., as types of hardiness.

Thus I find our hardiest apples are among our summer and fall varieties. That they are, as a rule, our heaviest bearers, that they begin to bear young, often before the tree is removed from the nursery.

On the contrary, but few of our late winter varieties are good bearers, and of sufficient hardiness to be generally cultivated. We have no variety to supply the late winter season, as the Duchess supplies the summer, and the Fameuse the fall or early winter season.

In proof of this, go into any of the fruit shops of our cities and towns to-day and examine their stock of winter apples and what do you find ? Not Quebec grown fruit, but that imported from Ontario and the New England States ; such as Northern Spy, Spitzenburg, American Baldwin, Greening, &c.

Visit our markets in the fall and you will find them filled with home-grown Duchess, Peach, St. Lawrence, Fameuse and other fall varieties, which in their season are hard to beat.

As soon as these are disposed of, we have practically nothing for the winter and spring demand, and the export trade to Europe.

Instead of having a surplus of winter apples as our sister Provinces, Ontario and Nova Scotia, we have to import the most of our winter fruit at a cost of several thousand dollars each year, when this money ought to be going into the pockets of our own fruit growers.

Of the new Russian importations, of which we have many on trial at Abbotsford, but a few as yet have fruited, and none that proved to be late keepers. If one is found to supply our need, then we shall have found a treasure, and Mr. Gibb will feel amply repaid for his researches in that direction.

As a rule the Russian apple does not excel in quality, but for hardiness must prove of great value to us, especially to the northern parts of our Province; and the late importations promise to add largely to our present small list of perfectly hardy and productive varieties.

If one of the best of these, like Duchess, were to be pollenized with an apple like Northern Spy, we might expect grand results.

Here is an instance in which we feel the need of a Provincial Experimental Station, and it is to be hoped that some day the Government or some patriotic individual will take the work in hand.

We are in need of a hardy, productive, long-keeping apple, of good quality. Our country has been greatly benefitted by the introduction of the Duchess and Wealthy, and other varieties of equal value will soon follow; let us aim to secure among these, varieties to supply the wants of our people, and we shall have done a good work.

Mr. Shepherd—I quite agree with Mr. Fisk that our greatest want is a hardy late keeping winter variety of apple. I do not think we have got that among the Russians, and it struck me that our friend Mr. Dupuis, who spoke yesterday of orchards planted 150 years ago, might find among those orchards some seedlings which are good enough to be propagated. We have to fall back on our native seedlings for fall keeping apples. We cannot grow the American Baldwin, Northern Spy or Spitzenburg, and therefore we have to discover a hardy late keeping apple. If Mr. Dupuis can find promising seedlings, trees 50 years of age which have stood the rough winters of his district and yet remain perfectly healthy, with fruit of good appearance and size and quality, they ought to be brought to the notice of the Society.

Mr. Gibb then brought some Minnesota experience to bear upon this question of hardiness by reading the following letter addressed to himself:—

Mr. Chas. Gibb, Abbotsford, Que.

Dear Sir,—Sometime since W. H. Ragan, Secretary American Horticultural Society, requested me as Chairman of the Committee on Russian fruits, to put myself in correspondence with you.

We are too young in our experience with the newer Russian fruits to make any really definite report upon them. The Duchess of Oldenburg has been in cultivation long enough here to establish its value for this region, and we make it the base or standard in comparing degrees of hardiness, and anything much less hardy is not adapted for general cultivation with us. So far, on my place, Hibernal, Ostrokoff, Pelikanoff, Red Cheek, Gipsy Girl, Antonovka, and the whole of the Anis family are doing well; and I think that most, if not all of them, are as hardy as the Duchess. At other places I have seen the Green Streaked, White Pigeon, and a few others looking all right. At Andrew Peterson's, at Wacona, the Hibernal, Ostrokoff, Pelikanoff and Red Sided are perfect.

There, last winter the Wealthy were all killed, and the Duchess considerably injured. I find, however, that the Charlamoff, Christmas, Winter Livland and Sweet Borovinka did not fare any better than the Duchess. All the above are bearing trees. * * * * * I am confident that further trial will develop the fact that a few varieties of the Russians are thoroughly adapted to this region, and that we can supplement the list with home grown seedlings from these. A. W. Sias, of Rochester, Minn., is better authority upon these questions than I am.

La Crescent, Minn. Yours truly,

JOHN S. HARRIS.

Col. Rhodes moved the following resolution: That the Government be respectfully requested to take proper steps for the collecting of statistics of fruit culture in the Province.

Mr. Joly seconded the motion, which was unanimously adopted.

The Convention then adjourned.

The Convention reassembled at 3 p.m, Mr. Charles Gibb, Vice-President, in the chair.

The proceedings began with a paper by Mr. Robert Jack, of Chateauguay Basin, on

THE MARKETING OF OUR FRUITS.

MR. PRESIDENT AND GENTLEMEN,—I desire to draw your attention to the present unsatisfactory and expensive mode of marketing on the part of those fruit-growers distant from the market, and who find themselves under the necessity of using the services of a middleman or commission agent for the sale of their products. This subject merits your consideration, and your suggestions may lead to some improvement. The terms unsatisfactory, and expensive, may seem extreme, but when we look at the difference existing in the rates of commission charged on the product of the orchard as compared with that of other products of the field, it seems almost like extortion; 10 per cent. is the rate uniformly levied on the product of the orchard, whereas those engaged in dairying have their product handled and sold for a rate $\frac{1}{4}$ to $\frac{1}{2}$ per cent., and those engaged in grain growing, viz., wheat, peas, oats, barley, &c., have their product handled and sold on a rate of 2 to 3 per cent. How is it that there should be such a wide margin of difference between the product of the field and dairy, and that of the orchard. Have those acting as intermediate or commission agents just cause for this discrimination against fruit-growers, or is it what is called in common parlance, a combine to bleed the producer; however it may be, I trust the discussion here to-day may tend to a remedy.

If the fault is with the growers, if some of them by their careless or dishonest practices are the cause of this discrimination, in that case it would be well to have a firm representing the Association who would sell our fruit; and as a guarantee of quality the name and sort should be branded on each package. Something like this should be inaugurated, then the careful and honest grower would be recognized and the consumers protected.

Mr. Robert Brodie, Coteau St. Pierre, Montreal, read the following paper on

PACKING AND MARKETING OF APPLES.

The packing and marketing of apples is a matter of great importance to the fruit growers of our Dominion. Canada ranks first in the quality of its cheese

in the English market, and our apples are not equalled in any country; yet a great improvement could be made in the packing and shipping of them. It is not any wonder that shippers make great losses in their shipments when we consider the careless way the apples are packed, and the rough handling they get from the time they are picked till they reach their destination. I have seen barrels of apples unloaded off trucks on the wharf and pitched about with such violence as to knock the heads out of the barrels and scatter the apples about. They were shovelled into the barrels, minus a few dozen, and coopered up.

It is almost impossible to get a No. 1 quality of apple out of an orchard that has been neglected in manuring and pruning. We noticed when picking our apples this fall, that where we had applied hard wood ashes to our trees in the spring, as soon as the snow was off, the apples were large and well colored, but on other trees where we had applied rotten barn-yard manure one-third of the apples were crooked, wormy and not well colored; it looked as if the manure had been a harbor for the codling moth and other insects. It is a great pity that so valuable a fertilizer as hard wood ashes should be sent out of the country to enrich the farms of our neighboring Republic, when so many farms are run out and exhausted in our own country.

Packing apples for market may be done in the following manner: Provide good new barrels, with nice clean heads that can be branded; hard wood heads are preferable, as they can stand the pressure best. Some packers use barrels with a very little bulge, the staves being almost straight, that hold about a peck less than the ordinary flour barrel. I should very much like to have the opinion of this convention on the right size of an apple barrel. In coopering the barrels, use barrel or lath nails; the ordinary shingle nails used by many farmers are too long, and penetrate into the fruit and cause it to decay, also in nailing on the line hoop cause injury to the hands and clothes of those who handle the barrels.

Have step ladders to reach the sides of the trees, and get baskets with hooks attached to the handles, made of fine wire or wood. Begin pulling the apples on the outside branches of the tree before climbing into it, as you are not likely to shake so many down this way. In pulling give the apple an upward turn, it breaks off quite easily, while giving it a jerk off, it often breaks off the bud also, causing the tree not to have fruit for a year or two. Have boys with moccasins or rubbers on to climb the trees, as boots bruise the bark and injure the tree. Put the apples gently in a basket and empty them carefully on a sheet spread on the ground. Tender varieties like our Fameuse and Duchess need to be as carefully handled as eggs, even a slight thumb mark causing them injury. The windfalls should be put in a separate pile, and disposed of as soon as possible. The barrels should be placed on a plank so that they can be shaken easily, and this prevents the heads of the barrels from being soiled by the ground. In sorting, have one barrel for first and another for second quality; the culls may be sold for cider or jelly. Begin filling the barrel by putting a row of apples stem downwards, and have a basket that will reach the bottom of the barrel, so as not to bruise the fruit by emptying from the top. Give the barrel a little shake after each basket is emptied and fill it about a half an inch above the rim; all depends on the variety of apple, Fameuse can be pressed into the barrel an inch or more, while Golden Russet can hardly be pressed at all. We use a lever press that we force down with our feet. Keep the barrels on the side till they are disposed of. Always use a spring waggon for carting them. I know a farmer who made a loss of $20 on a load of Duchess of Oldenberg apples; he had

sold them a couple of days previously for $4 per barrel and brought them to the city in an old lumber waggon without springs, the barrels standing on end—when they were opened, what a sight! all bruised and sunk about a foot down in the barrel. Of course the purchaser would not accept them, so he had to peddle them round for what they would bring. Never ship apples to a foreign market to be sold on commission when you can get a good price in your local market.

Mr. Shepherd—Mr. Brodie has not said any thing about the time he heads up his barrels. Do you head them up in the orchard or some days afterwards? Do you allow the sweating process?

Mr. Brodie—I let them sweat all they can in the barrels. I do not believe in the sweating process at all. I think the less handling the Fameuse gets the better. If we fill our barrels in the morning we often head them towards night.

Rev. Canon Fulton—It is not sweating but the change of temperature of the apple and the condensation of the atmospheric air; if they are put in and headed up at once there is no such thing. I have put them into my boxes, which are hermetically closed, and never had any complaint of sweating. Any sweating you will find is on the top of the barrel.

Col. Rhodes—Every year I ship a certain quantity of apples to England for the use of my friends, who use them largely, not to consume, but to decorate the dinner table. The brilliant colored Canadian apple, which reminds you of the Canadian maple leaf, enters very largely into the decoration of the dinner table. In England there are farmers who grow a special description of apple for this purpose, and these apples fetch the highest prices. That is a point worthy the attention of our growers. If they would ship a superior article carefully selected, they would have no difficulty in getting fancy prices on the other side.

Mr. Shepherd—I quite agree with Col. Rhodes that in every orchard there are extra fine specimens of fruit which are really too good to be placed in what we call No. 1 barrels. I grade my fruits into three qualities. The extra No. 1 Wealthy, I place in the Cochrane apple case, in which there is a separate compartment for each apple. These extra No. 1 have always been bespoken by one of my Montreal customers who sends them to England for dinner tables, etc., and they fetch the high price of $3.50 a case. Each case contains about a bushel. For No. 1 Wealthy I get about $3 and the No. 2 I sell for any thing I can get. I have adopted the same plan with regard to Fameuse.

Rev. Canon Fulton—I have always taken great pains to have generally number one, and my experience is that it is rather a mistake to put those very extra apples in, because it gives the idea that they are the ordinary number one. The only extra apples that I have sent across was one case of Alexander which I had over and above the specimens for the exhibition. I packed them up and put some very good ones with them in a box containing about half a barrel, and for that particular box I got a pound sterling. But my experience in general shipping is that there is not the discrimination made on the other side with regard to really No. 1 apples which should be made. They will not fetch much more than the ordinary barrel. I do not believe they would fetch 75c. more, and it is worth very much more than that to pack a barrel of really selected apples. What we require on the other side is an accredited agent for the sale of Canadian apples and arrangements for cold storage, until we do that our shipments will not be a commercial success.

Col. Rhodes—For the last ten or fifteen years I have been sending apples to my friends each year, and each year I told fruiterers here that I wanted three or

four barrels of apples of superior quality. I did not care about the price provided I got the best apples, yet I have never been able to get them in a condition fit to send home without careful selection and repacking. I think it would be in the interests of the fruit growers to send their apples for shipment in such order that they would turn out satisfactory to the purchaser.

Rev. Canon Fulton—All we have to do is to get an accredited agent. Let each grower label his barrels and be held accountable if they are not up to the mark.

Mr. Shepherd—I would recommend Col. Rhodes to apply to the grower and not to the dealer, because the latter has to buy indifferent fruits and take what he can get.

Mr. Brodie—We are shipping apples every year to the old country. Sometimes the shipments arrive in very good order; but sometimes on the other side the apples are a little slack, and they are sold as slack packed, though every barrel is as good as tightly packed. It would only take half a dozen apples to fill up the barrels, yet they sell for five shillings to ten shillings less than the others. Last year we sent apples to Liverpool, and although not first-class, they brought first-class prices; and we sent apples with our own name on the barrels, first-class apples, yet they brought $2 less than the poor stuff.

Mr. Dupuis—Are those cases Mr. Shepherd speaks of very expensive?

Mr. Shepherd—They are patented cases, Mr. Cochrane's patent. The company failed, and I secured a couple of hundred of them at auction. They cost the company 50 to 60 cents a piece. I put the extra No. 1 apples into these cases.

Mr. Brodie—Suppose you have a thousand barrels of apples, how long would it take to put the apples in these cases?

Mr. Shepherd—Not long. I take the case into the orchard and when I get an extra fine Fameuse I just put it aside and fill up the case before the day is done. You might not get more than one case in one row of trees, but for that case you get a dollar more than you would if the apples were barrelled.

Mr. Brodie—I have asked in my paper the opinion of the meeting as to the size of an apple barrel.

Mr. Jack—A barrel should hold 120 quarts.

Mr Gibb—In many parts of the country it is a common practice to use the ordinary flour barrel. Does that contain the proper quantity?

Mr. Jack—Yes.

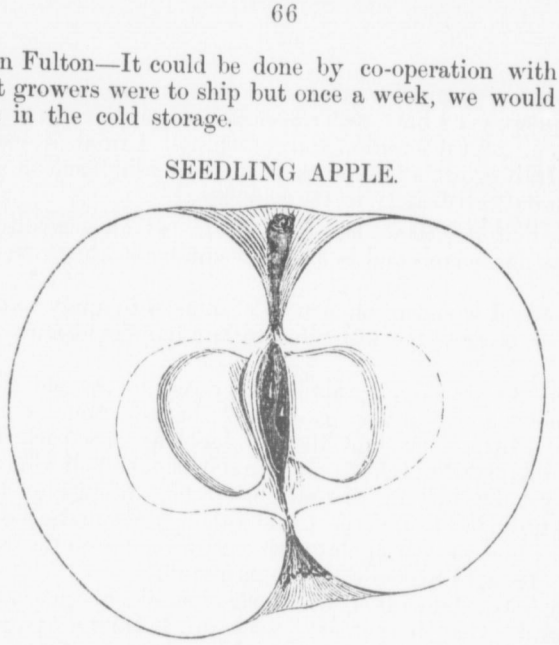
Mr. Shepherd—A great many growers do not understand how to pack their fruit. They buy a lot of old flour barrels and think they save money because they save ten or fifteen cents a barrel; but the result is they get fifty cents a barrel less than they otherwise would. A man ought never to put No. 1 quality fruit into any thing but a new barrel.

Mr. Gibb—Several points have come up in this discussion. First, regarding the color of fruits. As Col. Rhodes says, the fruits in this Province are noted for their color. At the Colonial and Indian Exhibition in London, our fruits took the palm in this respect. With regard to the question of cold storage, I am afraid it will hardly pay, but the fruits thus sent should arrive in prime order. I have tasted apples in London which came from Australia in this way and found they had lost none of their flavor.

Mr. Jack—Fresh meat is carried from Chicago to the Liverpool market in cold storage and I do not see why our fruits would not pay, if carried in the same way, when they have only half the distance to go.

Rev. Canon Fulton—It could be done by co-operation with the dairymen, and if the fruit growers were to ship but once a week, we would always obtain sufficient space in the cold storage.

SEEDLING APPLE.



ELZEAR.

Mr. N. C. Fisk exhibited specimens of this apple. He has but one tree, procured from St Hilaire 30 years ago, and has never propagated from it. It is a slow and tedious grower, needs about as much pruning as Fameuse and has suffered somewhat from sunscald; a medium bearer, bearing most alternate years. The fruit averages a little larger than Fameuse, is quite as red, but is a dull, not a bright red, and has numerous light dots. In quality it is somewhat like a Gilliflower.

Mr. Fisk directed attention to its good keeping qualities, and in our search for late keepers wished to find out its record with those who had grown it at St. Hilaire.

Mr. F. G. M. Déchesne, M.P.P., read the following paper by Mr. P. G. Verreault, N.P., on

PLUM TREES IN L'ISLET COUNTY.

My orchard of $1\frac{3}{4}$ arpents is over 60 years old. Soil sandy and not deep, not fit for the plough, and worth about $20 an acre. The sales of plums in years when they sold cheaper than they sell now brought me $100. Seventy-five bushels of plums were gathered in one of the most fruitful years. The trees are propagated and renewed by the sprouts from the roots, and by a careful selection of the strongest shoots the old trees are renovated without leaving any gaps in the orchard. Last fall I gathered 28 bushels, and I remarked that trees over 30 years old were bearing fine nice fruit. I consider the Damson and Imperial (Orleans) plums most profitable varieties.

Mr. Déchesne—Now, gentlemen, I regret that Mr. Verreault is not here to speak of his experience, but I am happy to meet here men who are devoted to the agreeable and profitable industry of fruit growing. I would not be a son of Eve if I did not like a good sweet apple. Your interesting discussions tend to make

known varieties of fruits hardy enough to resist our severe climate, and of good quality at the same time. I anticipate very beneficial results from your valuable discussions, for the Eastern Province and for the County of L'Islet, which I have the honor to represent.

If I can be useful to your Association in Parliament, I will do my best to advocate its cause and to demonstrate your noble efforts to promote the horticultural interests of this Province.

I have received some notes from M. Lavallé, dealer in fruit, which may interest you :

He purchased in 1885 300 barrels plums.
in 1886 150 " "
in 1887 100 " "

He calculates that about 400 barrels are grown annually in L'Islet Co., this at $7.50 gives $3,000. The price in 1886 was from $12 to $15 per barrel.

Mr. Auguste Dupuis recommended the cultivation, in the Eastern part of the Province, of the old varieties of the Damson or Orleans, blue and white ; and of foreign varieties, Lombard, Imperial Gage and Bleeker's Gage, and suggested the use of crates containing four to eight gallons, instead of barrels, for shipment to market.

Mr. Brodie—How many plum trees produce fruit of the value of $100 ?

Mr. Déchesne—About 200 trees.

Mr. Dupuis—It would be a good thing to have a separate exhibition for Three Rivers, L'Islet and the Quebec District, and to have special prizes for collections from these districts. We cannot compete with the upper part of the Province because our fruits do not ripen in time. At the exhibition time your fruits are perfectly colored when our Fameuse is still green. The same remark applies to plums.

Mr. Shepherd—It surprises me you can grow with success such plums as the Lombard and Magnum Bonum. In my county I have not been able to grow Lombard or Magnum Bonum with any success. I find they grow so much in the summer they are killed in the winter. Perhaps in your case they grow on poor land.

Mr. Dupuis—Our soil is sandy. The Lombard sometimes sends shoots so high that we have to pinch in summer. The trees are on sandy soil and we do not manure them much.

Mr. Jack—Are these Lombards budded on the native plums ?

Mr. Dupuis—Yes, on the wild plums.

Mr. Gibb read the following paper on

THE NATIVE PLUMS OF THE NORTH-WESTERN STATES.

My first efforts to grow plums proved failures, I now succeed in having a crop every year.

I began in 1872 by planting those varieties of the European plum which had done the best (and that means only fairly well) in the sheltered city gardens of Montreal. Lombard bore one glorious crop ; Bradshaw a few now and then ; Washington bore a few and died. A large black, like Quackenboss, also bore a few specimens several years. So has another like Coe's Golden Drop. A large number of varieties died before fruiting, but as many I had were not true to name, these may not have been the kinds I bought them for. Rev. Canon Fulton, of Maritana, Huntingdon, sent me a variety of Damson, it bore a few and died. Later Mr.

James Brown, of Montreal, sent me Corse's Nota Bene which has borne but one plum and will not live much longer. He also sent me Dictator and Corse's Sauvageon, but they did not seem to thrive. I have Moore's Arctic, but their unthrifty condition may be owing to the dried state of the trees when I received them. I have also the Prunus Simonii, of China, a fruit flat like a pomme grise. The tree is not hardy enough. Two years ago I imported from Europe a number of varieties, especially of the prune type of plum, for in some cases the prune is found to be hardier than the plum; for let me remark that in Europe men plant their gardens or roadsides with "prunes" or plums, just as in California they plant out their acres with "raisins" or grapes. I have several varieties of the Russian plums. The Abbotsford Fruit Growers' Association has twice imported from Moscow, but they are too young to report upon. But I must here draw your attention to the fact that we have not in this country the plums of the Volga, and of the other colder districts of Russia. Mr. Shroeder, of the Agricultural Academy at Petrovskoe Rasumovskoe, Moscow, received the plums he sent to Abbotsford and to Ames, Iowa, from Poltava, a comparatively mild region. Dr. Regel, of St. Petersburg, has sent out three varieties to this country, from where obtained he was not able to say, and beyond this but one really Russian variety from Central Russia has yet reached us and that is the Moldavka of Vorouesh. It is much to be regretted that the plums of Volga are not obtainable here, and as many of them are to be found only in little out-of-the-way villages like Kluchichi and Tenki, in the Province of Kazan, it will be many long years before we may hope to have them.

However, we have another race of plums which have proved a decided success at Abbotsford, viz., the improved varieties of the native plums of the Western and North-Western States. I have about ten Wisconsin plum trees which were the roots of root grafts planted in 1873. They bore five good crops in succession, took a year's rest and have borne almost each year since. They are nice for eating and pretty good for cooking, but when canned the astringency in the skin and stone becomes too *prononcé* and one soon gets tired of them. They are the Western form of our Prunus Americana. I have also the DeSoto. Little trees of it bore their first crop last year. It is the best in quality of these P. Americana, and I heartily recommend it for trial. I have about eight trees of Miner, a Chickasaw, or a cross with it, which have borne moderate or light, but yearly crops without any failure for at least eight years. The fruit is rather large, dark dull red, and has a flavor liks a muskmelon. It ripens October 1st and keeps till November 1st. I had about six bushels last year, and owing to its lateness it sells well at 80 cents per bushel, but I do not recommend anyone to grow it who lives further north than Abbotsford. Basset has fruited with me, but is small, astringent and inferior. Of varieties which I have not fruited but which I have seen and tasted on the grounds of the Iowa Agricultural College, I would specially mention Mooreman, a small red fruit of fine quality, and Wolf, a large, red, moderately juicy freestone, with heavy rank foliage. Of others I find Weaver spoken of as doing well in Minnesota, and Maquoketa, Speer, Wyant and Rollingstone promise well on the College farm at Ames, Iowa.

Mr. Shepherd—I can fully endorse what Mr. Gibb has said about the De Soto. I fruited it for three years and it has given very good satisfaction. I have about 15 or 20 trees. The tree bears the next year after it is planted, and bears wonderfully heavy crops for the size of the tree. It is an extraordinary little tree. The fruit is excellent for preserving, better than any of our common red plums.

Mr. J. M. Fisk—The DeSoto ripens just after the ordinary red plum, so that you can bring it to market late in the season.

Mr. N. C. Fisk—No one has said a word about the Pond's seedling, yet it took the first prize at a show in Montreal as the best plate. It is a large plum, as large as a hen's egg, and perfect in color. I have a few trees of it, and it is the only plum I can fruit. It ripens about the 15th of September.

Mr. Dupuis—On what stock ?

Mr. Fisk—Common red plum stock.

Mr. Fulton—I can speak feelingly about the black knot. I lost about an acre of nice thrifty trees by it, from which the previous year I had a very good return. I had to cut them down and burn them. That is the only remedy I know of. The black knot has now attacked the Green Gage and Lombard. Will any gentleman tell me whether it is an insect or a fungus. I would like to know which it is and how it is treated.

Mr. Brodie—I can endorse the Pond's Seedling. I believe it is an English variety. The only trouble with it is that it is apt to overbear and kill itself. As to black knot, you must only plant varieties that are not subject to it. I have yellow egg plums which grew side by side with the ordinary blue plum. I had to chop down the blue plums on account of the black knot which the others escaped.

Rev. Canon Fulton—For many years the Green Gage was not affected, but now the black knot is indiscriminate in its attacks.

Mr. Moore—In the grounds of Mr. William Evans, near Montreal, during the last four years, a number of Moore's Arctic have been grown with success. Not a single branch has been killed by frost, and the trees are now looking in a healthy condition. There has been no appearance of black knot on them, and the crop has been most abundant. The flavor of the plum is delicious, the skin is thin, and the color, after preserving, equal to that of the English damson.

Mr. Shepherd—In 1886 I visited Mr. Evans' place, and I was very much struck with the abundant crop of that variety, but they were growing in the nursery row. It was a remarkable sight to see these trees. They were bent to the ground with the weight of the fruit. I am glad to hear Mr. Moore speak so highly of the quality of the fruit. When I was at Mr. Evans' they were not ripe enough to be tasted. The question is whether they would be as hardy in the orchard as they appeared to be in the nursery.

Mr. Moore—When first received, a number of the plums were planted in the nursery row and a certain quantity in the orchard. Those in the nursery rows Mr. Shepherd saw, and I do not know how it was he did not observe those in the orchard, because they were also as heavily laden with fruit, and had not suffered from the frost, but those in the nursery suffered from the weight of the snow which smashed down several of the rows.

Mr. Gibb—I am glad the Moore's Arctic has been mentioned as I have heard of the plums and their enormous fruitfulness at Mr. Evans' in Montreal. As regards the Pond's Seedling, it is a very beautiful plum ; it is very large, and the quality by no means coarse. I know that at Capt. Raynes' and at other places in Montreal it has proved about the hardiest of the European plums. As regards the black knot, I drove with Mr. A. Lemoine to his place in Chateau Richer, through the plum district, and I saw the black knot had worked into the plums from the wild cherry. I advised the people to cut down these cherry trees as much as possible. If Prof. Penhallow were here, he would tell us whether it is a fungus or caused by some insect. I have always looked upon it as a fun-

gus, and I am inclined to think that is Prof. Penhallow's opinion. The only remedy I know of is to cut it out. If you have an acre or two covered with black knot, burn them out and start afresh. As regards North-Western wild plums, I have seen no sign of black knot on any of them, but it may get into them some day.

Mr. Dupuis read the following paper on

CHERRIES IN THE COUNTY OF L'ISLET.

The cherry which we call the "French Cherry" is grown from Quebec to Gaspé. This tree is remarkably hardy. On the Island of Anticosti Mr. Stockwell has been successful in growing the trees furnished to him by the Horticultural Society of L'Islet, and also at St. Pierre de Miquelon the trees sent by this Society are doing well. Mr. Celley, M.P.P., Manitoba, and Mr. E. B. Scott, Medicine Hat, have received their premiums as members of our Society in cherry trees, and we are awaiting with interest the result of their trial in these places. In the old parishes on the north and the south of the river nearly all the proprietors of farms and gardens have a few cherry trees. A great number of these trees are planted along the fences and in out of the way places to avoid the trouble of caring for them. The trees are seldom visited by the proprietors except when the fruit is ripe, and in gathering the fruit many branches are broken and left hanging, thus injuring the surrounding branches when blown about by the wind. The "French Cherry," notwithstanding the bad treatment it receives, produces a fair crop of fruit.

The cherry is cultivated in the County of L'Islet from the River St. Lawrence at the north, to the County of Arostook, in the State of Maine.

Those who cultivate this fruit choose for their plantations a dry and light piece of ground and the trees bear abundantly nearly every second year. The price of cherries in the market at Quebec varies from $1.50 to $3.00 per bushel. It is difficult to estimate the number of bushels grown in the county. The agent of the Intercolonial Railway at St. Roch informed me that he had received in a single day 112 bushels to forward to Quebec and to Fraserville.

The parishes of St. Jean, Port Joli and L'Islet send about as much.

The cherries are usually shipped in boxes, which are much too large and deep for so juicy a fruit, and in consequence arrive in bad order. The L'Islet Horticultural Society is desirous of learning which is the most convenient and economical style of box or basket for the conveyance of cherries to market, and Mr. Gibb has been solicited to inform us as to the styles of the baskets or boxes in use at Montreal and in Russia.

The French cherry is propagated at Quebec and in the East by the suckers which are emitted from the roots. In two to three years the trees commence to bear fruit, and this variety is now so acclimatized here and gives such good fruit that we should deem it imprudent to try and replace it by newer varieties.

Of twelve varieties which I imported in 1874 the Early Richmond is the only one which has survived, and this variety so closely resembles the "French Cherry" that we have given the name of "Richmond" to this variety.

Since the introduction of the French Cherry into Canada by our ancestors it has maintained itself for a period of about a century without any special effort having been made for its preservation. We can now procure the young trees on nearly every farm, and have them for the trouble of digging them up.

Plant the young trees on sand, or on stronger soil, well drained; give them attention and care as you do to other products of your farm. When they have

attained an age of 2 to 3 years, so that they may form a round top, not exceeding 7 to 8 feet in height (for facility in gathering the fruit), proceed in the following manner: Shorten the 3 or 4 branches which form the head of your little tree to the 4th or 5th eye or bud; this should be done in the spring; these buds will emit laterals which will make the form of the tree. The following spring remove the branches which tend to grow upwards instead of to extend and your tree will not require any further pruning.

From Mr. Gibb we learn of a race of cherries cultivated in the form of bushes. I should be glad to learn of the advantage which we should obtain by cultivating these dwarf trees.

Of the gum exuding from our cherry trees it is pretended that it is due to severe pruning, but it should not be necessary to remove large branches. A branch broken by the snow or wind should not be sacrificed in consequence. Raise the branch, bring the broken parts together carefully and with the aid of one or two iron bolts secure it firmly in position, cover the wound immediately with grafting wax and it will soon heal and the branch give you as good fruit as the others. For a branch of from one to two inches in diameter a screw will suffice.

The black knot is a great evil which is spreading rapidly in our orchards of cherries and plums. It has devastated the fine and productive orchards of the Cote de Beaupre and has extended on the south side of the river to Beaumont, St. Michel and Montmagny. In these large plantations of cherries there is not a tree which is not affected. The disease has appeared in the counties of L'Islet and Kamouraska notwithstanding the advice given in the journals to cut off and burn the branches affected, and the proprietors are becoming alarmed in consequence.

If the L'Islet Horticultural Society had more funds at its disposal the directors would be disposed to offer a large prize for the greatest quantity of branches of the cherry and plum affected with this disease which would be brought to their exhibition and burned in the presence of the public.

The directors are of the opinion that the serious damage with which we are threatened by the spread of this fungus should receive the most serious consideration of the proprietors.

We receive a grant of only $100, we disposed of $20 in prizes this autumn. To reduce this evil we await a larger grant.

The Horticultural Societies count on the patriotism of the members of the Council of Agriculture and on the liberality of the Provincial Government for more efficient aid so that they may be enabled to benefit the consumers and producers of fruit in the Province of Quebec.

Mr. Brodie—We do not have a crop of cherries one year in five, and when we do the English sparrows eat them all. Now that the black knot has got into the trees I have to chop them all down.

Mr. Dupuis—We buy fish nets from the stores, which we throw over the trees and we are not troubled by the birds. It does not cost 25 cents per tree.

Mr. Shepherd—My experience is precisely that of Mr. Brodie. If you plant cherries, you plant them for the birds. I have given up planting cherries. My great hope is that the Dwarf Russian Cherry will meet our requirements. If we have a dwarf cherry we can always stretch a net over the tree and protect the fruit from the birds.

Col. Rhodes said he felt quite a personal interest in the sparrows, from the fact that he had something to do with their introduction here. It was true that they sometimes helped themselves to cherries, but growers could protect their fruits as they did in England by covering the trees with a cheap net. In Boston they were introduced in the early part of the century for the purpose of consuming the caterpillars which threatened the destruction of the celebrated elms on Boston Common. It had been noticed too that they were fond of picking the caterpillars off the birch, and also of chasing the white butterfly. Of course he admitted that the sparrows were regular little John Bulls in their manners. They were always pugnacious, and just as much at home in the worst parts of the city as anywhere else. If they became too numerous or too depredatory in their habits, it was not difficult to remove the objection. By sprinkling a quantity of ashes upon the snow and placing some corn thereon, the sparrows can be induced to congregate in great numbers, and it is then not difficult for a boy with a shot gun to kill a couple of dozen at a shot. They thus afford good sport for boys, and as they weigh about an ounce each and are finely flavored, they make very good pies. (Laughter.) Or they may be roasted on a string in front of a fire. But seriously he thought that the world was so large that there ought to be plenty of room in it for the sparrows.

Canon Fulton—Hear, hear.

Mr. Moore, of Montreal, credited the sparrows with destroying the canker worm. He thought they should not be begrudged a little dessert in the shape of a few cherries. He agreed with Col. Rhodes that sparrow pie was exceedingly good, especially if well filled up with beefsteak.

Mr. Brodie—I admit that the sparrows are quite friendly in their ways. They have gone into my hen house and eaten up my chicken feed along with the rest of the fowls. True, they destroy the caterpillars, but I find Paris green a far quicker mode. Last year I noticed the caterpillars were increasing, but by sprinkling the trees with Paris green early in the spring before there is danger of destroying the fruit, they can be got rid of.

Mr. Gibb—Unfortunately when one or two men in the community grow a lot of cherries, the sparrows of the neighborhood go to them. Russian cherries are not bird proof, and they have this weak point that they begin to color three weeks before they are fully ripe. Twelve years ago I planted a number of varieties, the English Morello, the Kentish, common Canadian Morello, the cherry Mr. Newman has at Lachine, a Morello from Rev. Canon Fulton, of Huntingdon. All these grew to be fair sized trees, but they did not bear to any extent. The English Morello was the best bearer of those I mentioned. The Montmorency Ordinaire was "the" cherry, the finding of which repaid the planting of the others; it is a good fair sized cherry for a Morello, pale in flesh, and a heavy bearer. I then began to get a number of cherries from Germany and Russia. In Russia, in the Vladimir district and the Upper Volga, the cherry trees are only about three feet high. I have 38 varieties, mostly from Eastern Europe, and I am planting into orchards as fast as I can. One or two blossomed when 18 inches high, and many have fruited when three feet high. Of course they will be subject to black knot. These cherry trees are mostly dwarf forms of the purple fleshed Morellos, sometimes known as Griottes, and they offer a most promising field for experiment.

Mr. J. C. Chapais, St. Denis, read the following paper.

NOTES ON GRAPES, RASPBERRIES, STRAWBERRIES AND PLUMS.

Mr. Chairman and Gentlemen,—It was only on the evening of January the 30th that I received from Mr. Dunlop, Secretary of the Montreal Horticul-

tural Society, a letter dated January 26th, inviting me to make known to you, at this Convention, the little experience I have in outdoor grape culture. It is needless to say that, on so short a notice, it has been impossible for me to prepare anything else than the few notes I am going to read.

As to grape culture, I beg to say that I made that culture a success at Varennes, fifteen miles below Montreal, during five years. The varieties that have given the best results, under my care, are the Hartford Prolific, Champion, Concord and Isabella vines. I convinced myself, by experience, that the proper method of pruning the vine in our Province consists in cultivating it in order to have, after the third year of its growth, a plant on a single stem bearing two lateral shoots of five feet each in length. From those two lateral shoots, cut off in the fall of the third year all the new wood of the year, in order to let them, in the following spring, bear each five branches of new wood, which are the fruit-bearing branches. Every year, in the fall, cut those fruit-bearing branches from the two main lateral shoots, to make room for new ones in the following spring. The idea is to make the vine bear its fruit as near the surface of the soil as possible, so that the bunches may have the benefit of the light and heat of the sun, radiating fram the earth. Leave on each fruit-bearing cane from two to four bunches, according to the strength of the vine, and, by that method, you can obtain as much as thirty pounds of grapes from four year old vines.

I have tried to cultivate the vine at St. Denis, Kamouraska County, ninety miles below Quebec, but with no success. I firmly believe that it is quite useless to undertake outdoor grape culture farther than St. Roch des Aulnaies, seventy miles below Quebec. Mr. Eugène Casgrain, President of the Horticultural Society of L'Islet County, has cultivated the vine at L'Islet with success, following my direction as regards the method of pruning just mentioned. He has the satisfaction of seeing his grapes coming to maturity almost every year. I regret to hear that Mr. Casgrain has been prevented, through sickness, from preparing the paper on outdoor grape culture he had promised for the Convention. I will not close the subject of the vine without saying that its culture will never be, below Quebec, anything else than an amateur culture, as success is only attained with much work and care, and that the only varieties ripening their fruit there are the Hartford Prolific and the Champion.

I wish to speak to you specially now, Mr. Chairman and gentlemen, of two small fruits under cultivation for a very long time, below Quebec, and bearing perfectly well the cold climate of that region. I understand that the Montreal Horticultural Society, in coming here to hold the present Convention, is willing to discuss with us what are the most suitable varieties of fruits for the eastern part of the Province. I then concur in the views of the Society when I speak of those two small fruits that I wish to see better known, being convinced of their value for the coldest districts of our Province. They are the White (Orange ?) Raspberry and the White Alpine Strawberry, under cultivation in our gardens for more than a hundred years.

As to the White Orange Raspberry, I had occasion to mention it in an article I wrote last year for the *Journal d'Agriculture Illustré*. Allow me to quote it here, as it contains all I have to say on the subject :

"We have here, ninety miles below Quebec, in 47° latitude, a white rasp-
"berry, apparently of the 'Orange' variety, which has been under culture from
"time immemorial, without mulching of any kind during winter, and that has never been injured by cold, though we often experience a temperature

"of 30° Fah. It is so hardy that it looks almost as if it was indigenous, "and is often found growing in a wild state on old uncultivated orchard grounds. "The fruit attains a large size under good cultivation, is very sweet, has a fine "orange hue and is, as to quality, one of the best raspberries we ever met. The "plant bears heavily, aud gives a succession of fruit from July the 15th till Sep- "tember, without any interruption. As this raspberry (the fruit) is very tender, "it is marketable only when cultivated near towns where it can be sold, but "then, it ought to be exceedingly profitable, on account of the abundance and fine "quality of the fruit."

The White Alpine Strawberry has probably been imported from France by our ancestors, the French settlers, and has since been cultivated in our gardens. It is hardy, resists our lowest temperature without any mulching, gives a heavy crop of excellent fruit, and bears with every kind of hardship. Its fruit, as to size, is a little below the average, but, on the other hand, is borne on the plants in enormous quantity. It is very sweet and of a rich and extraordinarily aromatic flavor. In fact, that flavor is so distinct that all the other varieties of garden strawberries taste poor, if compared with its fruit. The White Alpine Strawberry possesses another valuable quality, that of being what we call in French *remontante*, that is, of bearing fruit from the end of June till the end of September.

To sum up, the White Orange Raspberry and the White Alpine Strawberry, though they may not be profitable for the market, (a fact I am not ready to admit) are so hardy and so well adapted to the climate of the eastern part of the Province of Quebec, that they can be cultivated with success in those localities where the American varieties fail to grow. Their luscious fruits are of great value for our horticulturists' tables, which they supply, by an easy mode of culture, with a yearly crop which brings an hygienic change in the farmer's daily food during summer.

I would be sorry to go back to my seat without saying a word of our White and Blue Orleans Plums. Others spoke, or will speak of them better than I can do. Nevertheless, I must tell you that of all the fruits we cultivate, the plum is for us the most profitable. I came this year, by chance, into possession of an old plum orchard planted more than forty years ago. The trees in it are too much crowded, badly pruned, have never been cared for, and notwithstanding all these drawbacks, and though the orchard is only the fifth of an acre in size, it has given me this year a profit of twenty-two dollars. If such a poor orchard has given such a fine income, what must be the profit one can get from a well cultivated orchard of the same fruit.

Here is the end, Mr. Chairman and gentlemen, of my notes. They are very short owing to the lack of time at my disposal. I will, however, be satisfied if they prove to be of some interest to you. My aim is like yours. We work together to spread among our Canadian farmers the taste and knowledge of horticulture, and especially of fruit culture, being sure that there is in it for them, a source of comfort, welfare and profit.

Mr. W. W. Dunlop, Outremont, read the following paper on

THE CULTURE OF THE RASPBERRY.

The raspberry has not been cultivated to any extent, so far, in this Province, owing, no doubt, to the large quantity of wild fruit which is brought into the markets. As the supply from this source is not likely to increase and the consumption in the large cities becomes greater, an impetus will be given to the cul-

ture of this delicious fruit, the better varieties of which cannot be imported from a distance, and the grower situated in proximity to a market need not fear that competition from the West which he has to contend with in growing other fruits.

Our climate, although severe, is not unfavorable to the raspberry, and varieties of European origin stand the rigor of our Canadian winters better than the summer heat of the Eastern States, where they become enfeebled and winter-kill unless protected.

The fear of climate has, no doubt, deterred many from undertaking this branch of fruit culture as the varieties which are termed iron-clad, are few, even in more southern districts. We cannot, however, by latitude, or extremes of winter temperature, fix upon the limits where certain varieties of the raspberry can be successfully grown, as with the apple. The depth of snow is a more important consideration, and happily in this Province we usually have a sufficient quantity to enable us to grow tender varieties like Brinckle's Orange and others, in sheltered locations without protection. In exposed places the snow may not lie deep enough to protect the canes if left standing, but it is seldom we do not have a covering of at least a few inches throughout the winter, sufficient to cover the canes if laid down, and this forms a safe and economical protection.

Upright or Suckering Varieties.

The varieties of this class reproduce themselves from suckers, some very sparingly, as the Philadelphia, others, as the Cuthbert and Turner, producing an abundance of plants. They may also be propagated in other ways, but as this system of natural propagation usually furnishes a sufficient number of plants to the growers of fruit, other means are seldom resorted to except by the nurserymen.

The greater number of the varieties of this species require a deep moist soil, and the best results are obtained from a clay or clayey loam which must be thoroughly drained.

Before planting, the ground should be thoroughly prepared as for any other field crop, and free from all perennial weeds. Select good strong plants, suckers of the preceding spring. The rows should be not less than six feet apart and plants 3 feet in rows. If the field is not too large a line may be used to mark rows and openings made for the plants with a spade. If, however, a large extent of ground is to be planted the most economical way will be to open up a furrow in line of row, into which place the plants at the proper distance and cover to the same depth as they originally stood, pressing the earth firmly about the roots. Whichever system is adopted the rows should be perfectly straight and at uniform distances from each other as, though not absolutely necessary to success, a little care in this respect will render possible the prospect of having an ideal raspberry plantation.

As soon as planted, cut the canes down to within an inch or two of the ground in order that the whole force of the plant may be expended in producing new canes, from which a fair crop of fruit may be expected the following season. Neglect in this particular results in a diminished vigor of the new cane; sometimes if unfavorable weather follows planting, in no new canes being produced, and consequently in a partial or total loss of crop the following season.

The rows should run as nearly north and south as possible, as the prevailing winds are from the west, and rows thus planted catch and retain the snow, which in general culture is sometimes the only protection afforded them.

If planted on a large scale a great part of the work can be done with a horse and cultivator. The rows should be long enough to avoid too frequent turning,

a road for which should be left at each end. Much labor may be saved by dividing the ground so that not more than 3 or 4 rows may be together, leaving intervening spaces of 18 or 24 feet, as in this way access is obtained to the whole length of the rows, for conveying manure and other purposes. The spaces so left may be used for annual crops, and in time new plantations be made on them as the old ones are removed.

Clean cultivation is necessary with this as with any other crop. The spaces between the rows may be kept clean with a horse and cultivator.

After the first year the rows will be so filled with plants that the weeds will not give much trouble.

Well decayed barnyard manure is one of the best fertilizers and should be applied on the surface each fall and cultivated in the following spring. The quantity to be applied will depend upon the state of the soil and the variety cultivated. Feeble growing varieties require a quantity which would make those of more vigorous growth unproductive, but the cultivator of acres is not likely to make the mistake of giving too much. The cuttings from the canes, and weeds gathered from the plantation, should not be burned but made into a compost with barnyard manure, and when thoroughly decayed used as a manure. In this way much valuable matter is returned to the soil.

The first summer it will be necessary to pinch the young canes when they have attained a height of about two feet, as if allowed to grow too high they will not be thick enough in the row to be self-supporting. In after years, as the rows fill up, the growth of the canes should not be restricted in summer as pinching the ends promotes the development of too many lateral branches. Where no stakes or supports are used, however, it will be found necessary to shorten the canes of very vigorous growing varieties before the autumn winds and rains cause them to be beaten to the ground.

The rows may be allowed to extend to about 2 feet in width, the cultivator being adjusted to restrict the plants to this space, and the canes should not be allowed to stand closer to each other than from 9 to 10 inches. The final pruning of the canes for fruiting should be done in early spring by shortening the main cane to from 3 to 4 feet, according to the vigor of the variety, and the laterals to from 6 to 8 inches. The most useful implement for this purpose I have found to be a pair of ordinary sheep shears, the blades of which are adjusted on a spring handle and remain open. This instrument is used with one hand and by a very slight pressure on the handle the largest cane is cut with ease.

Few varieties can be profitably grown in this climate without some sort of winter protection. In favorable seasons, when the snow lies deep, tender varieties will withstand the rigor of winter and produce good crops, while during winters when we have not much snow the hardiest varieties are sometimes injured and their productiveness impaired. In city gardens and sheltered locations many varieties may be grown without protection, and should an unfavorable season occur the loss of a crop does not involve very grave results, but in plantations of greater extent and where the location is not so favorable the grower cannot afford to trust to the uncertainty of climate and should protect, at least, a portion of his plantations each winter. It is not necessary that the plants be wholly covered but merely laid down flat on the ground and held in position by a shovelful of earth placed on the tips. This is a very simple and inexpensive operation, involving however the necessity of not shortening the canes during autumn and also of supporting the rows the following spring, as owing to the

plants remaining in a recumbent position during winter they are not inclined to stand upright after.

Single wires, strung on furrings at convenient distances, at each side of rows, are all that is necessary. The cost of laying down and of providing the supports will not exceed $10 per acre which, taking the risk of exposure into consideration, is but a small premium to pay for the certainty of obtaining a full crop.

Turner.—This is probably the hardiest raspberry of its class in cultivation. Berry of medium size, good color and flavor, but too soft except for a near market. Its propensity to sucker is so great that it is not a favorite with growers. One of the earliest to ripen.

Marlboro.—A new variety, fruit of large size and ripens early. Not thoroughly tested, but so far very promisiug. If found suitable it will be an acquisition as we want a large early berry.

Philadelphia.—Vigorous and very productive, berry of a dark color and medium size. Requires protection in most localities.

Cuthbert.—A favorite berry for market wherever grown. Fruit of large size and very firm. Canes vigorous, and productive when not injured by the cold. It is not as hardy as the Caroline and Shaffer, and except in sheltered situations should be laid down for the winter.

Golden Queen.—A variety of recent introduction, of the same general character as the Cuthbert but with yellow fruit. Not fully tested here yet, but with me the canes are of about the same hardiness as the Cuthbert.

Cap Varieties.

The varieties of this species do not sucker but are propagated from the tips. Early in September make small perpendicular holes in the earth, into which place the ends of the growing canes, about 2 inches deep. In from two to three weeks time the plants will have become nicely rooted, but may be allowed to remain until the approach of winter, when they should be removed and heeled in.

These succeed in almost any well drained soil, but prefer a lighter soil than the upright varieties.

The same general rules for planting and culture as for the suckering varieties, but the rows should not be less than 7½ to 8 feet apart and the plants from 2½ to 3 feet in row. Care must be taken not to plant too deeply or to press the earth too firmly about the crowns of plants as the young canes are very tender and often fail to force their way through the earth when it has become compact. A good plan is to allow the tips to make a growth of 3 to 4 inches before planting.

The first year the young canes should be nipped when they have attained a length of 18 inches, and in after years if to be self-supporting, at a height of 2 feet. If stakes or wires are used they may be allowed to grow longer.

The pinching of the main shoot causes lateral branches to be thrown out which balance the plant and to a certain extent prevent its being blown about and broken by the wind. The main canes are, however, very easily detached from the root and a protection by stake or wire is desirable.

In spring, cut the main canes at middle of bend and shorten laterals to 1 foot. Do not allow more than four or five canes to grow from a plant, and in summer pinching remove only the extreme point of shoot, as with some varieties the removal of a large portion of the cane in the growing season causes the remainder to blacken and die. This is particularly noticeable with the Gregg.

Souhegan and Tyler..—These are so nearly identical that they can hardly be distinguished in berry or bush. Hardy and productive. Fruit of good size and may be gathered in about three pickings. The earliest to ripen.

Mammoth Cluster.—A well-known variety, fruit larger and later than the Souhegan. Not quite so hardy, productive.

Gregg.—This is the largest, firmest, and latest of the Black Caps, it is also the poorest in quality. Fairly productive, and sells well on account of its large size and fine appearance. Not thoroughly hardy but does well when we have the usual covering of snow in winter.

Beebe's Golden.—The most productive raspberry I have ever seen. A vigorous grower and perfectly hardy. The fruit is of the size of the Souhegan, when half ripe, it is of a beautiful golden color turning to dull brown when fully ripe. Sweet and pleasant to eat from the bush but lacking in flavor and will not become a popular market fruit on account of its color.

Caroline.—This is a peculiar variety reproducing itself both from tips and suckers. It is a vigorous grower, very hardy and exceedingly productive. The fruit somewhat resembles Brinckle's Orange, in size, appearance and aroma, but is much more acid and inferior in flavor to that fine variety. In the spring of 1886 I planted 600 bushes of this variety, not one of which failed to grow, and last summer gathered from these over 700 quarts of fruit. The bushes were very badly broken by the snow of the preceding winter or the yield would have been much greater. This variety commences to ripen about when Souhegan is done and continues to give fruit for a month. The fruit is very soft and must be marketed the same day it is gathered. A valuable variety to grow in limited quantity for a near market.

Shaffer.—A true Cap in habit. This berry has won its way into the front rank of raspberries. It is now a favorite in the home garden and for canning purposes is without a rival. The color is the only drawback for a market berry, but this may cease to be an objection when once properly introduced to our markets and people become aware of its merits. The fruit is of the largest size and when ripe of a dull purple color covered with a heavy bloom; of a sprightly, though not delicate flavor, and not unattractive in appearance when freshly gathered. The bush is a vigorous grower, productive and exceedingly hardy. I think this is destined to be one of the commercial raspberries of the future for this climate.

I have not enumerated many varieties as few are adapted to general cultivation.

The grower must be guided to a great extent in the selection of varieties by his proximity to market, as few will bear a long transportation.

Mr. Jack—Do you prefer fall to spring planting?

Mr. Dunlop—I prefer spring, and plant as early as possible.

Mr. Brodie—Would you place the Cuthbert before the Marlboro?

Mr. Dunlop—The Cuthbert is not hardy enough to cultivate largely in exposed fields. I have not tested the Marlboro sufficiently to know whether it will be hardier or not, but it promises very well so far. You cannot tell by one or two winters. It ripens earlier than the Cuthbert.

Col. Rhodes—I have had some experience in the growth of raspberries, and I am rather surprised to hear gentlemen talk of some raspberries being tender. All through this northern country, from here to Lake St. John, you find enormous quantities of raspberries, and a great number are just as large and as fine as what is commonly called the garden raspberry. Even in some places you will find the

white raspberry in its wild state. You will find them on the granite formations in the Saguenay Mountains, on the clay land, as large as the garden berry. We protect our raspberries in a very simple way. The danger we have to guard against is the heavy snow which is apt to crush down the whole plant, when the snow is four or five feet over it. If you protect the plant with an upright pole, the frozen snow working down the plant by degrees will strip it. The plan we have adopted is to give the plant the formation of an arch or bridge. Do not put your stakes where the roots meet, but place the plants three feet apart, and between the plants put your stake down. You thus give air to the new cane which is to grow up for the next year. If the arch is properly formed it will support the weight of nearly 60 or 70 pounds.

Mr. Shepherd—How do you cultivate your strawberries? I have seen your strawberries after the Montreal ones were finished.

Col. Rhodes—In growing strawberries about Quebec, we take the latest kinds we can get, because when strawberries are abundant in Montreal and you are getting the refuse of the Toronto growers the price falls very low. There is no profit in growing strawberries unless you can get 18 or 20 cents a quart. I caution you against taking as mine all the strawberries that are called mine. I have not grown any for years, yet Rhodes' strawberries are sold all over. The advantage we have here is that our market comes ten days later than the Montreal market, and it is a curious fact that I can actually lay down Quebec strawberries in better order in the Montreal market than in the Quebec market. You do not like to pick the fruit in the middle of the day when the sun is hot, because the berries become soft; you wait until the afternoon. The fruit is then carried off and put on board the steamer in separate compartments, and it goes to Montreal with the air of the river blowing through the boxes all night. Fanned by this cool air, it is, when landed in Montreal, in better order than what I can offer on the Quebec market. The freight to Montreal is only 30 cents a case, or a cent a box; and the Montreal market is a good cash market. In growing these fruits on my farm, I have remarked that after two or three years the land would not give you the same crop. I have gone all over my farm with strawberry culture, and I have now given up growing the fruit, because I found the land, unless I gave it an enormous quantity of manure, did not produce the same crop that it did originally, while neighbouring farmers who got the strawberry plants and put them on land which had never grown a strawberry, obtained fruit of an enormous size.

Mr. Shepherd—What varieties?

Col. Rhodes—The berries keep changing their names every year, but I do not think there is any great change in the fruit. There is one kind I have never grown, though I think it is quite profitable; that is the Wilson's Albany. It is an acid fruit, but it preserves its appearance for a sufficiently long time to enable the trader to get rid of it. You will find the grocers prefer that variety, because it obliges purchasers to take more sugar for preserving than the others, and can be kept three or four days in the store and still be presentable. There is a good deal in the appearance of the strawberry. People want big strawberries. I have grown strawberries in the winter, and amongst my purchasers were the nuns of the Good Shepherd Convent. They would buy half a quart of strawberries at a time, and as we know they are not persons who spend a great deal on what they eat, I asked them how they came to buy this expensive fruit. They said: We find them very useful in our hospital; we take them among the sick people and

let them smell the odor, and it sets them all talking about the month of July and does them more good than the doctors.

The Convention then adjourned until 8 p.m.

The Convention reassembled at 8 p.m., Mr. Charles Gibb, Vice-President, in the chair.

The proceedings opened with an address by the Hon. H. G. Joly, on

THE GROWTH AND TREATMENT OF FOREST AND FRUIT TREES.

Mr. Joly would not attempt to treat the extensive subject assigned to him but would take some of the details, beginning with tree pruning. He might perhaps attach more importance to it than his hearers, who, in the care of their orchard trees, had mainly in view the proper development of fruit-bearing branches, while forestry sought to suppress as many branches as compatible with vigorous growth, so as to secure long, clean stems.

He would like to call attention to the method of pruning recommended by Count des Tars in his late book. The difference as compared with the old method consisted in a much more severe treatment, which must appear dangerous to those who wish, above all, to avoid large wounds in pruning, as it does not mind how large a wound may be, provided the branch is taken clean off, so close to the stem that it leaves it as smooth as if there had never been a branch there. Such wounds heal very rapidly as the new wood and bark have no rise or hump to overcome but spread easily over the even surface of the stem, with no obstacle to retard them.

As an illustration he produced a number of sections taken from apple trees, showing the evil results of defective pruning (that is not sufficiently *close* pruning). A glance would show how nature had striven to draw a cover over the wound; the new wood could be seen trying to climb over the small stub or hump left by the old-fashioned pruning, but decay had set in the wound before it could be safely sheltered by the new wood.

Not only would he support the principle of the closest pruning, regardless of the wound, but rather than leave the slightest protuberence on the stem that would retard the covering of the wound he would cut into the stem, regardless of depth.

He had often noticed with wonder, how wounds penetrating deep into the stem, caused by the tearing of branches by the weight of snow or ice, healed more rapidly and better than wounds resulting from the most careful pruning with the saw; following the lessons of nature as closely as possible, he had lately begun to remove branches by loosening the upper part with a gouge and tearing them off and had confidence in the result.

As for the treatment of roots, in transplanting trees, instead of going to great trouble in trying to secure many long roots, which could never be perfect, and a mass of rootlets, he thought it better to secure a few roots, and shorten them without fear until every wounded part had been removed and the ends dressed off quite clean with an undercut. Such roots gave birth to a regular ring of strong young roots, radiating in every direction from the end of the old root (where they started from between the bark and the wood) like the spokes from the hub of a wheel, as one could see by looking at the beautiful specimen given him by Colonel McGibbon of the Mountain Park, in Montreal. He compared these with the jagged ends of torn roots not dressed off, where no new roots had formed, or irregular sickly rootlets unfit to promote healthy vegetation.

He concluded by alluding to the protection against frost (so necessary in our climate) afforded by snow to the roots of young trees, especially in heavy soil, and produced a number of young black walnut trees, with the bark all lifted off the roots, which had caused their death. He attributed that result to the expansion of moisture caused by the early frosts and thought that he had succeeded in preventing the recurrence of similar losses by placing obstructions, hedges, fences, stones, brushwood, or anything that would keep the early snow from being blown away by the wind, and force it to collect round the foot of the trees for the protection of the roots.

Mr. Gibb—The fact of Mr. Joly growing the Black Walnut must be written down very plainly, or our friends to the south of us will not believe it.

Mr. Barnard—Twenty years ago I was in Europe, and at a great University in Germany, the teacher of forestry gave me just the lesson which Mr. Joly has given us as to cutting trees so that the bark would have no difficulty in covering the wound.

Mr. Shepherd—It is impossible to take a tree out of the nursery with all its roots intact. Some of them must be torn or cut, and it is for the planter to understand that he must not plant the tree in that condition. He must take a sharp knife, and from the underside make a clean sloping cut of every root near the place where it has been cut by the spade. If you take up that tree a year or two afterwards, you will see where that clean cut has been made, and from the edges of the cut, numerous little rootlets have pushed out, and these are the feeding rootlets of the tree. It is a mistake to plant a tree as it comes from the nursery. All nurserymen ought to trim the roots before the tree is planted in the ground.

Mr. Brodie—I had a similar experience to that of Mr. Joly. I have a young orchard, four acres in length by one acre broad. My father had a board fence erected, on each side of which the snow gathered, leaving a row of trees in the middle bare of snow. The two drifts almost met in the middle, and when the snow went away in the spring, the water kept running in towards this row of trees in the centre. The trees all died, though the tops seemed green, and I found, when the trees were dug out, that the roots were all dead. I do not know whether it was the quantity of water that killed them, but it looked very much like it.

Mr. Jack—I understood Mr. Joly to give us as his reason, that the roots absorb the moisture.

Mr. Joly—I thought there was a good deal of water in the roots and in the ground, and when that water froze suddenly there must have been expansion which burst or lifted the bark.

Mr. Jack—Mr. Brodie attributes the cause in his case to the flow of water in the spring.

Mr. Brodie—I took away the fence and let the wind have a full sweep, so that the snow lies more evenly. This land was all under-drained, but the frost was not out of the soil, seemingly.

Mr. Joly—In my case I do not think you can account for the lifting of the bark from any other cause than the presence of water in the roots and its dilatation when frozen.

Mr. Jack—That is a natural supposition, no doubt.

Col. Rhodes—Mr. Shepherd has remarked that in trimming these roots, the cut should be made from below up to the surface and not from above. Coming from below up to the surface, the effect would be that where you cut the root, the

bark of the root would callous, and from the callous would drop roots which would go into the ground and nourish the main roots. If you cut from the surface down, you have just the reverse. The root will callous and on the callous will form a shoot upwards which will become a sucker and injure the growth of the tree.

Mr. Barnard—The action of the frost raises the trees, but the roots will not be raised and will be broken. The second effect is to act on the bark and press it from the tree, after which it dies. In the case of the beet root, if it freezes the whole juice runs out readily.

Mr. Jack—Our arguments to-day and what the President said yesterday show us that the sap, which is in all trees, ripens in the fall, and when these trees suffered injury, must have been in a minimum quantity.

Mr. Barnard—It is not a question of sap at all, it is a question of frost.

Mr. Jack—It is a question of sap altogether.

Hon. Mr. Joly—I think the trees must have been frozen in the fall, for this reason: After I found there was something the matter with the roots, I concluded it must have been the frost that had lifted the bark. I replanted new trees on the same spot and collected at once the very first snow that fell, and these trees passed through the winter without difficulty. My impression is that before the ground is covered with snow the early frost penetrates it. Another reason for this opinion is that there was snow all over the field in January and February, so that it is not likely the mischief to the root could have taken place in the spring. It strikes me the mischief must have been done before the trees were protected.

Mr. Dupuis—That same year I had a square of very hardy apple trees, the Transcendent. We had snow early, about the third or fourth of November. After that we had a thaw, and the water remained on the land for a few days and became frozen hard. We had no snow after that for a great while, and in the spring those trees had all their roots rotten like Mr. Joly's trees. I believe the damage was done in the fall. The roots were frozen, and the ground was afterwards covered with two or three feet of snow; the roots, when spring came, had heated and were rotten.

Mr. Moore—I would like to ask Mr. Joly something with regard to the planting of Black Walnuts. There is a popular idea that they must be grown from the nut, and that it is impossible to transplant. I can scarcely believe that to be the case, because in Mr. Evans' nursery, Black Walnuts were sown three years ago and some transplanted very carefully with good effect. The tree has a tap root that goes down so low, you would think it was on its way to the Antipodes. If carefully cut, about a foot or 18 inches from the surface, I cannot imagine there need be any great difficulty in transplanting. The result of the common belief, however, is that we sell more of the seed than of the trees.

Mr. Joly—My first plantation was from the nuts. I planted them four feet in every direction, and I was greatly disappointed in the spring, when I saw one come up here and another there. The first year only one-fifth came up, and the second year one-third came up, the third year none came up. There I was with the beginning of a grove of Black Walnuts, quite irregular. So, ultimately, I came to the conclusion that in order to have some regularity, I would have to transplant. When I came to transplant, I found these enormous tap roots. I cut the tap roots quite clean, and transplanted the trees, and have been very successful. I have scarcely lost any, except by frost. I do not think there is any difficulty in connection with the roots.

Mr. Barnard—Did those transplanted grow as fast as those from seed?

Hon. Mr. Joly—No; those from seed grow better, only you cannot have them regular without transplanting.

Mr. Chapais—There is an easy way to treat trees with tap roots, in order to transplant them without damage. When they are in the nursery in the spring take a sharp spade and send it in a sloping manner through the soil where the root of the tree is; you cut the tap root, then withdraw the spade, leaving the tree there; you will not see any stoppage in the growth, and the next spring, where you cut the tap root, there will be a lot of fine rootlets growing. You can then transplant the tree without difficulty.

Mr. Gibb—The only question in transplanting the walnut is as to the ultimate growth. It is said if you wish to get the greatest growth from a tree of that kind, you must plant the seed where the tree has to grow.

As the majority of the Montreal members of the Convention had to leave at this time to catch a train, Col. Rhodes proposed a vote of thanks, seconded by Hon. Mr. Joly.

Mr. Jack and Mr. Shepherd replied on behalf of the members from Montreal.

Mr. Charles Gibb read the following paper:

ORNAMENTAL TREE PLANTING.

Quebec is beautifully situated. A stranger is charmed by the views in all directions. You have many fine buildings, but no grand old avenues of trees. You have old historic buildings, but no historic trees. Hundreds of towns and villages on this Continent have no beauty of site, are as flat as pancakes, yet rendered lovely and attractive by their shaded avenues and park-like plantations. It was in 1779, in New Haven, Conn., Hon. G. B. Northrop tells us, that a village green association was formed, $1,500 subscribed, and the village planted with those elms which have made New Haven known and noted far and wide. The late M. de Vilmorin, in 1822, began his plantation at des Barres, in France. Abut 117 varieties of conifers and 296 of deciduous trees were planted. I have walked through these plantations. M. de Vilmorin began these experiments with the hope of growing, on French soil, the masts for the French navy. But this noble patriotism widened into a yet nobler universality, so that his experiments, now perfected by the lapse of time, are the grandest accumulation of forestry data that the temperate regions have ever seen. What noble specimens of the Cedar of Lebanon may be seen in England, over two centuries old. I believe it to be the grandest tree in England. Peter the Great, it is said, used to go about with his pockets full of acorns, and I have seen many grand old oaks on the islands at the mouth of the Neva, said to have been planted by him.

Evelyn caused millions of trees to be planted in England, about 1600, and Disraeli in his *Curiosities of Literature* says that "the present navy of Great Britain has been constructed with the oaks which the genius of Evelyn had planted."

I have said that you had no fine avenues of trees. Let us see what has been done elsewhere; what in a more limited way we might do if we chose. In the City of Washington there are 59 miles of streets shaded by 25,895 maples. There are 13 miles of poplar, 10 miles of elm, 10 miles of basswood, &c., in all, up to June 1880, 120 miles of avenues and streets had been planted with 53,050 trees. There is an avenue four miles long, four trees abreast, of basswood; two avenues,

three miles long, of Silver Maple, about the same of Norway and the ash-leaved maples. The avenue leading to the Department of Agriculture is of the Gingko, the Maiden-hair-fern tree of China; others are of Kentucky Coffee tree, Tulip tree or Catalpa. The avenues leading to the Capitol are planted with the Oriental Plane, and the road along the four sides of the District of Columbia, which is ten miles square, was being planted with this tree, so that when finished there would be a drive of 40 miles under the shade of this one variety of tree.

In avenue planting we need uniformity of size and growth; and to insure this the city of Washington has two nurseries, one at each end of the city, and trees thus planted direct from the nursery seldom fail to grow. Now in Quebec, wide avenues like the Grande Alleè should be planted with the elm, which Michaux, a native of France, described as "the most magnificent vegetable of the north temperate zone." It is rapid in growth, graceful aud long-lived. Are your sugar maple and basswood long lived, or is the ash a better tree? These are the questions which need to be answered by local experience. For avenue planting we should choose our few best and well-tried trees, but short streets, where wide enough, might be planted with such varieties as the Cut-leaved Weeping Birch, Scotch Birch, Weir's Cut-leaved Maple, European Silver Poplar, and some of the balsam poplars of Siberia. Hardly in any other way could we earn the gratitude of posterity at so small a cost.

In the grouping of trees in our gardens aud parks we need variety, strong contrasts in form and color. We should contrast the formal with the eccentric and wayward, the massive with the graceful and feathery, the rigid and upright with the drooping and weeping. What varieties shall we select from Asia and Europe, and from other parts of this continent? Here is an interesting field for experiment. I find that I have, or have had, at Abbotsford, 187 species and varieties of trees, which are not natives of this province. Some of course are failures, others successes beyond my expectation. Of 25 varieties of maple, I wish to call your attention to *Weir's Cut-leaved*, a variety of the *plene* or Silver Maple; an eccentric tree of wayward habit; in outline quite unlike a maple. I have five trees of it at Abbotsford, 25 feet in height, and I have seen it doing well at Ottawa.

[Here samples of foliage were exhibited, pressed upon cards, showing the variations of the maple, alder, poplar, birch, &c.]

Note the eccentric foliage of *A. dasy. hetero. laciniatum*, a variety of our soft maple and yet not quite hardy. This very peculiar foliage is usually along the larger branches, while in Weir's the most delicate tracery is always upon the new growth. Here is another, *Ricii*, with small but ornamental foliage.

The *Norway Maple* is more dense and spreading than our sugar maple, but often suffers from sunscald when it attains to five inches diameter of trunk. A few varieties I must mention. They are well worthy of trial, even if not long lived. *Schwerdler's* as it unfolds in spring is a brilliant crimson, and remains so until the leaves are expanded. After a week of this brilliant color, it fades and becomes a dark sombre green, until the new growth, again bright crimson, appears like a lot of red roses all over the tree. *Reitenbach's* is purple on the upper side of the leaf and green beneath. *Digitata* and *Lorbergii* are much alike, and the extreme of eccentricity in maple leafage. The *Tartarian Maple* of Russia has a leaf more like an apple tree. This specimen marked *species nova Kiahtka*, if true to name, is a great curiosity. Kiahtka is in Mongolia, south of Lake Biakal. It is just like our own soft maple, and there is no similar species in Europe. You have seen how nearly alike are the narrow-leaved poplar of

Utah and some of the Siberian. The close resemblance of many of these old world and new world trees is very noticeable. Dr. Asa Gray, it was, who threw a flood of light upon these interesting questions. It seems as though the old home of these trees lay far to the north, whence it radiated southward in all directions previous to that terrible epoch known as the glacial age.

Among the Alders we find great contrasts; dense, massive foliage as in *rubronervia;* feathery and graceful, I might say ærial, as in the *Imperial Cut-leaved* or the *incana laciniata.* I am inclined to think that all these varieties would prove hardy with you (they do with me) if planted on moist soil.

BIRCH.—Here we have a family of great variety and well adapted to northern climates. Of all the kinds I have tried only that from the Himalayan Mountains in India proved tender. The *Cut-leaved Weeping Birch* of Germany has been styled "the Queen of the Airy Graces." You have it in Quebec. There is room for thousands more. The *Fastigiate* is erect like the Lombardy Poplar. The *Blood-leaved* has deep purple foliage in early summer. *Young's Weeping* is a good substitute for the Kilmarnoc willow. The birch of Western Europe has been a very satisfactory tree. After our native birches have lost their foliage the leaves of the European birch are still green.

I here show you specimens of the European Cut-leaved and Dahurian birches, by way of contrast.

The *Caragana* of Northern Asia sometimes grows to the height of 30 feet. It has tiny foliage and will grow in any dry soil. It has many dwarf shrubby forms which are very ornamental.

Of the Ash family, my favorite is the *Acubaefolia*; in spring its leaves are as mottled as a Croton, and though it fades in midsummer is yet the best tree we have of this class.

Catalpa Speciosa.—I have at least sixty of these trees on my farm, some of them 15 or 18 feet in height. I have also ten in an exposed place around a two storey summer house from which I can count the spires of sixteen villages. It blooms in midsummer, and upon young fast growing trees I have measured leaves 14 inches in length. I regret I cannot recommend it for colder climates. The *Honey Locust* and the *Kentucky Coffee* Coffee tree will only prove hardy with you if grown from hardy seed. The *Q. macrocarpa*, or *Burr Oak* of the West should be hardy anywhere, and the *Scarlet* and *Chestnut-leaved Oaks* promise to do well. The oaks of Western Europe are less hardy. None of the European elms have done well except the *Purple-leaved.*

Of Poplars, our *Cottonwood* is the fastest growing native tree we have, and the *Berlin Poplar* is very much like it The *Siberian balsamiferas* differ a good deal in form and foliage; I have sample trees of them planted along the sides of my fields. The *European Silver Poplar* is a valuable tree although it suckers badly. Plant it in moist soil so as to maintain full-sized foliage, and in a windy place where the snowy white underside of the leaf will contrast with dark green foliage. The *P. Bolleana* of Turkestan is a form of this, and is as upright as a Lombardy, a great curiosity.

Of Willows, my favorites are the *Laurel-leaved, Rosemary-leaved* and *Regalis*, a silvery willow, however, not entirely hardy.

Of Evergreens the old standby's, *Norway Spruce, Scotch* and *Austrian Pine* cannot be improved upon.

Had the City Council of Montreal thought well to hand over to the Montreal Botanic Garden Society that tract of open field which they were in quest of, it would have been planted in botanic order, and we should have had our group

of maples, our groups of birches, alders, poplars, willows, &c. Our group of maples would have comprised at least forty varieties. Birches more like fifty-five varieties. The poplars would have needed nearly half an acre, if given sufficient room for full expansion in old age; and these, as I have shown you, would have been by no means monotonous groups. but the extreme of diversity, in outline and foliage, and owing to this peculiar combination of contrasts, highly ornamental.

Let us frankly acknowledge the fact that in this matter of ornamental tree planting we have not kept up with the progress of the age. We are not behind hand in everything, but we are in this, and our people only half know it.

Both the French and English races in this country are descended from old world nations, whose love of rural beauty lends a charm to the lives they lead, and loves so lasting, so hereditary, loves so nearly akin to our love of home, and our love of our native land should indeed be cherished.

Col. Rhodes—I will avail myself of this occasion to say a few words with regard to the ornamental trees which have been planted in this city lately, and which must have attracted your attention. You have no doubt noticed that a number of trees have been planted on this splendid new avenue which has cost so much money, and which is a credit to those who designed it. One of the means taken to commemorate the holding of the Provincial Conference in this city was the planting of a tree by each delegate; but if you look at those selected for the occasion, and see how they have been planted, you will agree with me that the object in view is not likely to be attained. These trees have been put in without any regard to their characteristics or habits of growth. They have just been planted for the occasion, and they answered the occasion; but that is not sufficient, we should look a little further. When we plant an ornamental tree we ought to plant one which will be an ornament for a couple of centuries, or as long as a tree will grow. On the Boston Common, the elms which were planted by the English have a world wide celebrity, and no one who visits Boston fails to see them. They were evidently planted by some one who knew the habits and the characteristics of the elm tree. If you measure the distance between each tree, you will see it is 25 paces, and the consequence is that though the trees are 220 years old, they are still strong and handsome, the admiration of everybody and the pride of the Bostonians. Something of the same kind has been attempted at Ottawa, opposite the Parliament Buildings. The trees planted there are elms and the distance between each tree is 20 paces or 60 feet. The intervening trees, which are chiefly maple and other short-lived trees, will in thirty years die out, and as they die out space will be given to the permanent trees, so that we will have a beautiful avenue of elms in front of the Buildings. If you will look, however, at the trees planted here, you will see in one place three or four ash trees and in another place three or four elm trees, and then a few maples, so that in the course of ten or fifteen years, the road, instead of being an avenue, will be a mass of confusion. These trees. as they grow up, will begin to whip their heads together and destroy themselves. To show the lack of solidity of the plantation several of the trees are actually planted under the arch, with the head of which, in ten or fifteen years time, their tops will come in contact.

Mr. Moore—I am the last person to criticise other people's work, and therefore I have nothing to say with regard to the planting of trees on the street in front of this building, but I could not help feeling amused at seeing one or two planted under the arch. Col. Rhodes says they will grow up and fill the arch; they will

not, for they will die. A good move has been made lately in Montreal in this respect. It is very difficult to get the City Council to improve the city by the planting of trees and the making of avenues. Unfortunately one or two members prefer the game of golf to gardening, and on a piece of land belonging to the city, my wife and family have been cautioned to get out of the way and not interfere with the game. Not one yard of this public property is devoted to adding to the beauty of the city and the education of the people in the love of Nature by the planting of trees, but the whole property is given up to the game of golf, which evidently ranks higher in the minds of the Council than the love of Nature. An important society has, however, been organized, composed of leading citizens, which has for its object the beautifying of Montreal, and one of the means to this end will be exercising pressure on our worthy aldermen so as to force them to do their duty in regard to the planting of trees and making of avenues.

Mr. Moore then spoke highly of the proceedings of the Convention which could not fail to produce the happiest results.

The Chairman congratulated the members upon the great success that had attended these meetings. The Convention was then declared to be closed.

WINTER MEETING FOR THE DISCUSSION OF FLOWERS.

The winter meeting, for the discussion of flowers, was held in the hall of the Natural History Society, Montreal, on the evening of Tuesday, the 28th February. The President, Prof. D. P. Penhallow, occupied the chair, and in opening the proceedings he briefly referred to the success attending the previous meetings, and especially to the interest displayed in the address delivered by Col. Rhodes earlier in the winter. He also drew attention to the fact that within a few months the various gardeners and florists of the city had organized a club for the promotion of objects specially connected with their calling, but which did not come directly within the scope of the Horticultural Society. The object is a worthy one and deserving of support by our Society, to which the club is to a certain extent auxiliary, although not in any direct sense connected with it,

The programme for the evening was then announced, the first paper by Thos. W. Burdon being on the subject of

THE TUBEROUS BEGONIA.

The Begonia family comprises within its membership some of the most beautiful species, both as regards foliage and bloom, to be found in the floral world. It is divided into two main branches—the fibrous rooted and the tuberous rooted. The former is the best known and the most universally cultivated, being seen in the humble cottage window as well as in the rich man's conservatory, delighting the eye with its rich and magnificent panicles of bloom and beautiful foliage nearly all the year round.

It is not within the province of this paper to present the claims of the numerous varieties in this branch of the family upon the floral public, even if that were necessary, but rather to spend the few minutes at our disposal in discussing the merits, growth and general cultivation of the tuberous section. At the outset, as an humble amateur, we would disclaim all intention to instruct or

even tell anything new to the professional members of our Society, our object being rather to bring into more prominent notice before the general floral public the claims this beautiful plant has upon its affections and favor.

The Tuberous Begonia is so called from the formation of the root, this being in the form of a tuber, in many respects similar in character to the potato, having eyes on the convex or upper round portion of the bulb. These burst into growth during the early spring, producing during the summer and fall months of the year a grand display of luxuriant, glossy, green foliage and a wealth of bloom rarely equalled by any other flower. Not a great many years ago this section of the Begonia family numbered only one member called Begonia Discolor, from which we believe the numerous and beautiful species now in existence have all sprung. Probably no industry has made greater strides in advancement than horticulture and its kindred branches. Science has been a mighty factor in its development. Experience though a great teacher was its only one. The leading specialists in horticulture, both in Europe and America have, however, discovered that chemistry and other kindred sciences are closely allied to their calling, so drawing from these wells of knowledge and mines of wealth, and applying scientific principles to their profession, they delight the horticultural world with some floral surprises of startling beauty every year. In this respect the plant under review is second to none. Begonia specialists have wonderfully improved it, in fact have almost brought it to a state of perfection. We have already said that not many years ago there was only one known variety, this being of a dull pink color; comparatively speaking of insignificant value. To-day, however, varieties of the Tuberous Begonia might well be grown for their foliage alone, the leaves being of a bright waxy green, as large as a man's hand, gracefully bending down and completely enveloping the pot, surmounted with footstalks, carrying their beautiful blooms of almost every color, tint and hue known to the floral world, of immense size and substance, four, five and even seven inches across, while some of the double varieties will rival the camellia or the rose in purity of color and doubleness of bloom.

This Begonia may be raised from seed with the greatest ease. This is the least expensive process as from one packet costing 50c. to $1 (and the best strains in existence can be procured for this) fifty plants will be produced and not a poor one among them. Seed sown in February or March will produce plants which will bloom in July or August of the same year and form into splendid bulbs for starting during the following spring.

The most approved method for sowing the seed is to prepare a pan with good drainage in the usual way, filled with a mixture of finely sifted leaf mould and sand with an even loose surface, then sprinkle the seed with great care as it is very fine, so as to distribute it evenly and thinly, and press gently with a smooth board. It would be well to have the soil rather moist before sowing so as to avoid much watering, and after the operation has been completed place glass upon the top of the pan to prevent evaporation. This seed is very capricious and slow in germinating and requires the exercise of some patience. Soon, however, the small green specks will appear here and there over the surface of the soil and the wisdom of thin sowing will then be apparent, as the plants that first present themselves can be transferred to small pots without disturbing those which are not so well forward.

This species can also be increased by cuttings in the usual way, but as plants of great beauty can be so easily raised from seed as we have already seen, this method is only resorted to when some exceptionally fine varieties have been pro-

duced, which it is desirable to perpetuate. The tubers when large enough may also be divided if proper care is exercised, but for all general purposes propagation from seed will have the most satisfactory results, as it has not only the element of cheapness but the charm of expectation, in that some novelty of surpassing beauty may be produced thereby.

It is a matter of some surprise considering the great beauty of this plant and the ease with which it can be grown and kept over from year to year, that it is not to be found in more general cultivation in this country. Even where seen it is generally as a pot plant for the conservatory, or for standing in some shady nook in the garden. As a bedding plant, however, it does not seem to have found its way into the favor and affections of the horticultural public, at least in this section of the country. This may arise partly from the fact that our hot, dry summers are not favorable to its cultivation in the open bed unprotected from the sun, but there is always a warm shady spot in the garden which may be utilized for this purpose with splendid effect. That it is not particular in this respect as to soil or climate is evidenced by the fact that it may be found luxuriating as a bedding plant in the sunny South of England as well as in the bleak parts of the North of Scotland, while in many parts of the adjoining Republic its merits as a bedding plant are beginning to be fully appreciated. In this connection an objection has been made by some that beneficial results as a bedding plant have not been obtained from seedlings on account of its diversity in habit and color. This can be obviated by planting the seedlings out in some part of a reserve border, and during the blooming season selections as to habit and color may be made and the bulbs laid aside for the next year's operations. The little trouble and patience involved in this will be well repaid by a richness and wealth of beauty not excelled by any other bedding plant.

Many varieties of this plant are also well adapted for baskets, vases and rock work, for which latter purpose it has few equals. As a florist's flower for cut bloom it has not found much favor owing probably to its loose hanging habit and poor lasting qualities when cut, but a few plants started early enough to come into bloom in April and May when carnations, roses, &c., are becoming scarce, will not be unacceptable even for this purpose.

There can be no doubt that the popularity of the Begonia family in general is owing in great measure not only to their easy growth and floriferous nature, but also to their entire freedom from the attacks of those insect pests which tend so much to lessen our pleasure in the cultivation of many other plants. The Tuberous Begonia, however free from insects in common with the other members of the family, has been for some years infested with the brown fungus, thereby causing the leaves affected to cease making further growth, to shrivel up and frequently to drop off, and in all cases when thus affected the plants will never regain their natural vigor unless the fungus is entirely eradicated in its early stages of existence. When thus affected it is well to cut away the infected parts of the leaves as soon as the disease is seen, and isolate the plant from the healthy ones to prevent contagion. By this means the healthy ones may be preserved while those attacked can be safely operated upon, and in all probability the latter will recover and become as strong and vigorous as ever. In this connection we may state that recently a preparation has been placed upon the market called "Anti-fungoid," which is warranted to be a certain cure for this disease without injuring in the least the most delicate plant. Begonia growers speak very highly of it, and if all is true that is said and written about it the old proverb "An

ounce of prevention is better than a pound of cure," will apply with much force to the present case.

In conclusion, we trust these few notes hastily put together may be the means, in some little measure, of calling attention to the claims of this beautiful flower, as we believe it to be well worthy of universal cultivation, and to become in the near future a strong rival to many of the present popular favorites, in the affections of the horticultural public.

The Chairman—I understand from Mr. Burdon's paper the plants are propagated from seed and cuttings, and would ask if from seed the quality is kept up?

Mr. Burdon—Improved plants are obtained from cuttings, propagating from seed produces the same plants which degenerate.

The Chairman—This is the general tendency of varieties which are not fixed.

Mr. Bain—Tuberous Begonias are not fixed and the seedlings vary. I do not admire them very much and they are of very little use for a bedding plant as the flowers drop at the stem; they are only good for pot culture owing to the dropping of the flowers and the variation of the seedlings.

The Chairman—Does the plant vary or the flower only?

Mr. Bain—Both.

Mr. W. Wilshire—I would like to say a word with regard to Mr. Bain's objection to the Begonia on account of the variation of the seedlings. This can be overcome by allowing the plants to bloom and then making a selection.

Mr. Bain—The principal objection is that after a heavy shower all the bloom will be off.

Mr. William Wilshire then read the following paper on

ORCHID GROWING IN MONTREAL.

The subject of Orchid culture has been ably and exhaustively discussed by a number of well-known writers and growers, and we can hardly read a single horticultural magazine without finding at least one or two articles upon the treatment of this class of plants. Such being the case, it seems hardly necessary, even were I able, to go very deeply into this subject. But what I think we require to know is, not so much what methods are used in other countries, by men who usually have every means at hand to make their culture a success, but what treatment is most likely to suit them in this climate, and with the somewhat limited convenience we have at command. Keeping this idea in mind, I will endeavor to state as briefly as possible, the treatment I have found to answer best where a mixed collection of Orchids have to be grown pretty much in the same temperature.

Vandas, Saccolabiums, Angræcums and *Ærides* may be treated as one class of plants, as with few exceptions their culture should be the same. At the end of February or beginning of March, these plants begin to show signs of active life, after their winter's rest, and should be attended to as soon as possible. Clean away all the old moss from about the roots, but do not remove the plant from the pot or basket in which it is growing, unless it is in bad health, as it is impossible to do so without injuring the roots. After the moss has been cleared away plunge the pot or basket for a few minutes into a bucket or tank of tepid water, which will cause the wood lice and other insects, which are sure to be lurking in the drainage, to come to the surface of the water, or to take refuge on the plant, where they can

be caught and killed. Replace the old moss with some good live sphagnum and an occasional lump of charcoal, building it up in the shape of a cone well above the rim of the pot, finishing off the last layer with such pieces of moss as are likely to grow, keeping it in place with a few pegs made of bent galvanized wire, give the plants a good watering, and, if warm varieties, give them if possible a good light place in the stove house, with a temperature which does not fall below 50° or 60°. They will not require much shading before the end of April or beginning of May, when they should be screened with cotton or wooden blinds, which should be drawn down during the hottest part of the day and raised again about four o'clock in the afternoon. When growing, keep the plants well supplied with water at the roots and the benches and surrounding parts of the house well saturated in bright warm weather, and give a light syringing overhead morning and evening. As the duller days of autumn appear they will require less water as they make little or no growth; after the end of October the syringe should be withheld and only sufficient water given to the roots to keep the moss damp until they commence to grow again in the spring, when a repetition of the above mentioned treatment will be necessary.

Phalaenopsis are rather difficult plants for us to handle for lack of a suitable house to grow them in, still some varieties may be grown in an ordinary stove house with moderate success. They should be grown in sphagnum, in baskets suspended from the roof in a good light position during the winter and not nearer than eighteen inches to the glass. They require a constant shading during the warm spring and summer months. This may be obtained by hanging them at one end of the house and fixing a blind overhead or covering the glass with thick lime wash or any suitable preparation. Syringe the baskets once a day while the plants are growing, they will also require to be dipped in the tank two or three times a week. Never allow the moss to become dried up even when the plants are at rest.

Cattleyas and *Lælias* may also be treated alike. These plants will succeed in a house with a winter temperature of 50° to 55°. They should be grown in good rough peat with a little moss and charcoal, in pots three parts full of good clean drainage and the plants elevated well above the rim of the pot. They require very little water during the winter, and should be allowed to take their own time in resting. If the plants are carrying flower sheaths they should be watered freely when the buds begin to swell inside them, ortherwise the flowers will be deformed. They should be watered moderately from the time they begin to grow until the new growths have attained their full size, but never allow the roots to become soddened. Withhold the syringe from these plants at all times.

A number of good *Dendrobiums* may be grown in the house with the Cattleyas, either in pots, baskets, or on blocks; give the pots plenty of clean drainage and pot in rough peat and live moss. If the plants are healthy and the pots sufficiently large, clearing away some of the old compost and giving a top dressing of fresh stuff will be all that is necessary. After the plants begin to grow keep them always moist at the roots, increasing the quantity of water as the shoots become stronger. Give only sufficient water to keep them from shrivelling while they are at rest.

Cypripediums are comparatively easy to grow. Give the warm varieties a place in the stove house if possible, and the cooler ones with the Cattleyas and Dendrobiums. They should be grown in a mixture of peat, moss, broken brick, charcoal and sand. Pot rather firm and water freely when growing, a little liquid cow or sheep manure about twice a week will help them considerably.

They require very little rest, and should never be allowed to dry up even during the winter.

Oncidiums require much the same treatment as Dendrobiums, needing little or no water when at rest. Some of the smaller varieties of Oncidiums are difficult to grow unless a suitable place can be obtained for them, and may be just as well left out in making a collection of this kind.

Coelogyne's, although cool orchids, may be grown with great success in the intermediate house, if no other place is obtainable for them. They should not be repotted oftener than is necessary to make them throw good flowering bulbs. The same compost as used for Cypripediums will do for them without the sand. Give plenty of water when growing, with an occasional dose of weak liquid manure. They require a good rest and very little water after they have finished growing until they begin to throw up their flower spikes, when they should be treated as recommended for the Cattleyas.

There are a number of different varieties of Orchids such as *Lycastes, Pilumna's, Masdevallia's, Trichosma, Luavis, Sophronitis,* &c., which may also be grown in the same house, but it would take too long to treat them individually in a paper like this. Of all the varieties of Orchids *Odontoglossums* appear to be the most difficult to grow during the hot Canadian summer, as they dislike anything approaching a high temperature. Still there are some which may be grown with fair success. Among these are *Odontoglossum Grande, Insleayii, Triumphans, Hallii, Cordatum, Pulchellum* and *Citrosmum.* They should be potted in rough peat and sphagnum, and given as much shade as possible while they are growing, at which time they like plenty of water, even when they are at rest they should not be allowed to get quite dry, but do not give sufficient water to make them throw out unnatural growth when they should be dormant. I am given to understand that some nurserymen about New York grow them during the summer in pits sunk in the ground, and shaded with wooden blinds, made to fold up and down. Whether this plan would answer in Montreal I am unable to say, but I intend to try it this summer, and will give the result of my experience at some future meeting. It will, I think, be found just as well not to use the syringe too much on a mixed collection of Orchids, but they should be sponged often. I am well aware that many good growers recommend the use of the syringe, but it should be remembered that soft rain water is almost always used, an article we do not seem to know the value of in Montreal. The house should be screened on the sunny side from the beginning of March with cotton blinds which should not be made fixtures, otherwise it will be impossible to give them the benefit of the morning and evening sun. By the middle of May a coating of limewash on the glass will be necessary in addition to the blinds. Keep the benches and floor of the house always damp in bright warm weather. When the plants are growing, a pan or two of liquid manure, placed under the stage will be found to benefit them. Give plenty of air during warm weather, but avoid exposing them to the cold, especially in the early spring when the new shoots are young and tender. While the plants are resting in winter keep the house as dry as possible.

The Chairman—Mr. Wilshire has given several useful hints on the cultivation of these plants and I hope we shall have a good discussion.

Mr. Bain—Mr. Wilshire says there are a certain class of orchids requiring little or no water, and I would like to know if the plants are not injured by becoming too dry?

Mr. Wilshire—Plants with large bulbs require little or no water during the period of rest.

Mr. Walter J. Wilshire then read the following paper on

GLOXINIA CULTURE.

The Gloxinia is not, in my opinion, cultivated one-half as much as its merits demand, either by the private gardener or the florist, as when well grown it is alike useful for conservatory and house decoration. As a cut flower it has few equals as regards keeping qualitities, as I have seen flowers last quite fresh for eight or ten days in water, and but few flowers will make the show, or form the attraction the Gloxinia does.

I do not attempt to place the Gloxinia before the rose in usefulness to the florist, that would be absurd, but the flowers can be employed in such a way as to excel even the rose in table decoration and such like. Perhaps the best way to satisfy the florist would be to say that from experience in growing the Gloxinia I have found that it pays. To the private gardener I have only to say grow them, and if you do so once you will not be likely to let the year go by without having at least one or two crops of Gloxinia flowers to brighten the conservatory.

The first thing to consider in starting is to get as good a strain of seed as possible, as from such a strain you can get flowers to equal the finest named varieties and a greater diversity of colors. I can heartily recommend that of Messrs. Sutton & Sons of Reading, England, there being a large percentage of the upright flowering type which has a decided advantage over the old horizontal kinds, showing the flower off better and making it more useful as a cut flower. There has been introduced a strain of spotted flowers, but though they are very good and make a greater variety, I do not consider them so good for general cultivation. To ensure flowers for September and the following months the seed should be sown in February in well drained pans of light rich soil, and placed in a warm place in the stove or propagating house. Care must be taken not to overwater as the seed is sometimes a long while in germinating and if the soil is allowed to become sour the results are not so successful, on the other hand do not allow it to become dry, as that is, if possible, a greater mistake than the other. As soon as the seedlings are large enough to handle, pick off into boxes, having a mixture of loam, leaf mould, peat and sand in equal parts. Place them in a temperature of 65 deg. and shade from bright sun. As soon as large enough pot into 3in. pots, using the same mixture as before, with a little well rotted manure added, potting again into 5in. pots as required, and if liberally supplied with liquid manure they will make leaves large enough to hide the pots, and flowers bright enough to repay all the labor and attention given them. With regard to liquid manure I would say give it weak and often, in preference to strong and seldom, as if a strong solution is used there is a danger of damaging the flowers and leaves after they have grown over the surface of the pots.

In order to secure the best results never allow a check from the time of sowing until the flowering season is over. Gloxinias enjoy a high temperature when growing, provided that it is a moist one. When the flowers appear the house may be kept cooler and dryer in order to preserve the flowers.

If there are any kinds worth propagating it may be done quite easily by cutting the leaves into small pieces and placing in sand the same as Rex Begonias.

After the flowering season the bulbs should be allowed to dry and be laid away to rest in a dry place until they start again, when they should be taken out and treated the same as recommended for the seedling plants, and I am of opinion that with heat at command we might have Gloxinias in flower every month in the twelve.

Mr. Bain—The nearer the glass these plants are grown the better they will be. The seeds of these and the Begonia should not be watered but the saturation should be from the bottom.

Mr. Wilshire—It seems to me that such small seed would require too deep a covering to be watered in the way suggested by Mr. Bain.

Mr. Bain—Mr. Wilshire has evidently not tried the experiment. The law in sowing seed is to cover to its depth.

Mr. Burdon—I find a good plan to water small seed is by shaking spray from a fine whisk, this does not disturb the seed.

Mr. Bain—If the pan containing seed is lifted up carefully and dipped in water the seed will not be disturbed.

Mr. Wilshire—If the place where seeds are sown is moist they will not require any watering.

Mr. Walter Wilshire—Moisten the soil before sowing, and if in a moist place you will not require to do any watering.

Mr. Burdon—I would like to know if Gloxinias can be grown in a frame?

Mr. Bain—The best I have ever seen were grown in a frame.

Mr. Doyle—I understand Mr. Burdon desires to know if it would be profitable to grow them in frames.

Mr. Walter Wilshire—By careful attention they can be grown very well in frames. When in bloom the frames can be taken off.

Mr. Wm. Wilshire—I tried some last year but they did not bloom outside and I had to take them into the house in September.

Mr. Bain—Four years ago I grew 470, and from the time the seed was sown until they flowered I did not take any into the house.

Mr. Walter Wilshire—What time did they flower?

Mr. Bain—The latter part of August.

Mr. Walter Wilshire—When did you sow the seed?

Mr. Bain—In the middle of February, in a hot-bed.

Mr. Doyle—It is evident that the Gloxinia is not a plant for the amateur, as if grown in this way it would require too much attention.

The following paper by Mr. James Crookshank, was then read.

HEATHS AND EPACRIS.

Papers are read and discussions held on the merits and demerits of four or five, perhaps six varieties of plants such as are generally grown by florists for supplying them with cut flowers during the winter months. There are two families which might be added to the number, two that have no rivals for winter blooming, yet the florist ignores them altogether. They are the Heaths of the Cape of Good Hope and the Epacris of New Holland; although their homes are far apart they do very well in the same house together, their cultivation is very similar, the same soils, the same manner of preparation, the same treatment and the same temperature will answer for both, and whether for pleasure or profit, or both, I don't see how they can be dispensed with. These two neglected varieties contain

more beautiful flowering plants than all the other varieties combined, the Rose not excepted, for before the Rose has fully developed its beauty in the greenhouse, it has to be cut off, and put in some cool place until wanted, while the Heaths and Epacris will keep on developing their beautiful wax like flowers and there remain in their gorgeous appearance through the winter months. The Epacris if properly managed during the summer months will make a growth from 35 to 40 inches in length, producing these exquisite tube shaped flowers nearly the whole length. The individual flowers vary from one quarter to one half inch, some are over an inch in length; the colors are different shades of red and scarlet, scarlet tipped with white, others pure white, and white tipped with green, some are double reminding one somewhat of the double white Bouvardia, but much more beautiful. The Heaths vary more than the Epacris both in their habit of growth, formation, and color of their flowers. Some of the species are yellow of different shades, some dark red, bright red, pale red, scarlet of different shades, while others are red and green, purple and orange; quite a number are pure white, the shape of the flowers varies in each species, the numbers of which are counted by the hundred and any attempt to describe them would be futile. All are beautiful, both in flower and plant. Some will say, who profess to know: "They won't do here." And why, have they given them a fair trial, or have they condemned them without a trial? Yet the same parties will attempt to grow orchids, stuff some sphagnum and some pieces of charcoal around the roots, then devote the warmest end of a greenhouse to them, but rarely if ever get a flower, while the Heaths and Epacris might look on from their cooler quarters, in a temperature of 40 deg., and be contented and happy. Unlike many other plants they don't want the fumes of tobacco, no whale oil, soap, nor any of the many other kinds of stuff that is continually recommended for destroying insect life; all they want is proper management—give them that and you will be well paid for it.

The Chairman—This paper introduces a new class of plants.

Mr. Wm. Wilshire—A number of gardeners have tried these plants and have found them a failure. As soon as you put on heat they do not thrive. I have heard of them being grown with success by putting one pot inside another and putting a layer of moss between.

Mr. Doyle—Very few Heaths are grown here. I have seen them succeed by planting in the open air in summer and potting them for winter.

Mr. Wilshire—From my experience I think it is not the heat of summer but of winter which affects them.

A vote of thanks to the Chairman and to the gentlemen who had contributed papers was then passed, and the meeting adjourned.

ON THE LATE KEEPING APPLES OF SOUTHERN RUSSIA.

By Charles Gibb, Abbotsford, Que.

The colder orchard regions of *this* continent lack late keepers. Where the winters are too severe for the Baldwin and the Spy, attention is turned to the Russians, irresspective of the length of summer heat.

Mr. M. H. Raevskii in his "Plodovaya schkola i plodovui sad," published in St. Petersburg in 1885, gives selected lists of the best fruits for the Provinces of Minsk, Volhynia, Podolia, Kiev, Tchernigov, Kharkov and the more southern parts of Russia, however not including the Crimea nor the Caucasus.

As to the climate of this region, Minsk is as far north as Poland, and probably a little colder in winter and a little warmer in summer. The winter temperature of Warsaw is 25.7°, or 7° milder than Montreal, or 2° milder than Toronto. At Kiev, the winter temperature is 2° colder than Warsaw, the summer 1° warmer. Farther south the winters are milder, the summers long and warm.

Mr. Raevskii gives the following selection of apples:

July.

* * A—Prainnoe lietnee (Sommer Gewurz apfel).
* *—Bielui Naliv (White Naliv).
† A D—Astrachanskoe bieloe (White Astrachan).
† A D—Astrachanskoe Krasnoe (Red Astrachan).

August.

* * A D—Charlamoff (Charlamovsky).
* * A D—Kalvil bielui lietnui (White Summer Calville).
† A D—Virginskoe rosovoe (Virginischer Rosenapfel).

September.

* * A—Ananasnoe bieloe (White Pineapple).
* * A—Antonovka.
Kalvil krasnui osennui (Red Autumn Calville).

October.

* * A—Kentskaya krasavitsa (Schone von Kent) (Beauty of Kent.)
* * B—Krasnui Gravensteiner (Red Gravenstein).
D—Aport.
B—Gravensteiner.

November.

* *—Simnui Postolf (Winter Postolf).
* *—Malinovoe Oberlanda, (Oberlander himbeeren apfel).
A D F—Bezpodovnoe Langtona (Langton's sondergleichen).
(Langton's None-such).
Sierianka (Lehmapfel), (Serinka).

December.

Krasnoe kronovoe (Rother Kronenapfel.)
A—Belfler jeltui (Yellow Bellflower).
Korotko-stebelnoe sieroe (Grauer Kurzstiel).

January.

* * A C D F—Simnui zolotoi pirmen (Winter Goldparmane) Golden Winter Pearmain.
* * D—Krasnui simnui golubok (Rother Winter Taubenapfel).
D—Parchevoe (Goldzeug-apfel).
Rosovoe Schillera (Schiller's rosenapfel).

February.

* *—Poinik (Pojniek), a Hungarian variety.
* * B—Borsdorfskoe iz Palmir (Borsdorfer aus Palmyra).
* *—Tirolskoe (Tyroler Pepping).
C E F—Bieloe Taftainoe (Weisser Winter Taffetapfel).

March.

* * A C F—Bolschoi Kasselskui renet (Grosse Casseler Reinette).
* * D—Boiken.
A C D E F—Schampanskui renet (Champagner Reinette).

April.

* * A B—Krasnoe eizera (Rother Eiserapfel).
* * A—Korolevka Olga (Konigin Olga).

In the above list the English names are inserted by myself. Sommer Gewurzapfel is given by Messrs. Simon-Louis as a synonym of White August Calville. Charlamovsky may be Duchess of Oldenburg, Lauche of Berlin describes it under this name. Virginischer Rosenapfel may be the Fourth of July of U. S. See my notes on Russian apples in 8th Report Montreal Horticultural Society, p. 46. Winter Postolf, Mr. Raevskii says is from "Schvetsii" by which I suppose he means from Sweden. Dr. Regel describes the Svensk Vinterpostopf, and also gives it under its Russian name Schvedskui simnui postof. It is a noted Swedish apple described by Olaf Aneroth in the Svensk Pomologi. Goldezug-apfel is given by Simon-Louis as a synonym of Vrai Drap d'Or.

When Prof. Budd and I were in Russia in 1882 our work was mainly in districts where the grape is not grown. At Warsaw the Chasselas Vibert is grown in a small way, but we were told often fails to ripen. At Saratov, I do not remember seeing any vines, but I do not know that they are not grown. At Kursk and Voronesh they may be grown in a small amateur way, but these are not grape growing regions. In these places and northward, apples are grown in quantity, which under Russian methods of picking, packing and shipping, keep till mid-winter and spring, and varieties which in an ordinary way, would not be long keepers are made so, by picking before fully ripe, and either storing in cool cellars, or else shipping at once north where the weather has become cool. We

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(A.) Bears good crops on dry soil. (B.) Suited to moist soil. (C.) Blossoms late. (D.) Early bearer. (E.) Fruit holds well to the tree. (**) Those proved best and most satisfactory.

also visited Kharkov and Kiev which are probably within the grape belt, but we did not look up the apples of these districts.

Of the provinces named by Mr. Raevskii, Minsk may be considered north of the grape belt.; Volhynia and Tchernigov partly within that belt; Podolia, Kiev, Poltava and Kharkov within the grape belt, although the region which grows those beautiful Chasselas for sale throughout Russia is farther south and upon the Lower Don.

For these provinces, a selected list of 16 varieties is given by Mr. Raevskii, for the months from December to April. Of these, 1 is American, 1 Hungarian, 1 Swiss, 12 German, and only one a native of Russia, viz., Borsdorfer aus Palmyra, which Mr. Raevskii states to be named from the town of Palmir in the province of Poltava where it originated.

The Provinces named by Mr. Raevskii are not the part of Russia from which Dr. Regel received the varieties he sent to the U.S. Dep. of Agriculture. Of the thirty-nine sources in Russia from which Dr. Regel obtained samples of fruit or scions, but one was in this district, and that as far north as Kursk, viz., Mr. Atriganiev, of Tchernigov. It was he who sent the Winter Aport which Dr. Regel says keeps all winter, and the Rosy which is said to keep till February. Also Rosy Aport, Zolotareff, and the beautiful Red Arcad, and probably others. On Dr. Regel's sources of supply I have given many details in my report "on the Russian apples imported by U.S. Department of Agriculture in 1870" in report for 1883 of Montreal Horticultural Society. Mr. R. Schroeder of Moscow, in 1879, sent to the Iowa Agricultural College about 154 varieties. Mr. Schroeder's report upon these, in the report of the Montreal Horticultural Society 1886, there are 7 varieties noted by him as grown in South Russia, which are marked Winter, but they include Blackwood, Longfield, Good Peasant, &c., by no means winter varieties, when the summer is hot and long. The apples of the region mentioned by Mr. Raevskii have never been imported from St. Petersburg or Moscow!

Now when Mr. Auguste Dupuis, who lives in L'Islet, 70 miles N.E. of Quebec, asks if there are long keeping apples among those imported from Russia, I say without hesitation, yes. But when I am asked that question by those who live where grapes like the Concord, and grapes later than the Concord, ripen thoroughly year after year, I am asked a question which I did not look up in Russia, a question upon which we have lacked old world data, a question, however, which will soon be answered by the products of our own orchards.

RUSSIAN APPLES.

(Being notes from the works of R. E. Schroeder, Moscow.)

By Chas. Gibb, Abbotsford, Que.

We have lacked Russian experience in dealing with the Russian apple I have therefore taken these notes from "Russkui ogorod pitomnik i plodovui sad," by Mr. R. E. Schroeder, horticulturist at the Agricultural Academy of Petrovskoe Rasumovskoe, near Moscow. The beautiful grounds surrounding the Academy with their collections of rare trees and plants owe their present status to Mr. Schroeder's care and skill.

The climate at Petrovskoe is severe, the soil cold, the land level. Orchards usually do better on hillsides where they have the advantage of "air drainage." Mr. Schroeder's test of hardiness, therefore, is a severe one.

In this work I have received the help, very kindly given, of Count Alexeeff, of Moscow, a physician, who has been making a short sojourn in our country.

This paper was prepared for the last report of the Montreal Horticultural Society, but before going to press, it was withdrawn in favor of Mr. Schroeder's "Tabulated descriptions of Russian apples," which added so much to the value of our last year's report.

I. Cooking Apples.—Mr. Schroeder begins with a short list of apples for household purposes, for cooking, drying and for pickles, for cider and confections. Trees noted for their hardiness, trees which may be grown far to the north. These are divided into

(i) Summer apples, which ripen in August or beginning of September, i.e Russian time, which is now twelve days behind ours. They may be kept for two or three weeks.

Russian Name.	*Suggested American Name.*
Arbusovskoe.	Watermelon.
Lapouchoe.	Lapouchoe.
Lebedka bielaya.	White Swan.
Schirokolitsnoe.	Broad Cheek.

Of these Lapouchoe is white, and though quite acid is of very fine quality. Lapouchoe is very like Vislouchoe, but not nearly as sweet as described in Dr. Regel's Russian Pomology. Lebedka bielaya is very tender and remarkably juicy, and the juice is of fine flavor and but very slightly acid, but it has a slightly bitter after-taste, and for this reason is not classed as a table apple. Sometimes it becomes transparent (Naliv) then it is good.

(ii.) Autumn apples, which ripen in September (Russian time) keep till the New Year.

Russian Name.	*Suggested American Name.*
Antonovka.	Antonovka.
Arbusovskoe.	Watermelon.
Nasiedka.	Nasiedka.
Plodovitka.	Prolific.
Plodovitka Polskaya, Kievskaya.	Polish Prolific (from Kiev).
Svinets Krasnoglasova.	Svinets (of Krasnoglazoff.)
Skrut Niemetskui.	German Skrute.
Steklianka.	Glass.
Schirokaya zelenka.	Broad Green.

Of these Antonovka is a table apple. as well as one for kitchen use, and may also be considered a winter apple. Another which might be added to these is the Skrut raspisnoi (or Painted Skrute) or Alexandrovskoe, a productive and long lived tree bearing large and very juicy apples which, however, are slightly bitter. This, too, may be said of Lejanka, one of the largest of the Russian apples. It is very showy but is fit only for baking, otherwise it is of value only for decoration.

(iii.) Winter apples, which ripen in the cellar and may be kept till spring or longer.

Russian Name.	*Suggested American Name.*
Zelenka Gorskaya.	Green Gorke.
Zelenka Ukrainskaya.	Green Ukraine.
Sabluke.	Sabluke.
Steklianka Ostrokovskaya.	Ostrokoff.
Steklianka pesotchnaya.	Sandy glass.
Osimoe.	Hibernal.
Rubets, or Kleuevskoe.	

Of these Zelenka Gorskaya, named after the town of Gorke, not from *gorkaya* bitter, is decidedly an acid apple, not at all bitter; a heavy substantial winter fruit. Sometimes it is transparent and then it is exceedingly good.

II. TABLE APPLES.—Pleasantly acid, or sub-acid, with a certain amount of sweetness., and often aromatic.

SUMMER.

Russian Name.	*Suggested American Name.*
Bergamotnoe.†	Bergamot.
Biel duchovoe.	Scented White.
Vinnoe.†	Wine.
Vinnoe Zelenoe.†	Green Wine.
Gvosditchnoe.	
Gruschevka Niemetskaya. See Taskinskoe.	German Pear.
Gruchevka.	Pear.
Dinnoe, or Svonkoe.	Melonen, or Bell.
Kalvil bielui lietnui.†	White Summer Calville.
Kalvil krasnui lietnui.	Red Summer Calville.
Kolomenskoe.	Kolomna.
Koritchnevoe rannee.	Early Cinnamon.
Koritchnevoe ananasnoe.	Cinnamon Pine.
Koritchnevoe krasnoe, or K. Polskoe.	Red Cinnamon, or Polish Cinnamon.
Krasnobokoe.	Red-Sided.
Lipinskoe bieloe.*	White Lipin.
Lipovka.†	Lipovka.
Morkovskoe.	Markovka.
Marmeladnoe.	Marmalade.
Petrovskoe.	Petrovskoe.
Plodovitka jeltaya.	Yellow Prolific.

SUMMER—*Continued.*

Russian Name.	*Suggested American Name.*
Polosatka lietnaya.	Early Streaked.
Riepka.	Repka.
Skorospielka.	Early.
Skorospielka Krimskaya.** or Taskinskoe.	Early Crimean, or Taskin.
Skorospieloe krasnoe.	Early Red.
Shelkovka.	Silken.

AUTUMN.

Russian Name.	*Suggested American Name.*
Aport osennui †	Autumn Aport.
Babuschkino, osennee †	Grandmother (autumn).
Beresinskoe †	Beresina.
Bokovoe.	Bokovoe.
Bieloborodovskoe †	White Borodovka.
Borovinka.	Borovinka.
Biel Vochina.	White Vochin.
Voskovoe †	Waxen.
Velikui Mogul †	Great Mogul.
Gravensteiner, Russkui.	Russian Gravenstein.
Grand Richard.	Grand Richard.
Herbst streifling †	Autumn Streaked.
Herrenapfel †	Herren.
Gospodskoe.	
Kalvil polosatui †	Striped Calville.
Kievskoe jeltui—Limonnoe.	Yellow Kiev (or Lemon).
Koritchnevoe polosatoe	Cinnamon Streaked.
Krivospitsoe.	Crooked Spike.
Limonnoe.	Lemon.
Revelskoe golubinoe †	Revel Pigeon.
Pipka saitchia.	Hare Pipka.
Pipka Champanskaya.	Champagne Pipka.
Plodovitka Niemetskaya.	German Prolific.
Sierenka—Lehmapfel †	Serinkia.
Titovka bielaya.	White Titovka.
Titovka krasnaya.	Red Titovka.
Tiulpannoe.	Tulip.
Charlamovskoe.	Charlamoff.
Champanskoe.	Champagne.
Scheropai.	
Charlotenthalskoe jèltoe †	Thaler.

† This mark indicates those varieties which are not specially hardy; those which suffered more than others in the nursery at Petrovskoe, near Moscow, in the winters of 1875 and 1876. These are not recommended for the North.

* Bieloe, or Lipovka, a red-sided apple, known by both names.

** A remarkable white conic apple with a long stem, a hybrid between the Chinese apple (P. prunifolia) and Sadovskoe, or Garden. Tree very hardy.

WINTER.

Russian Name.	*Suggested American Name.*
Anisimovka.	Anisim.
Anisovka.	Anisovka (or probably Anis).
Anisovka krupnaya.	(probably) Large Anis.
Anisovka pestraya.	(probably) Mottled Anis.
Aport †	Aport.
Aport rosovui †	Rosy Aport.
Aport rieptchatui †	Repka Aport.
Babuschkino †	Grandmother.
Vargul Voroneshskui.	Voronesh Vargul.
Vargulok Moskovskui.	Moscow Vargulok.
Dobrui krestianin †	Good Peasant.
Zolotarevskoe.	Zolotareff.
Kalvil krasnui simnui.	Red Winter Calville.
Langerfeldskoe †	Longfield.
Malinovka.	Raspberry.
Pipka Danzigskaya.	Dansic Pipka.
Polosatka simnaya †	Winter Streaked.
Renet Voroneshskui jeltui †	Voronesh Reinette.
Renet Kurskui.	Kursk Reinette.
Romnenskoe.	Romenskoe (or Romnenskoe).
Roshdestvenskoe †	Christmas.
Riepolovka (Riepovka).	Repolovka.
Steklianka Ostrokovskaya.	Ostrokoff.
Skrijapel †	Cross.
Tchebischevskoe.	
Tchernoe derevo.	Blackwood.
Furstlicher tafelapfel †	Royal Table.

III. SWEET APPLES.—Varieties without any traceable acid flavor, sometimes slightly bitter, especially when over-ripe.

SUMMER.

Russian Name.	*Suggested American Name.*
Avenariusa.	Avenarius.
Arkad bielui.	White Arcad.
Arkad dlinnui.	Long Arcad.
Arkad dimtchatui.	Smoky Arcad.
Arkad Krasnui.	Red Arcad.
Arkad raspisnoi.	Painted Arcad.
Arkad rieptchatui.	Repka Arcad.
Miron sacharnui.	Sugar Miron.
Mtsenskoe sladkoe.	Sweet Mensk.
Metla.	Metla.
Sacharnoe jèltoe †	Yellow Sugar.
Stepanovka.	Stepanoff.

AUTUMN.

Russian Name.	*Suggested American Name.*
Aport sladkui * †	Sweet Aport.
Arkad zolotoi.	Golden Arcad.
Korobovka * *	

AUTUMN—*Continued.*

Russian Name.	*Suggested American Name.*
Korolevskoe sladkoe †	Royal Sweet.
Plodovitka sladkaya †	Sweet Prolific.
Polosatka Heidorna.	Heidorn.
Polosatka sladkaya.	Sweet Streaked.
Sladkaya zelenka.	Green Sweet.
Tsarskui schip sladkui †	Sweet Czar's Thorn.

WINTER.

Russian Name.	*Suggested American Name.*
Borovinka Angliskaya.	English Borovinka.
Korja sladkaya †	Sweet Korja.

* Krasnoglazoff by mistake notes this as a winter apple.

** Regel by mistake notes this as a winter variety.

† This mark indicates those varieties which are not especially hardy.

TRANSPARENT APPLES.—The *naliv* or transparent apple is always acid or sub-acid ; a true sweet apple is never transparent. Some kinds become transparent more readily than others, and this transparency is dependent upon cold damp weather in autumn. Good culture under the trees, and copious watering when needed also helps, and the fruit should be allowed to remain on the trees as long as possible. Trees in sod are not so apt to be *naliv*, and yet the cause has not been traced. We only see that the quantity of juice and the specific gravity are much increased.

The juice absorbs the pulp, so that one can see the seeds in the midde of the apple. All true Nalivs are early or summer apples ; autumn apples which ripen late are rarely Naliv. At the time of the coronation of Alexander II. good Nalivs fetched 1 rouble (50 cents) each. They were bought by foreigners as curiosities to take to their homes.

Dr. Regel thinks that these Nalivs are crosses between the Chinese apple (P. prunifolia) or the Siberian (P. baccata) and the common apples, and he draws attention to the Skvosnina kruglaya as an example. In tree and in the formation of the core of the fruit it is very like the Chinese prunifolia; a race very different from the varieties we grow in our gardens. Dr. Regel says the best of these for home use are P. prunifolia intermedia and P. baccata cerasiformis.

Russian Name.	*Suggested American Name.*
Korolevskoe.	Royal.
Naliv bielui.	White Naliv.
Naliv polosatui †	Striped Naliv.
Nasliednik Nikolai Aleksandrovitch.	Nicolai.
Naliv krasnui †	Red Naliv.
Naliv jeltui.	Yellow Naliv.
Ledenets Niemetskui †	German Ledenets.
Potainoe.	Potainoe.
Putinskoe (Putivka).	Putim.
Rubets rebristui nalivnoi †	Ribbed Naliv.

TRANSPARENT APPLES—*Continued.*

Russian Name.	*Suggested American Name.*
Skvosnina dlinnaya *	Long Translucent.
Skvosnina Rijskaya †	
Skvosnina kruglaya †	Large Translucent.
Skvosnina skorospielaya †	Early Translucent.
Yantarnoe naliv †	Amber.
Fonarik nalivnoi.	Fonaric.
Tsarskui schip nalivnoi †	

In the above list those marked † are the most *Naliv.* Those not so marked are best when not naliv.

* Krasnoglazoff confuses this Skvosnina dlinnaya with Tsarskui Schip, and Regel in quoting him makes the same mistake, and gives this naliv quality to the Tsarskui Schip. Sladkui.

There are five varieties of high conic apples about which there is great confusion r (i.) Fonarik Naliv; small and ribbed. (ii.) Dlinnui Skvosnoi; a long transparent with slende, stalk. (iii.) Tsarskui Schip. (iv.) Tsarskui Schip Sladkui; a sweet apple with open core never naliv, for sweet apples never are. (v.) Arkad Dlinnui; one of the earliest, with an intense arcad flavor.

PRIZES AWARDED.

ROSE, STRAWBERRY AND PANSY SHOW, HELD JUNE 30, 1887.

ROSES—CUT BLOOM.

1. 24 blooms, 8 varieties, 3 each Hybd. perpetuals. Special first prize offered by Mr. J. W. Beall. Society second prize for do. 1, R. Jack, Chateauguay Basin; 2, G. Trussell, gardener to J. H. R. Molson $10 00 $3 00

2. 4 varieties of the same, 3 blooms each. 1, R. Jack; 2, G. Trussell.....$3 00 $2 00

3. 6 varieties, any kind. 1, W. Wilshire, gardener to Hon. J. J. C. Abbott; 2, G. Trussell.....$2 00 $1 00

4. 3 blooms each of perpetual and Summer Moss Roses. Special prize offered by Mr. J. W. Beall. R. Jack.....$5 00

5. 12 blooms Hybd. Teas, 3 varieties. 1, W. Wilshire; 2, J. Bennett.....$3 00 $2 00

6. 24 blooms Teas, 6 varieties. 1, J. Bennett; 2, W. Wilshire.....$3 00 $2 00

7. General display of hardy roses, 50 bottles. 1, R. Jack; 2, G. Trussell.....$5 00 $4 00

PANSIES.

8. 6 pots dissimilar blooms. 2, G. Trussell.....$1 00

CUT BLOOM.

9. General display in 50 bottles. 1, G. Trussell; 2, W. B. Davidson.....$3 00 $2 00

10. General display in 12 bottles. 1. E. J. Maxwell; 2, G. Trussell.....$1 50 $1 00

STRAWBERRIES.

11. Collection of 20 berries each. 1, R. Jack; 2, W. Evans.....$5 00 $3 00

12. 6 varieties, 20 berries each. 1, R. Jack $3 00

13. 4 varieties, 20 berries each. 1, R. Jack $2 00

14. 1 variety, 20 berries. 1, W. Evans; 2, G. Trussell.....$1 00 0 50

FALL EXHIBITION, HELD SEPTEMBER 13, 14, 15, 1887.

CLASS A.

Open to all members of the Society, whether professional or non-professional.

PLANTS.

1. Tables of decorative and flowering plants 7x14 feet. 1, J. Stanford, gardener to Sir George Stephen; 2, William Wilshire, gardener to Hon. J. J.C. Abbott; 3, George Buddo, gardener to Sir Donald A. Smith; 4, J. Betrix, gardener to Andrew Allan; 5, John Kirkwood, gardener to R. B. Angus. $30, $25 $20, $15, $10.

2. Tables of decorative and flowering plants. 10x5 feet. 1. J. Stanford; 2, F. Neville; 3, Wilshire Bros.; 4, J. Bland, gardener to John Molson.....$20 00, $15 00, $10 00, $5 00.

3. Stove and greenhouse plants, 6 distinct species, in bloom. 2, S. Ward, gardener to James Burnett; 3, John Doyle...$4 00 $2 00

4. 6 Dracænas, dissimilar. 1, S. Ward; 2, George Buddo.....$4 00 $3 00

5. 3 Crotons, dissimilar. 1, J. Stanford; 2 S. Ward.....$3 00 $2 00

6. 4 Begonias in bloom, distinct kinds. 1, J. Betrix; 2, George Buddo.....$4 00 $3 00

7. Begonias, foliage, six distinct varieties. 1, J. Betrix; 2, J. Bland.....$4 00 $3 00

8. Begonias, 6 distinct varieties, tuberous, in bloom. 1, George Buddo; 2, T. W. Burdon.....$4 00 $3 00

9. Geraniums, Zonal, 9 distinct varieties, in bloom. 1, J. Stanford; 2, W. Sprigings $6 00 $4 00

10. Geraniums, double, 9 distinct varieties in bloom. 1, J. Stanford; 2, J. Betrix. $6 00 $4 00

11. Geraniums, bronze and tricolor, 6 distinct varieties, in bloom. 1. G. Trussell; 2, W. Sprigings.....$4 00 $3 00

12. Fuchsias, 6 distinct varieties, in bloom. 1, W. Sprigings; 2, J. Stanford...$6 00 $4 00

13. Fuchsias, 3 distinct varieties, in bloom. 1, W. Sprigings; 2, J. Betrix.....$3 00 $3 00

14. Foreign Ferns, 12 distinct species. 1, Geo. Buddo; 2, J. Stanford.....$7 00 $5 00

15. Foreign Ferns, 6 distinct species. 1, J. Stanford; 2, Geo. Buddo.....$3 00 $2 00

16. 4 Adiantums, distinct species. 1, J. Stanford; 2, Geo. Buddo.....$3 00 $2 00

17. 4 Adiantum Cuneatum. 1, S. Ward; 2, J. Betrix.....$2 00 $1 00

18. Native Ferns, collection in pots. 1, W. Sprigings; 2 T. W. Burdon.....$3 00 $2 00

19. Lygodium Scandens, best specimen. 1, J. McKenna; 2, J. Stanford.....$3 00 $2 00

20. Selaginella (Lycopodium) 4 pots, distinct varieties. 1, W. Sprigings; 2, J. Bland $3 00 $2 00

21. Asparagus, climbing, best specimen. 1, S. Ward; 2 J. Stanford.....$2 00 $1 00

22. Palms, 6 distinct varieties. 1, J. Doyle; 2, Geo. Buddo.....$5 00 $3 00

23. Cycas, best specimen. 1, John Kirkwood; 2, J. Bland.....$4 00 $2 00

24. Abutilons, 2 distinct varieties, in bloom. 2, J. Betrix.....$1 00

25. Gloxinias, 6, in bloom, 1, Wilshire Bros.; 2, Geo. Buddo.....$3 00 $2 00

26. Bouvardias, 4, at least 2 varieties, in bloom. 1, J. Stanford; 2, J. Bland $4 00 $2 00

27. Bouvardias, 2 distinct varieties. 2, J. Stanford.....$1 00
28. Coleus, 6 distinct varieties. 1, J. Stanford; 2, S. Ward.....$4 00 $2 00
29. Coleus, 3 distinct varieties. 1, J. Stanford; 2, S. Ward.....$2 00 ..1 00
30. Caladiums, 6, fancy. 1, J. Betrix, 2, O. Dandurand.....$4 00 $2 00
31. Caladiums, 3, fancy. 1, J. Betrix; 2, T. W. Burdon.....$2 00 $1 00
32. Carnations, 6 pots, distinct varieties, in bloom. 2, F. Neville.....$2 00
33. Hanging basket; frame of basket not to exceed 14 inches in diameter. 1, W. B. Davidson; 2 W. Sprigings.....$4 00 $3 00
34. Vase of plants, not more than 16 inches in diameter. 1, S. Ward; 2, W. B. Davidson.....$4 00 $3 00
35. For the best 6 plants for table decoration; size of pots not to exceed 6 inches. Ferns and soft-wooded plants excluded. 1, J. Bland; 2, John Kirkwood.....$4 00 $3 00

CUT BLOOM.

36. Gladioli, 24 bottles. 1, D. F. Bell, Quebec.....$5 00
37. Gladioli, 6 bottles. 1, Jas. Day, Outremont; 2, D. F. Bell, Quebec.....$2 00 $1 00
38. Hollyhocks, 6 spikes, dissimilar. 1, D. F. Bell; 2, Wm. Bell, Quebec..$2 00 $1 00
39. Dahlias, 24, distinct varieties, double. 1, D. F. Bell; 2, Wm. Bell.....$5 00 $3 00
40. Dahlias, 12, distinct varieties, double. 1, D. F. Bell; 2, Wm. Bell.....$3 00 $2 00
41. Dahlias, Pompon, 12 distinct varieties. 1, Wm. Bell; 2, D. F. Bell..... $3 00 $2 00
42. Asters, 24 blooms, dissimilar. 1, J. B. Goode; 2, W. Sprigings.....$3 00 $2 00
43. Asters, 12 blooms, dissimilar. 1, T. W. Burdon; 2, J. B. Goode.....$2 00 $1 00
44. Zinnias, collection. not to exceed 24 varieties. 1, Wm. Bell; 2, D. F. Bell $3 00 $2 00
45. Zinnias, 12 blooms. 1, Wm. Sprigings; 2, Wm. Bell.....$1 00 0 75
46. Dianthus, collection of 24 bottles. 1, Wilshire Bros.; 2, W. Sprigings....$3 00 $2 00
47. Phlox, Drummondi collection, 3 trusses of each. 1, W. Sprigings; 2, Wilshire Bros. $3 00 $2 00
48. Perennial Phlox, collection, dissimilar; 1, W. Sprigings..... $3 00
49. Verbenas, 12 bottles, dissimilar; 1, J. B. Goode; 2, W. Sprigings.....$3 00 $2 00
50. Pansies, 12 bottles, dissimilar; 1, James Day; 2, W. Sprigings.....$3 00 $2 00
51. Pansies, 6 bottles, dissimilar; 1, James Day; 2, W. Sprigings.....$2 00 $1 00
52. Petunias, best display, single, in 24 bottles; 1, W. Sprigings; 2, Thomas W. Burdon.....$3 00 $2 00
53. Petunias, double, not more than 12 distinct varieties; 1, B. T. Graves; 2, W. Sprigings.....
54. Annuals, collection; 1, W. B. Davidson; 2, R. Jack, Chateauguay Basin....$5 00 $4 00
55. Immortelles, collection, growth of 1887; 1, R. Jack.....$2 00
56. Roses, Hybrid perpetual, 6 in bloom, named, dissimilar; 1, F. Neville; 2, Robert Jack.....$5 00 $4 00
57. Roses, Tea or Noisette, 6 varieties, named; 1, R. Jack; 2, B. T. Graves$4 00 $3 00
58. Best growing model of a flower bed, not to exceed 4½ feet in diameter; 1, J. Bland; 2, O. Dandurand..... .....$5 00 $3 00

SPECIAL PRIZES

59. Special prize, offered by J. W. Beall, for best 3 blooms of Hydangea Paniculata; W. Sprigings $5 00
60. For the best floral design for dinner or supper table—no fruit to be used in its construction. 1st prize presented by Mr. Colin Campbell; 2nd by Mr. E. J. Maxwell. 1, Geo. Hooton; 2, Wilshire Bros.....$10 00 $5 00

BOUQUETS.

61. Bouquets, 4, hand; 1, Geo. Hooton; 2, Jas. McKenna.....$4 00 $2 00
62. Bouquets, 4, corsage; 1, Geo. Hooton; 2, Jas. McKenna.....$3 00 $2 00
63. Bouquet, table; 1, Geo. Hooton; 2, Geo. Trussell.....$4 00 $2 00
64. Bouquet of the newest roses; 1, Geo. Hooton.....$4 00
65. Bouquets, table; 1, John Kirkwood; 2, Geo. Trussell.....$2 50 $1 50
66. Bouquets, hand; 1, P. A. Somerville; 2, J. Bland.....$2 00 $1 00

WINTER BOUQUETS.

Special prize of $5 for the best winter bouquet sent in by any teacher in the province-offered by F. C. Emberson. Miss Maxwell.

CLASS B—PLANTS.

AMATEUR DEPARTMENT.

67. Plants, 12 in bloom; 1, T. W. Burdon; 2, T. Gardiner.....$6 00 $4 00
68. Plant, single specimen; 1. T. Gardiner; 2, T. W. Burdon.....$1 00 0 75
69. Begonias, 2, in bloom; 1, T. W. Burdon; 2, T. Gardiner.....$3 00 $1 00
70. Begonias, 1 in bloom; 1, T. W. Burdon; 2, T. Gardiner.....$1 00 0 50
71. Coleus, 2; pots not over 6 inches diameter; 1, T. W. Burdon; 2, T. Gardiner.....$2 00 $1 00
72. Coleus, 1; pot not over 6 in. diameter; 1, T. Gardiner; 2, T. W. Burdon.....$1 00 0 75
73. Fuchsias, 3, in bloom; 1, T. W. Burdon; 2, T. Gardiner.....$2 00 $1 50
74. Fuchsias, 2 in bloom; 1, T. W. Burdon; 2, T. Gardiner.....$1 50 $1 00
75. Fuchsias, 1 in bloom; 1, T. W. Burdon; 2, T. Gardiner.....$1 00 0 75
76. Geraniums, 2, in bloom, double; 1, T. W. Burdon; 2, Miss L. Irving.....$2 00 $1 00
77. Geraniums, 2, in bloom, single; 1, T. Gardiner; 2, Mrs. E. Scott.....$ 00 0 50
78. Ferns, 6, foreign, distinct; 1, T. Gardiner; 2, T. W. Burdon..... .....$2 00 $1 00

79. Selaginella (Lycopodium), 2; 1, T. Gardiner; 2, P. A. Somerville.....$1 50 $1 00

80. Foliage plants, 4, dissimilar (Coleus excluded); 1, T. W. Burdon; 2, T. Gardiner.....$3 00 $2 00

81. Hydrangea, in bloom; 1, T. Gardiner; 2, T. W. Burdon.....$2 00 $1 00

82. Abutilon, in bloom; 1, T. W. Burdon; 2, Mrs. E. Scott,.....$1 00 0 75

83. Heliotrope, in bloom; 1, T. W. Burdon; 2 Mrs. E. Scott.....$1 00 0 75

84. Plants, vase of; 1, T. W. Burdon; 2, Mrs. E. Scott.....$2 00 $1 00

85. Hanging basket, frame of basket not to exceed 14 inches in diameter; 1, Mrs. E. Scott; 2, Miss L. Irving.....$2 00 $1 00

86. Carnations, 3, in pots, in bloom; 2, T. W. Burdon.....$1 00 $2 00

87. Agave; 1, T. W. Burdon.....

88. Petunias, 2, in pots, in bloom, double; 1, T. W. Burdon.....$1 50

89. Tuberose, 3 pots; 1, T. W. Burdon; 2, Miss L. Irving.....$1 50 $1 00

90. Mignonette, 2, in pots, in bloom; 1, Mrs. E. Scott.....$1 00

91. Begonia, rex; 1, T. W. Burdon; 2, T. Gardiner.....$1 00 0 50

92. Cockscombs, 2, in pots; 1, E. J. Maxwell; 2, N. Drummond.....$1 50 $1 00

93. Ivy. 1, T. Gardiner; 2, P. A. Somerville.....$2 00 $1 00

CUT BLOOM, BOUQUETS, ETC.

94. Cut flowers, collection of. 1, T. W. Burdon; 2, R. Jack.....$3 00 $2 00

95. Dahlias, 6 blooms, dissimilar. 1, D. F. Bell; 2, Wm. Bell.....$2 00 $1 00

96. Gladioli, 6 spikes. 1, P. A. Somerville; 2, D. F. Bell.....$2 00 $1 00

97. Pansies, 12 blooms, dissimilar. 1, E. J. Maxwell; 2, D. F. Bell.....$2 00 $1 00

98. Pansies, 6 blooms, dissimilar. 1, E. J. Maxwell; 2, J. B. Goode.....$1 00 $0 50

99. Verbenas, 12 blooms, in bottles, dissimilar. 1, J. B. Goode; 2, T. W. Burdon $2 00 $1 00

100. Verbenas, 6. 1, W. Bell; 2, D. F. Bell $1 00 $0 50

101. Petunias, double, 6 blooms, dissimilar. 1, T. W. Burdon; 2, Miss L. Irving..$1 50 $1 00

102. Petunias, single, 6 blooms, dissimilar. 1, T. W. Burdon; 2, J. B. Goode..$1 00 $0 75

103. Zinnias, 12 blooms, dissimilar. 1, N. Drummond; 2, D. F. Bell.....$1 00 $0 75

104. Asters, collection. 1, J. B. Goode; 2, T. W. Burdon.....$1 50 $1 00

105. Phlox, Drummondi, 12 bottles. 1, T. W. Burdon; 2, N. Drummond.....$1 00 $0 75

106. Bouquet, hand. 1, P. A. Somerville; 2, T. W. Burdon.....$2 00 $1 00

107. Bouquet, table. 1, P. A. Somerville; 2, R. Jack $3 00 $2 00

108. Best and most tastefully arranged basket of cut flowers, not more than 12 inches in diameter. 1, P. A. Somerville; 2, T. W. Burdon.....$3 00 $2 00

CLASS C—FRUITS.

109. Collection of apples, exhibited by and grown within the limits of the county competing (open to any county in the Province of Quebec), 5 specimens of each variety. 1, Abbotsford Fruit Growers' Association; 2, R. Jack, Chateauguay Basin.....$40 00 $30 00

110. Apples, collection, open to the Province of Quebec; must be exhibited by the grower, 5 specimens of each variety. 1, R. W. Shepherd, jr.; 2, R. Brodie, Coteau St. Pierre; 3, D. A. Dunn, Lachine Rapids.....$12 $8 $4

111. Apples, 12 varieties (3 summer, 3 fall, 3 early winter, 3 late winter), 5 of each named. 1, R. Jack,; 2, A. Aubertin; 3, R. W. Shepherd, jr.....$6 00 $4 00 $3 00

112. Apples, 6 varieties, 5 of each named. 1, R. W. Shepherd, jr.; 2, J. Smith; 3, R. Brodie.....$4 00 $3 00 $2 00

113. Apples, 5 heaviest. 1, A. Aubertin; 2, J. McKenna, Cote des Neiges; 3, P. Horrigan, Outremont.....$1 50 $1 00 $0 75

114. Apples, Alexander, 5 specimens. 1, R. Jack: 2, J. McKenna; 3, P. Horrigan $1 50 $1 00 $0 75

115. Apples, Duchess, 5 specimens. 1, R. Jack; 2, R. W. Shepherd, jr.; 3, J. Smith $1 50 $1 00 $0 75

116. Apples, St. Lawrence, 5 specimens. 1, T. Hall, Outremont; 2, N. Drummond, Petite Cote; 3, D. A. Dunn.....$1 50 $1 00 $0 75

117. Apples, Fameuse, 5 specimens. 1, J. M. Fisk, Abbotsford; 2, R. Jack; 3, Rev. Canon Fulton, Maritana.....$1 50 $1 00 $0 75

118. Apples, Strawberry of Montreal, 5 specimens. 1, J. McKenna; 2, Rev. Canon Fulton, Maritana; 3, J. Smith...$1 50 $1 $0 75

119. Apples, Peach of Montreal, 5 specimens. 1, J. McKenna; 2, N. Drummond.$1 50 $1 00

120. Apples, Blue Pearmain. 1, J. Smith; 2, A. Aubertin; 3, Rev. Canon Fulton $1 50 $1 00 $0 75

121. Apples, Scott's Winter. 1, C. Gibb, Abbotsford; 2, R. W. Shepherd, jr...$1 50 $1 00

122. Apples, Canada Baldwin, 5 specimens. 1, J. M. Fisk, Abbotsford; 2, A. Aubertin; 3, R. W. Shepherd, jr.....$1 50 $1 00 $0 75

123. Apples, Wealthy, 5 specimens. 1, J. McKenna; 2, J. M. Fisk; 3, D. A. Dunn $1 50 $1 00 $0 75

124. Apples, Golden Russet, 5 specimens. 1, Rev. Canon Fulton; 2, J. Smith; 3, A. Aubertin.....$1 50 $1 00 $0 75

125. Apples, Pomme Grise, 5 specimens. 1, J. Smith; 2, A. Aubertin; 3, D. A. Dunn $1 50 $1 00 $0 75

126. Apples, Decarie, 5 specimens. 3, R. W. Shepherd, jr.....$0 75

127. Apples, Fameuse sucreè, 5 specimens. 1, R. W. Shepherd, jr.....$1 50

128. Apples, Winter St. Lawrence, as described in M. H. S. report, 5 specimens. 1, R. W. Shepherd, jr.....$1 50

129. Apples, Yellow Transparent, 5 specimens. 1, R. Jack; 2, R. W. Shepherd, jr.; 3, W. B. Davidson.....$1 50 $1 00 $0 75

130. Apples, Ben Davis, 5 specimens. 1, R. Jack; 2, Rev. Canon Fulton; 3, J. Smith.
$1 50 $1 00 $0 75

131. Crab Apples, collection, 5 of each, named. 1, C. Gibb; 2, R. W. Shepherd, jr.; 3, J. M. Fisk.....$4 00 $3 00 $2 00

132. Crab Apples, 5 varieties, 5 of each, named. 1, J. M. Fisk; 2, C. Gibb; 3, R. W. Shepherd, jr.....$2 00 $1 50 $1 00

133. Crab Apples, plate of any one variety, 10 specimens. 1, R. W. Shepherd, jr.; 2, J. M. Fisk; 3, J. Doyle.....$1 50 $1 00 $0 75

134. Pears, collection, 6 varieties, 5 of each, named. 1, J. Betrix; 2, Jas. McGuire; 3, B. T. Graves, Cote St. Antoine.....$6 $3 $2

135. Pears, 3 varieties, 5 specimens each, named. 1, J. Betrix; 2, B. T. Graves; 3, Jas. McGuire.....$3 00 $2 00 $1 00

136. Pears, any variety, 5 specimens. 1, J. Betrix; 2, O. Dandurand; 3, Rev. Canon Ellegood.....$2 00 $1 50 $1 00

137. Plums, collection, 6 specimens of each variety. 1, D. A. Dunn; 2, B. T. Graves; 3, J. Brown.....$5 00 $3 00 $2 00

138. Plums, 2 varieties, not less than 6 specimens of each. 1, Jas. Brown; 2, B. T. Graves; 3, D. A. Dunn....$3 00 $2 00 $1 00

139. Plums, plate of, one variety only. 1, J. Betrix; 2, B. T. Graves; 3, J. B. Goode.
$2 00 $1 00 $0 50

140. Cranberries, 1 gallon, domestic. J. M. Fisk.....2 00

BASKETS OF FRUIT.

141. For the best and most tastefully arranged basket of fruit for dessert, size of basket not to be less than one foot, and not to exceed two feet in any part; 1, J. Betrix.....$4 00

142. For the best and most tastefully arranged basket of out-door grown fruits, size of basket to be not less than one foot, and not to exceed two feet in any part; 1, R. Jack; 2, Jas. Brown; 3, G. Trussell.$3 00 $2 00 $1 00

OUT-DOOR GRAPES.

143. Grapes, collection, named, 2 bunches of each; 1, W. M. Pattison, Clarenceville; 2, D. A. Dunn, Lachine Rapids; 3, R. Jack, Chateauguay Basin.....$10 00 $6 00 $4 00

144. Grapes, 12 varieties, preference for good ripening varieties, best collection named, 2 bunches of each; 1, W. M. Pattison; 2, R. Jack; 3, D. A. Dunn.....$5 00 $4 00 $3 00

145. Grapes, 3 varieties, white, 2 bunches of each; 1, R. Jack; 2, W. M. Pattison; 3, P. A. Somerville.....$3 00 $2 00 $1 00

146. Grapes, 3 varieties, black, 2 bunches of each; 1, W. M. Pattison; 2, R. Jack; 3 N. Drummond.....$3 00 $2 00 $1 00

147. Grapes, 3 varieties, red, 2 bunches of each; 1, R. Jack; 2, W. M. Pattison; 3, D. A. Dunn.....$3 00 $2 00 $1 00

148. Grapes, heaviest single bunch, white; 1, J. Landers; 2, R. Jack; 3, D. A. Dunn.
$1 50 $1 00 0 75

149. Grapes, heaviest single bunch, black; 1, Jos. Smith; 2, R. Jack; 3. W. M. Pattison.....$1 50 $1 00 0 75

150. Grapes, heaviest single bunch, red; 1, James Landers; 2, P. A. Somerville; 3, R. Jack.....$1 50 $1 00 0 75

GRAPES GROWN UNDER GLASS.

151. Grapes, collection, 1 bunch of each; 1, J. Doyle; 2, J. Betrix; 3, O. Dandurand.
$10 00 $7 00 $5 00

152. Grapes, 5 varieties, 1 bunch of each; 1, John Kirkwood; 2, James McGuire; 3, J. Doyle.....$6 00 $4 00 $2 00

153. Grapes, 4 bunches, 2 white and 2 black; 1, John Kirkwood; 2, James McGuire; 3, A. Armour.....$6 00 $4 00 $2 00

154. Grapes, 2 bunches, black Hamburg; 1, John Kirkwood; 2, James McGuire; 3, A. Armour.....$4 00 $3 00 $2 00

NECTARINES AND OTHER FRUITS.

155. Peaches, collection, 3 of each variety; 1, J. Betrix.....$3 00

156. Peaches, plate of; 1, J. Betrix.....$2 00

157. Peach tree, bearing fruit, in pot; 1, J. Betrix.....$3 00

158. Melon, water; 1, J. Marand.....$2 00

159. Melon, musk; 1, J. Doyle; 2, R. Brodie; 3, J. Walsh.....$4 00 $3 00 $2 00

160. Melon, new variety; 1, R. Brodie.$3 00

VEGETABLES.

161. Cauliflower, 3; 1, T. Hall; 2, W. B Davidson; 3, J. Marand...$3 00 $2 00 $1 00

162. Cauliflower, best head; 1, T. Hall; 2, W. B. Davidson; 3, J. Marand$1 50 $1 00 0 75

163. Cucumbers, collection, 3 varieties, 2 of each; 1, J. Marand; 2, W. B. Davidson; 3, R. Jack.....$2 00 $1 00 0 50

164. Cabbages, summer, 3, for table; 1, W. B. Davidson; 2, T. Hall; 3, W. Ross.
$2 00 $1 00 0 50

165. Cabbages, winter, 3, for table; 1, W. B. Davidson; 2, J. Marand; 3, W. Ross.
$2 00 $1 00 0 50

166. Cabbages, red, 3, for table; 1, W. Ross; 2, W. B. Davidson.....$2 00 $1 00

167. Cabbages, Savoy, 3, for table; 1, W. B. Davidson; 2, J. Marand.....$2 00 $1 00

168. Brussels sprouts, 2 stalks; 1, J. Marand; 2, W. Ross; 3, W. B. Davidson.
$2 00 $1 00 0 50

169. Borecole (Kale), 2 stalks; 1, James McKenna; 2, W. B. Davidson; 3, J. Marand.
$1 00 0 75 0 50

170. Celery, white, 6 heads; 1, W. B. Davidson; 2, W. Ross; 3, Geo. Trussell.
$3 00 $2 00 $1 00

171. Celery, red, 6 heads; 1, J. Marand; 2, Jas. Landers; 3, S. Ward..$3 00 $2 00 $1 00

172. Beets, turnip, blood, 6 for table; 1, W. B. Davidson; 2, W. Ross; 3, R. Brodie.
$2 00 $1 00 0 50

173. Beets, long, blood, 6 for table; 1, T. Hall; 2, W. Ross; 3, J. Smith.
$2 00 $1 00 0 50

174. Turnips, white, 6, for table; 1, L. Irving;

2, W. B. Davidson; 3, J. Marand.
$2 00 $1 00 0 50

175. Turnips, yellow, 6, for table; 1, W. B. Davidson; 2, D. F. Bell; 3, W. Bell.
$2 00 $1 00 0 50

176. Turnips, Swedish, 6, for table; 1, T. Hall; 2, L. Irving; 3, W. Bell.
$2 00 $1 00 0 50

177. Carrots, early, 6, for table; 1, T. Hall, 2, W. B. Davidson; 3, F. Neville.
$2 00 $1 00 0 50

178. Carrots, late, 6, for table; 1, W. B. Davidson; 2, W. Bell; 3, Geo. Trussell.

179. Parsnips, 6, for table; 1, J. Marand; 2, T. Hall; 3, G. Trussell.....$2 00 $1 00 0 50

180. Onions, white, 6 for table. 1, J. Betrix; 2, Geo. Trussell; 3, R. Brodie.....$1, 75c., 50c.

181. Onions, red, 6 for table. 1, T. Hall; 2, Geo. Trussell; 3, J. Marand.....$1, 75c., 50c.

182. Onions, yellow, 6 for table. 1, R. Brodie; 2, W. Ross; 3, J. Betrix...$1, 75c., 50c.

183. Onions, assorted collection. 1, R. Brodie; 2, T. Hall; 3, F. Neville.....$3, $2, $1.

184. Leeks, bunch of one dozen. 1, J. Marand; 2, W. Ross; 3 F. Neville...$1, 75c, 50c.

185. Tomatoes, red, 3 specimens, named. 1, J. Marand; 2, J. Walsh; 3, Jas. McGuire.
$2 00 $1 00 0 50

186. Tomatoes, red, 3 varieties, 6 specimens, named. 1, L. Irving; 2, D. A. Dunn; 3, W. B. Davidson.....$3 00 $2 00 $1 00

187. Tomatoes, yellow, 6 specimens. 1, W. B. Davidson; 2, S. Ward; 3, Geo. Trussell.
$1 00 0 75 0 50

188. Egg plants, 3, purple. 1, J. McKenna; 2, A. Armour.....$1 00 0 50

189. Egg plants, 3, white. 1, J. Marand; 2, S. Ward.....$2 00 $1 00

190. Peppers, collection. 1, W. Ross; 2, L. Irving.....$2 00 $1 00

191. Vegetable marrows, two. 1 Jas. McKenna; 2, T. Hall; 3, W. B. Davidson.
$2 00 $1 00 0 50

192. Table squashes, 2 varieties (mammoth varieties excluded), two of each. 1, W. Ross; 2, W. B. Davidson; 3, James McKenna.
$3 00 $2 00 $1 00

193. Mammoth squash. 1, J. Marand; 2, R. Brodie; 3, L. Irving.....$1 00 0 75 0 50

194. Gourds, collection of ornamental. 1, W. B. Davidson; 2. Geo. Trussell...$1 00 0 75

195. Sweet corn, collection, named. 1, Geo. Trussell; 2, R. Brodie; 3, W. B. Davidson.
$3 00 $2 00 $1 00

196. Sweet corn, 12 ears, named; 1, Geo. Trussell; 2, T. Hall; 3, W. B. Davidson.
$1 50 $1 00 0 75

197. Beans, plate of, green; 1, J. McKenna; 2, W. Bell.....$1 00 0 75

198. Beans, plate of, butter; 1, J. McKenna; 2, P. Horrigan; 3, F. Neville.$1 00 0 75 0 50

199. Salsify, 12 roots; 1, J. Marand; 2, Geo. Trussell; 3, D. F. Bell.....$1 00 0 75 0 50

200. Potatoes, collection of, 8 varieties, not less than 6 of each variety, named; 1, Geo. Trussell; 2, L. Irving.....$4 00 $3 00

201. Potatoes, 4 varieties, named; 1, Geo. Trussell; 2, Mrs. E. Scott; 3, L. Irving.
$2 00 $1 00 0 50

202. Potatoes, best, basket, red, 1 peck; 1, J. Smith; 2, Geo. Trussell; 3, Mrs. E. Scott.
$1 00 0 75 0 50

203. Potatoes, best basket, white, 1 peck; 1, T. Hall; 2, L. Irving; 3, J. Smith.
$1 00 0 75 0 50

204. Jerusalem artichokes, best plate; 1, W. Ross; 2, P. Horrigan; 3, J. Marand.
$1 00 0 75 0 50

205. Pot and sweet herbs, collection, named; 1, W. Ross.....$3 00

206. Vegetables, basket of assorted, must be contained in basket; 1, W. B. Davidson; 2, W. Ross; 3, J. Marand....$4 00 $3 00 $1 00

CLASS D—AMATEUR DEPARTMENT.

FRUITS AND VEGETABLES.

207. Apples, 3 varieties, dessert, 5 of each; 1, N. Drummond; 2, J. B. Goode; 3, L. Irving.....$3 00 $2 00 $1 00

208. Pears, 5 specimens; 1, Rev. Canon Ellegood; 2, L. Irving; 3, J. B. Goode.
$2 00 $1 00 0 75

209. Plums, plate of, one variety only, 6 specimens; 1, James Brown; 2, P. A. Somerville; 3, N. Drummond.....$2 00 $1 00 0 75

210. Grapes, 3 varieties, out door, 2 bunches each; 1, John A. Robertson; 2, P. A. Somerville; 3, N. Drummond...$4 00 $3 00 $2 00

211. Grapes, 2 bunches, of any kind, grapes must be fully ripened; 1, P. A. Somerville; 2, N. Drummond; 3, J. Smith.$2 00 $1 00 0 75

212. Melon, water; 1, R. W. Shepherd, jr.
$2 00

213. Melon, musk, green and red fleshed; 1, Dr. Bazin; 2, L. Irving; 3, R. W. Shepherd, jr.....$2 00 $1 00 0 75

214. Vegetables, 6 varieties 3 of each, named; 1, L. Irving.....$3 00

215. Potatoes, plate of, 6 specimens, named; 1, L. Irving; 2, Mrs. E. Scott.....$2 00 $1 00

216. Beans, best plate in green state, named; 1, D. F. Bell; 2, W. Bell.....$ 00 0 75

217. Tomatoes, best plate of, named; 1, R. W. Shepherd, jr.; 2, L. Irving; 3, J. B. Goode.....$1 00 0 75 0 50

218. Sweet corn, 12 ears; 1, L. Irving...$1 00

CHRYSANTHEMUMS.

Prizes amounting to $11 00 were awarded to Mr. John Eddy, and of $5 00 to Mr. Jules Betrix.

CONSERVATORIES.

Class A.—Having a superficial area of over 700 square feet. First prize, W. Wilshire, gardener to Hon. J. J. C. Abbott, $10; second do., J. Kirkwood, gardener to R. B. Angus, $5.

Class B.—Having a superficial area of under 700 square feet. First prize, J. Eddy, gardener to Mrs. Redpath, diploma; second do., W. Maguire, gardener to John Molson, $5.

REPORTS OF LOCAL SOCIETIES.

QUEBEC HORTICULTURAL SOCIETY.

The annual general meeting of the Society took place on the 24th December inst., when the following report was read and adopted:

REPORT OF THE PRESIDENT ON THE OPERATIONS OF THE YEAR 1887.

The present has been for the Society a busy, I may say, at times, an anxious, but, certainly, a very satisfactory year.

On presenting the report of Messrs. George Moore and Jules Betrix, of Montreal, the judges, named to award the prizes to exhibitors, I have pleasure in concurring in the opinion expressed by them, as to the complete success of that portion of the exhibition entrusted to the Horticultural Society of Quebec.

Several of their suggestions commend themselves to the attention of our Association.

Experience has demonstrated that though by enlarging the scope of the Society, so as to take in the Montreal district, in order to make a creditable display, especially of fruit, the fruit growers of the district of Quebec, owing to climatic influences, are placed at a disadvantage in competing with their Montreal colleagues.

Should the Quebec Horticultural Society ever be called on to combine with the Provincial Exhibition, it is submitted that the fruit ought to be classed under two distinct heads, one for the eastern and the other for the western section of the Province.

The members who were present on the grounds, are in a position to judge of the gorgeous array of bloom in the main exhibition tent, of the careful culture displayed in the greenhouse plants and garden flowers, as well as of the beautiful effect produced by the several floral designs, &c.

The novelty in our late show of "Design for Dinner Tables," let us hope, will receive a still greater development, under modified rules, in a future exhibition.

The display of apples was striking, some exhibitors having entered as many as forty varieties; if forty varieties were grown by each exhibitor, such a collection is highly creditable.

The outdoor grapes, by their varieties, were also worthy of note.

One grower, Mr. W. M. Pattison, of Clarenceville, near Montreal, it is said, grows with success no less than one hundred varieties.

The apples shown by Mr. Auguste Dupuis, and by Dr. J. B. Bolduc, of Beauport, were much admired, though the tardiness of our Quebec season deprived them of prizes on account of their not being thoroughly ripe.

The vegetable display was poor, owing to the division of this useful exhibit in no less than three tents.

All admitted that tents are more favorable for the display of flowers than roofed sheds; the effect of the electric light on the floral department at night was striking.

Pursuant to the arrangement entered into by our Society with the directors of the Provincial Exhibition, under which the Horticultural Society commuted

its gate money for a bulk sum and combined with the Provincial Exhibition, we were afforded the free use of the grounds, of tents, of electric light, as well as of shelving and tables to display the flowers and fruit. The cash received under this agreement is set forth in the accompanying statement. The most cordial *entente* has existed between the two Associations from the beginning to the close of the Exhibition.

Our tents were honored on the first day with the visit of Her Excellency the Marchioness of Lansdowne and Lady Streatfield, escorted by the Hon. H. J. Anson, A.D.C., and Capt. Streatfield, Military Secretary to His Excellency. On the last day, immediately on his return from the Toronto Exhibition, His Excellency and suite paid us a visit, and expressed his gratification at the display, enquiring particularly where the fruit grew, &c. Forty thousand persons are supposed to have visited the grounds.

The vouchers in support of receipt and expenditure are now submitted for the examination of members. There was much work of detail, and often it required to be all done at once, so that it was found necessary to allow the Secretary extra help. Measures had been taken to employ night as well as day watchmen in the tents, in case of wind storms and to prevent depredations on fruits.

The usual gratuity of $10 each for two days attendance was paid to the two judges over and above their travelling expenses and board. Both gave great satisfaction and received our thanks.

In conclusion, I beg to thank the Board for their active co-operation and ready assistance. More than once it has rendered easy the performance of duties which at times would otherwise have been both difficult and onerous.

Respectfully submitted,

J. M. LEMOINE,

President.

Quebec, 24th December, 1887.

Moved by Mr. Auguste Dupuis, and seconded by Mr. J. M. LeMoine:—That the Society has heard with unfeigned pleasure, of the deep interest taken by the Montreal Horticultural Society in the culture of apples and other fruit, suitable to the Canadian climate, and that it will hail with much satisfaction the steps the Montreal Horticultural Society intends to take this winter to discuss the subject in public, before a Quebec audience.

Moved by Rev. Octave Audet, seconded by Thos. Beckett, Esq.:—That the thanks of the members of the Quebec Horticultural Society be tendered to James McPherson LeMoine, Esq., for his able and indefatigable administration of the affairs of the Society for the past year, and specially to recognize his successful management of the recent exhibition.

The following Board of Management was elected for the ensuing year:—Hon. H. G. Joly, R. R. Dobell, Lieut.-Col. Duchesnay, Lieut.-Col. J. B. Forsyth, J. M. LeMoine, Thos. Beckett, E. J. Price, Auguste Dupuis, D. Bell, E. C. Barrow, Dr. J. Bte. Bolduc, and Rev. Octave Audet.

At a meeting of the Board of Directors held on the same day, J. M. LeMoine, Esq., was chosen as President, Thomas Beckett as Vice-President, and W. A. Home to audit the Society's accounts of the past year.

GEO. L. MAXHAM, SECRETARY-TREASURER, IN ACCOUNT WITH THE QUEBEC HORTICULTURAL SOCIETY.

(Abstract.)

1887.	DR.	
May.	To Cash in Union Savings Bank as per Pass Book	$ 508 05
	" Interest allowed by Bank	9 90
	" Government Grant	250 00
Sept.	" Cash received from Provincial Exhibition	250 00
	" Interest to date	9 00
	" Cash received from Provincial Exhibition (Labor Bill)	108 00
	" Received as entry from J. Coupland (returned)	1 00
	" From members' annual subscriptions	84 00
		$1,219 95

1887.	CR.	
Sept.	By Cash paid to Exhibitors for prizes	$766 00
	" Annual salary of Secretary and two assistants during Exhibition week	121 00
	" Railway fare, board, &c, of two judges, two days and gratuity	50 65
	" Norris' bill for plates, lamps, dishes, &c	32 36
	" Advertising, postage, &c.	30 16
	" Labor Bill—Wages of watchmen day and night, during Exhibition week	145 06
	" Balance in *La Banque du Peuple*, to credit of next year	74 72
		$1,219 95

(Signed) W. A. HOME, *Auditor.*

(Signed) GEO. L. MAXHAM, *Sec'y-Treasurer.*

Quebec, December 1887.

A letter on arboriculture from A. Dupuis, was read by the President, and on motion of the Rev. Octave Audet, seconded by J. M. LeMoine, it was resolved:

That this Society will view with favor any measure tending to the introduction of suitable fruit trees in this section of the Province of Quebec.

ABBOTSFORD FRUIT GROWERS' ASSOCIATION.

CHARLES GIBB, *President.* GEORGE FISK, *Secretary-Treasurer.*

The tenth annual exhibition of this Society was held at Abbotsford on the 22nd September. A fine day brought a gathering of about 2500 people.

Pomology is studied as a science at Abbotsford. All new fruits of promise are obtained and grown. Of many of the new Russians each member has an assortment planted some years in orchard; thus Abbotsford leads in her display of new varieties.

All fruit exhibited, except about 10 plates, was of Abbotsford growth. Of apples 413 plates were shown, including 44 plates of Hybrid crab apples. Of the

newer Russians 13 varieties were shown, and a total of 115 grafted varieties. The largest collection contained 65 varieties.

Of out door grapes, 116 plates were shown. The largest collection contained 40 varieties. The season was unusually favorable. Late varieties like Jefferson and Lady Washington ripened well. Only Brant and Othello were acid and uneatable. Of pears 15 plates; of plums 17 plates; melons 25 plates; making a total of 586 plates of fruit. The Association also competed in Montreal for "county collection" and obtained first prize.

The floral designs and bouquets were a credit to the ladies, and the pot-plants were well grown.

Ornamental trees were represented by a collection of over one hundred named varieties of foreign maples, basswoods, poplars, birches, &c., from Asia and Europe, including many from Siberia, Mongolia, Turkestan, Dahuria and Amur. Samples of these trees from 6 inches to 6 feet in height were planted in earth, and formed an interesting group for study and comparison.

To induce the study of our native trees prizes were offered for tree seed. The best way to study trees is to make a collection of their seeds. Three collections were shown of 65, 71, and 48, varieties, including native and foreign species and grafted varieties.

The large numbers who gather at our exhibitions is due mainly to the success of all former exhibitions held by the Association. During the first 4 or 5 exhibitions held at Abbotsford, there was a great and pressing need throughout the country for such exhibitions. Now they are overdone. Hence our gatherings are more local than they were.

By permission of the Council of Agriculture no exhibition will be held at Abbotsford in September next.

The Society has entered largely into experimental work, as may be seen from our former reports, introducing fruit trees from Russia, Germany and the Western States. Besides this, all available spare wood from new varieties, for two years, was cut and sent to the Iowa Agricultural College to be root grafted. These are now growing at Abbotsford and it is expected that a distribution will be made next October to the members of the Association consisting of about 500 or 600 trees, viz.. Russian and German pears and cherries, and Russian and Northwestern American plums.

The Association feel that they are increasing their usefulness by thus changing their plan of work year by year.

SHEFFORD COUNTY FRUIT GROWERS' ASSOCIATION.

The Fruit Growers' Association of the County of Shefford held its Seventh Annual Exhibition on the 13th and 14th of September last, in the Town Hall, Granby. The attendance on the second day was large, and the show in some respects the best yet held. The display of fruit, however, was hardly up to former years, the large list of prizes in this class having seemed to fail to induce competition from a distance, and with a hope of furthering this end and encouraging greater competition and a larger exhibit, the directors have increased still more the prizes for fruit at our coming fall exhibition. The display of vegetables and flowers was superior to other years. The large tent built for the former being completely filled, while the fine commodious upper hall made a

grand display of fruit and flowers. A small charge of five cents admission to each department was made to non-members, which very perceptibly augmented the funds of the Association. There was paid in prizes $180.40, and our net receipts over our expenses were $95.24. There are 67 members. The officers of the past year were as follows: President, J. H. McCanna; Vice-President, S. Martin; Secretary-Treasurer, J. A. Tomkins; Directors, W. H. Robinson, James Coupland, B. H. Smith, and Rev. W. B. Longhurst. No effort has been spared on the part of either officers or members of this Association to make it a success, and as a result already a marked improvement both in quality and quantity is plainly visible in the fruit grown by our agriculturists throughout the county.

J. A. TOMKINS.

Sec'y-Treasurer.

L'ISLET COUNTY HORTICULTURAL SOCIETY.

The annual meeting was held at St. Jean, Port Joli, on the 21st of December, 1887. The following officers were elected for the year 1888:—

Rev. J. Lagueux, President; Eugène Casgrain, Vice-President; Auguste Dupuis, Corresponding Secretary; A. G. Verreault, Secretary-Treasurer. The following resolutions were passed at the meeting.

Proposed by the Rev. J. Lagueux, seconded by Eugène Casgrain,—That the L'Islet Horticultural Society has learned with pleasure that the Montreal Horticultural Society and Fruit Growers' Association of the Province of Quebec will hold its annual winter meeting at Quebec for the discussion of the best methods of fruit culture; of the hardiest and best varieties for table and market. That it will be of great advantage to the members of this Society to attend this meeting, when the subject of fruit culture will be treated by experienced fruit growers.

That Mr. Charles Gibb, of Abbotsford, has accepted our invitation to make known to us his observations on the fruit trees of the North of Russia and on the orchards which he has visited in that part of Russia where the climate is as cold as in the county of L'Islet. This should be very interesting for us to listen to and note the choice of varieties which he would suggest to introduce into our orchards.

That the Secretary be instructed to convey to Dr. T. Sterry Hunt, the President of the Montreal Society, a copy of the present resolution and to solicit him to make known in advance by advertisement the date of the meeting so as to permit all interested in horticulture in the county of L'Islet and the adjoining counties to assist at this meeting.

Proposed by Eugène Casgrain, seconded by T. Francoeur—That the Hon. H. G. Joly be requested to deliver an address on Forest and Ornamental trees at the proposed meeting.

That F. H. Proulx, proprietor of *La Gazette des Campagnes*, and J. C. Chapais, of the *Journal of Agriculture*, be requested to become honorary members of the L'Islet Horticultural Society to show our appreciation of the services rendered by these gentlemen in the cause of horticulture in this Province.

The following premiums will be distributed to members for 1888 who will have paid subscription of $1.00 in January and 25 cents for postage: 25 root

grafts of Russian apples, or if preferred, 10 Wealthy apples, 10 Orleans plums, or 10 Richmond cherry trees, one year old. These trees will be delivered in May next.

ADDITIONS TO THE LIBRARY.

The following donations and exchanges have been received during the year.

Mr. Robert Benny, Montreal:
Lucas' Illustrated Handbook of Fruits, 9 vols.
Lauche's Deutche Pomologie, 7 vols. 300 colored plates.

Mr. E. Williams, Secretary, Montclair, N.J.:
Reports of New Jersey State Horticultural Society: 1886–1887.

Mr. P. C. Reynolds, Secretary, Rochester, N.Y.:
Report Western New York Horticultural Society, 1887.

Mr. C. W. Garfield, Secretary, Grand Rapids, Mich.:
Reports Michigan Horticultural Society, 1886–1887.

Mr. E. H. Botterell, Ottawa:
Report of the Second Hudson's Bay Expedition, under the command of Lieut. A. R. Gordon, R.N., 1885.

Mr. F. C. Emberson, Montreal:
Botanical Cultivator and Instructor for management and propagation of plants; London, 1831.

Mr. Fletcher Norman Menzies, Secretary, Edinburgh, Scotland:
Transactions of the Highland and Agricultural Societies of Scotland, 1866 to 1878; 1884 to 1887 inclusive.

Mr. L. Woolverton, Secretary, Grimsby, Ont.:
Report of the Fruit Growers' Association of Ontario, 1886.

Mr. L. A. Goodman, Secretary, Westport, Mo.:
Reports of the Missouri State Horticultural Society, 1885, 1886, 1887.

Mr. G. C. Brackett, Secretary, Lawrence, Kansas:
Report of the Kansas State Horticultural Society, 1886.

Mr. Henry G. Reynolds, Secretary, Lansing, Mich:
Report Michigan Board of Agriculture, 1886.

Prof. J. L. Budd, Ames, Iowa:
Transactions Iowa Horticultural Society, 1881; vol. 16.

Mr. C. M. Hobbs, Secretary, Bridgeport, Ind.:
Transactions of the Indiana Horticultural Society, 1886.

Mr. Nelson Millett, Secretary, Denver, Col.:
Reports Colorado State Horticultural Society, 1882, 1883, 1884, 1886.

Hon. Hiram Smith, Sheboygan Falls, Wis.:

Report of Agricultural Experiment Station, University of Wisconsin.

Mr. Z. A. Gilbert, Secretary, Augusta, Me.:

Agriculture of Maine, 1886–87.

Mr. E. Baynes Reed, Secretary, London, Ont.:

Report Entomological Society of Ontario.

Mr. Alvan Barrus, Secretary, Boston, Mass.:

Fourth Annual Report of the Board of Control of the State Agricultura Experiment Station.

Mr. Charles Gibb, Abbotsford:

Patent Office Reports, from 1847 to 1857 inclusive.
Iowa Agricultural Reports, 1867, 1870, 1872, 1875.
Report Connecticut Board of Agriculture, 1866.
Transactions Wisconsin State Horticultural Society, 1875.
Transactions Illinois Horticultural Society, 1879.
Fourth Report Agriculture of Massachusetts, 1841.
Report American Pomological Society, 1864.
Wood's Class Book of Botany, 1850.
Minutes, Documents, and Reports of the Board of Commissioners of Central Park, New York, for the years 1857, 1858, 1859, 1860, 1861, 1862, 1863, 1864, 1865, 1866, 1867, 1868, 1869, 1870.
Third Annual Report of the Board of Commissioners Central Park.
Ninth do. do. do.
Reports Board of Commissioners of Central Park 1858, 1859, 1860, 1866, 1867, 1868, 1869.
The Flower Garden, by Charlotte Elizabeth.
Colman's European Agriculture, 2 vols.
Transactions Iowa Horticultural Society 1878, 1881, 1882, 1884, 1885, 1886.
Transactions Indiana Horticultural Society 1884, 1885, 1886.
Report of the Productions of Agriculture and 10th Census of 1880 1883, Dept. of Interior, Washington.
U. S. Report on Forestry, F. D. Hough, 1877 2 vols., 1882 1 vol.
New Hampshire State Agricultural Society 1850-51-52.
New Hampshire Board of Agriculture, 1872, 1873.
Kansas Biennial Report State Board of Agriculture, 1883-1884.
Michigan Pomological Society, 1871.
Illinois Horticultural Society, 1884.
California State Agricultural Society, 1882, 1883.
Indiana State Board of Agriculture, 1876.
U. S. Department of Agriculture, 1881-82.
Practical Forestry, A. S. Fuller, N.Y., 1884.
Ornamental Gardening for Americans, by Elias A. Long, N.Y., 1885.
Hand Book of Fruit Culture, by Thomas Gregg, N.Y., 1857.
The Pomological Manual, by William Prince, N.Y., 1882.
New England Book of Fruits, by John M. Ives, Salem, 1847.
Grape Culture, wines and wine making, by A. Haraszthy, N.Y., 1862.
Du Breuil's Vineyard Culture, by John A. Warder, Cincinnati 1867.

The Rose. Its history, poetry, &c. by S. B. Parsons, N.Y., 1847.

Mr. H. C. Adams, Secretary, Madison, Wis.
Transactions of the Wisconsin State Horticultural Society, 1887.

Hon. Norman J. Coleman, Commissioner of Agriculture, Washington.
Second Annual Report of the Bureau of Animal Industry, 1885.

Mr. John E. Russell, Secretary, Boston, Mass.
Report of the Massachusetts Board of Agriculture, 1886.

Dr. E. Lewis Sturtevant, Geneva, N.Y.
Reports of the Board of Control of the New York State Experimental Station, 1882 to 1886 inclusive.

The Smithsonian Institute, Washington.
Transactions of the Maine State Pomological Society, 1885, 1886.

Mr. H. B. Battle, Acting Director, Raleigh, N.C.
Report of the North Carolina Experiment Station, 1886.

Prof. W. Trelease, Madison, Wis.
Transactions of the Wisconsin State Horticultural Society, 1883.

Dr. C. A. Goessman, Amherst, Mass.
Massachusetts State Agricultural Experiment Station, 4th Annual Report of Board of Control.

Dr. Geo. Cook, New Brunswick, N.J.
Reports New Jersey State Agricultural Experiment Station 1880 to 1886 inclusive.

Prof. E. W. Hilgard, University of California, Berkley, Cal.
Reports of the Viticultural Work, 1883-84, 1884-85, 1885-86.

Queensland Acclimatisation Society, Brisbane, Australia.
Report of the Acclimatisation Society of Queensland, 1886.

Mr. B. M. Lelong, Secretary, San Francisco, Cal.
Biennial Reports of the State Board of Horticulture, California, for 1885, 1886, with appendix for 1887.

Dr. E. Regel, Director Imperial Botanic Gardens, St. Petersburg, Russia.
Allii species, Asiae centralis. In Asia media, A. Turcomania, desertsisque, Aralensibus et Caspicis ad Mongolian crescentes auctore.

Mrs. J. H. R. Molson.
New American Gardener, 1837.
New American Orchardist, 1835.
The Complete Farmer, 1838.
Downing's Landscape Gardener and Rural Architecture, N.Y., 1841.
The Magazine of Horticulture, 1840 to 1846 inclusive, 6 vols.
The Horticulturist, Downing, vol. 1, 1846-47.

Dr. A. R. C. Selwyn, Director Geological Nat. Hist. Survey, Ottawa.
Catalogue of Canadian plants, part III, Apetalae, by Prof. Macoun.

Mr. W. H. Morrison, Superintendent, Madison, Wis.

Bulletin No. 1, Wisconsin Farmers Institutes, 1887.

Mr. Adolph Leue, Secretary, Columbus, Ohio.

Ohio Forestry Reports, 1885, 1886.

Mr. S. Lesage, Quebec.

Reports of the Commissioner of Agriculture and Public Works of the Province of Quebec, 1868, 1869, 1871, 1872, 1873, 1874, 1876, 1877, 1880, 1881, 1882, 1883, 1884, 1885.

Rapports des Commissairés de l'Agriculture et des Travaux Publics, 1868, 1869, 1870, 1871, 1873, 1874, 1875, 1876, 1877, 1878, 1879, 1881, 1882, 1883, 1884, 1885, 1886.

Mr. C. R. H. Starr, Secretary, Port Williams, N.S.

Report of the Fruit Growers' Association of Nova Scotia, 1887.

Mr. B. S. Hoxie, Secretary, Evansville, Wis.

Transactions of the Wisconsin State Horticultural Society, 1888.

Mr. E. B. Engle, Secretary, Waynesboro, Penn.

Report of the State Horticultural Association of Pennsylvania, 1887.

Mr. W. H. Brewer, Secretary, New Haven, Conn.

Report of the Connecticut Agricultural Experiment Station, 1887.

The Botanical Society, Edinburgh.

Transactions and Proceedings, vol. XVI, part 3, XVII, part 1, 1887.

LOANED BY THE FRASER INSTITUTE.

L'Agriculture Allemande, by Royer, Paris, 1847.
Journal d'Agriculture, Montreal, 1850, 1851.
Manuel du Jardinier, Noisette, 5 vols., Paris, 1853.
Maison Rustique, 3 vols., by M. Desormeaux, Paris, 1829.
L'Agriculteur, Quebec, 1858-59, 1860-61.
Chimie Appliquée a l'Agriculture., by Le Compte Chaptal, Paris, 1829.
Recherches sur l'Agriculture et l'Horticulture des Chinois, by Le Baron Leon d'Hervey St. Denis, Paris, 1850.
Chimie Agricole, Theorie et Pratique., by J. C. Maxime Paulet, Paris, 1845.
Agriculture Anglais, Situation Economique et Agricole, by M. Baucelin Dutertre, Paris.
Cours d'Horticulture, A. Poiteau, Paris, 1853.
Cours d'Agriculture, De Gasparin, Paris, 1839.
Rapport sur L'Ecole d'Agriculture Ste. Anne,by George Leclere, M. D., Montreal, 1865.
Element d'Agriculture, 2 vols., by M. Duhamel du Mouceau, Paris, 1762.
Les Veillées de la Ferme, by P. J. De Varennes, Paris, 1861.

Principes d'Agriculture, Victor Rendu, Paris, 1853.
Causeries Agricoles, E. A. Barnard, Montreal, 1875
Annales d'Agriculture, 1857-58.
Agriculture Enseignment, Paris, 1850.
Agriculture Enseignment, Race Bovine, by M. G. Lefebvre, Ste. Marie, Paris, 1849.
Agriculture Enseignment, Sel, Vignes, by M. Milne Edwards, Paris, 1850.
Notions de Sylviculture, E. Mirel, Paris, 1884.
Figures pour l'Almanach du bon Jardinier, Decaisne, Paris.
Wisconsin Agricultural Experiment Station, Fourth Annual Report.
Agriculture of Maine, 1860, 1863, 1865, 1866.
Agriculture of Massachusetts, 1859, 1866, 1867.
Transactions of the New York Agricultural Society, 1850, 1864, 1865.
Transactions of the Board of Agriculture of Upper Canada, 1855, 1857.
Asperge, Les Fraises et les Figues, by V. F. Lebeuf, Paris, 1864.

METEOROLOGICAL ABSTRACT FOR THE YEAR 1887.

Observations made at McGill College Observatory, Montreal, Canada.—Height above sea level 187 ft. Latitude N. 45° 30′ 17″. Longitude 4h 54m 18s·54 W.

C. H. McLEOD, *Superintendent.*

Month.	Thermometer.					* Barometer.				Mean pressure of vapour. †	Mean relative humidity. ‡	Mean dew point.
	Mean.	¶ Deviation from 13 year means.	Max.	Min.	Mean daily range.	Mean.	Max.	Min.	Mean daily range.			
January	6.78	— 4.67	40.2	— 25.9	20.4	29.9795	30.635	29.215	.377	.0620	85.6	3.3
February	13.97	— 1.84	45.3	— 11.1	17.5	30.1622	31.006	29.079	.480	.0789	82.0	9.2
March	19.55	— 3.79	41.8	— 11.9	14.8	29.9048	30.962	29.188	.259	.0920	77.8	13.6
April	35.46	— 4.04	56.4	8.0	15.4	29.9714	30.616	29.195	.246	.1465	67.5	25.3
May	61.06	+ 6.35	85.5	40.1	20.5	29.9981	30.251	29.554	.114	.3147	57.9	44.5
June	66.25	+ 1.77	86.7	50.3	17.1	29.9512	30.342	29.650	.155	.4523	70.2	55.5
July	73.48	+ 4.29	90.4	56.3	17.3	29.9130	30.169	29.502	.131	.5676	69.3	62.1
August	65.94	— 1.55	87.9	49.6	17.7	29.9277	30.342	29.653	.135	.4235	66.0	53.3
September	56.38	— 2.31	79.8	38.2	17.0	30.0105	30.447	29.266	.210	.3135	67.5	45.2
October	43.30	— 2.50	63.0	21.5	13.3	29.9652	30.617	29.373	.226	.2183	73.0	34.8
November	30.09	— 1.73	56.5	— 0.5	13.1	30.0137	31.058	29.311	.285	.1327	76.2	23.0
December	16.84	— 1.54	40.3	— 12.2	10.6	30.1282	31.133	29.301	.262	.0919	83.7	12.6
Sums for 1887	....	....	....	....	....	....	....	....	....	....	....	....
Means for 1887	40.76	— 0.96	....	...	16.2	29.9938	....	....	.240	.2412	73.1	31.9
Means for 13 years ending Dec. 31, 1887	41.72	....	....	....	....	29.9759	....	....	....	.2502	74.3	....

Month.	Wind.		Sky clouded per cent.	Percent. possible bright sunshine.	Inches of rain.	Number of days on which rain fell.	Inches of snow.	Number of days on which snow fell.	Inches of rain and snow melted.	No. of days on which rain *and* snow fell.	No. of days on which rain *or* snow fell.
	Resultant. direction.	Mean velocity in miles per hour									
January	S. 43° W.	18.37	66	29.1	1.41	7	50.1	21	6.08	4	24
February	S. 67° W.	20.87	63	40.6	0.79	2	34.1	16	4.57	2	16
March	S. 62° W.	18.18	58	48.4	0.11	4	31.1	15	3.33	2	17
April	S. 79° W.	18.18	53	58.3	3.02	11	Inapp.	1	3.02	..	12
May	S. 83° W.	14.62	59	66.1	1.26	6	..	..	1.26	..	6
June	S. 51° W.	12.73	56	58.1	2.41	12	..	..	2.44	..	12
July	S. 60° W.	12.35	54	62.5	2.66	16	..	..	2.66	..	16
August	S. 89° W.	12.36	58	66.8	1.72	9	..	..	1.72	..	9
September	S. 66° W.	13.89	70	49.5	1.32	12	..	..	1.32	..	12
October	S. 58° W.	14.10	70	35.1	2.93	15	3.1	5	3.24	3	18
November	S. 75° W.	16.26	73	33.3	1.76	9	25.9	14	4.54	6	17
December	N. 80° W.	15.06	67	25.0	1.93	6	24.9	13	5.08	1	18
Sums for 1887	....	....	...	....	21.35	109	169.2	85	39.26	17	177
Means for 1887	S. 67°.5 W	....	62.2	47.7	....	....	....	....	3.27	..	....
Means for 13 years ending Dec. 31, 1887.	...	....	61.0	§46.7	26.90	131	125.3	85	39.44	16.1	200

*Barometer readings reduced to 32° Fah., and to sea level. †Inches of mercury. ‡Saturation 100. §For 6 years only. ¶ "+" Indicates that the temperature has been *higher*; "—" that it has been *lower* than the average for 13 years, inclusive of 1887. The monthly means are derived from readings taken every 4th hour, beginning with 3h. 0m, Eastern Standard time. The anemometer and wind vane are on the summit of Mount Royal, 57 feet above the ground, and 810 feet above sea level.

The greatest heat was 90.4 on July 4th; greatest cold 25.9 below zero on January 9th; extreme range of temperature was therefore 116.3. Greatest range of the thermometer in one day was 41.5 on January 20th; least range was 2.1 on Nov. 15th. The warmest day was July 4th, when the mean temperature was 79.38. The coldest day was January 9th, when the mean temperature was 16.1 below zero. The highest barometer reading was 31.133 on Dec. 1st, the lowest was 29.079 on Feb. 27th, giving a range of 2.054 for the year. The lowest relative humidity was 11, on May 11th. The greatest mileage of wind recorded in one hour was 66 on the 11th of Feb., and the greatest velocity in gusts was at the rate of 80 m. p. h. on Oct. 24th. The total mileage of wind was 136,061. The resultant direction of the wind for the year is S. 67.5° W., and the resultant mileage 57,600. Auroras were observed on 29 nights. Fogs on 30 days. Hoar-frost on 13 days. Thunder storms on 10 days and lightning without thunder on one day. Lunar halos on 14 nights. Lunar coronas on 6 nights. Parhelia on 2 days. Lunar rainbow on July 6th. Hail fell on 7 days. The sleighing of the winter closed, in the city, on April 14th. The first appreciable snowfall of the autumn was on October 23rd. The first sleighing of the winter was on November 11th.

The barometer reading, 31.133, is the highest recorded here during the 13 years over which the present series of observations extend. The humidity 11, is the lowest recorded. The mean temperature for May and July are the greatest recorded for these months, and that for July is the highest monthly mean on the records. The mean temperature of April is the lowest record for that month. The rainfall is the least for any one year in the past 13, and the snowfall only exceeded in quantity by that of 1885. The total precipitation is very nearly normal.

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