

TRANSACTIONS

AND

SECOND REPORT

OF

FRUIT COMMITTEE

OF THE

MONTREAL

Agricultural and Horticultural Society,

1876.



Montreal:

LOVELL PRINTING AND PUBLISHING COMPANY, ST. NICHOLAS STREET

1877.

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MONTREAL AGRICULTURAL AND HORTICULTURAL SOCIETY.

ANNUAL REPORT.

THE Board of Management of this Society have the pleasure to present the following report of its proceedings for the past year. They do so with the more pleasure from the fact that the anticipations of its success and prosperity have been more than realized. The Society this year, if not the largest Horticultural Society in the whole Dominion, is at least among the very largest, having had on its rolls 11 life members, and 814 ordinary members paying each two dollars. The amount of work undertaken by the Society during the year has been very great, and has been directed in a large measure towards objects of the highest importance to all residents in this Province. At the last general meeting a Fruit Committee was named to procure all the information possible relative to fruit in this Province, and publish a report. The result of their labors is already in the hands of the members of this Society; and the Committee are deserving of the thanks not only of the members, but of the public generally, for the thorough and painstaking manner in which they performed their work, and for having placed so much valuable information within the reach of all interested in fruit growing. The next important matter which occupied the attention of the Society, was the Annual Exhibition, which was held in the Crystal Palace Building on the 12th, 13th and 14th of September, and was very successful. The display was very good in nearly all the sections, and having an exhibition of dogs connected with it, added greatly to the interest. The building chosen was admirably suited for the purpose, was centrally situated, and, owing also to the fact that the Provincial Exhibition took place on the same days, the attendance was very large. The members' tickets probably admitted between five and six thousand people, but in spite of this the large sum of \$1,435.14 was taken at the door. This is the largest sum ever taken except in 1865, when the exhibition remained open four days, and the receipts were \$1,869.35. The members' subscriptions, however, that year, only amounted to \$396.44. The gross receipts

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from these two sources were in 1865, \$2,265.35; 1876, \$3,063.14; amount in favor of this year, \$797.79, so that altogether this may be considered the most successful year this Society has ever had since it was founded, more than thirty years ago. The next important matter was getting together a collection of the fruits of this Province, for the purpose of information and exhibition here, and also, if possible, to select a collection to send to the International Exhibition at Philadelphia. This matter is more particularly referred to in a separate report, and it is sufficient to say that the collection was such as to reflect credit on this Province, and that two awards have been made by the American judges, one for grapes and one for seedling apples. A large number of members and others visited the fruit exhibition, which was held in a large room in the City and District Savings Bank building, a place admirably suited for the purpose. The thanks of the Society are due to Mr. Henry Judah, for his kindness in having placed the room at their disposal for this purpose without any charge. A meeting of those interested in fruit growing was held in the long room, Mechanics' Institute, on the 13th of September last, and, though not largely attended, some very interesting matter was brought up and discussed. The Society this year invited Messrs. Boswell, of Quebec, J. L. Nichol, of Kingston, and Thomas Lawrence, of Ogdensburg, to act as judges at the exhibition, and they are much indebted to these gentlemen for their kindness in having acceded to their request. The Society this year offered a number of prizes to amateurs exclusively, but they regret to say that the entries were not nearly as numerous as they should have been. It is, however, gratifying to be able to state that an amateur, Mr. James Black, of Point St. Charles, won fifty-six dollars in prizes at the exhibition this year, being the largest amount obtained by a single individual, and it is hoped that this may be some encouragement to others. Owing to the fact that the Council of Agriculture were having an exhibition of poultry, for which they had put up a special building, on the same day as our own show, an arrangement was come to with them by which they agreed to pay all our prizes and adopt our list; the Society paying the Council of Agriculture one dollar for each of their members who desired to exhibit. This arrangement was mutually satisfactory. The Society, being aware of the necessity for providing proper coops in which to exhibit poultry, entered into correspondence with some parties in England, which resulted in the purchase

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of 100 coops, of the latest pattern, for this purpose. Samples were procured from two or three manufacturers here, but it was judged better to import what was required from England, as they have greater facilities for manufacturing them there. The net cost of the coops owned by the Society is \$270.14.

A fruit committee has been named for the coming year, who have already commenced their labors, and several persons have been invited to give essays on the cultivation of various fruits, vegetables, etc. Reports on fruit have also been invited from neighboring districts, some of which have already been received and others are promised, so that the work referred to in the "finis" of the fruit report has been swiftly followed up. The Council of Agriculture have promised the sum of \$200 to aid in the publication of the second fruit report. The work is now in active progress, and it is hoped that it will be placed in the hands of the members of this Society early in the coming year. The Society is greatly indebted to the President of the Council of Agriculture, Mr. J. M. Browning, as well as other members for the interest manifested and encouragement given to carry on a work so important to the whole Province. Everything connected with the working of the Society has been managed with the utmost economy consistent with efficiency, and there is now at the credit of the Society in the Savings Department of the Merchants Bank of Canada the sum of \$629.94. The sum of \$69.73 has been derived from interest on the account. At a meeting of the directors held on the 14th inst. it was decided to purchase some Bank of Montreal stock. Three shares have accordingly been purchased at a cost of \$1,119, the interest on which, combined with the interest on the current account, if a vigorous effort is made to collect the subscriptions, would bring in a revenue almost as great as that derived from the ordinary members three years ago, viz., \$220. The balance on hand previous to purchasing this stock was \$1,748.94. It would be greatly to the advantage of the Society to have a right in some building in which to hold their exhibitions. In any case an office is required, in which to keep the papers, etc., of the Society, especially as the nucleus of a valuable library has been formed by the receipt of a number of valuable reports from sister societies in the United States and Canada. The climate in some of the States is similar to our own, and their experience is, consequently, valuable to us. The duties connected with the Secretaryship having become very much heavier, it is recommended

that an Assistant Secretary and Collector be appointed to assist in the work, or a sum of money granted to pay some person from time to time, when it may be found necessary to employ one. The Society is now both numerous and influential, and every effort should be made to keep it up to its present standard. It is much indebted to Messrs. J. D. Gibb, Chas. Gibb, and others, for much valuable time and assistance freely given to advance its influence during the past year. It is much to be desired that they and other gentlemen will continue to interest themselves in its welfare. The property of the Society is covered by insurance, amounting to \$550, viz., \$200 on coops, and \$350 on other property. Of the gross expenditure for the year, \$177 may be claimed as extraordinary, viz., \$117 for printing fruit report, and \$60, the amount expended in making the collection of fruit over and above the sum of \$150 received from Government in aid of that object.

HENRY S. EVANS,
Secretary and Treasurer.

MONTREAL, December, 1876.

THE MONTREAL AGRICULTURAL AND HORTICULTURAL SOCIETY IN ACCOUNT WITH HENRY S. EVANS, SECRETARY AND TREASURER.

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CATALOGUE OF LIBRARY.

Report of Fruit Growers Association of Ontario.....	1869
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Report Pennsylvania Fruit Growers Association.....	1875
Catalogue Pennsylvania Horticultural Library.	
Catalogue Massachusetts Horticultural Library.	
Transactions Massachusetts Horticultural Society.....	1874
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Loudon's Encyclopedia of Gardening, &c., &c., &c.	

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received from Abbotsford, St. Hilare, Stansford, Smith's Mills,
 Manly, and other places, and some of the fruit from these districts was very good indeed,
 and considered worthy of being sent to Philadelphia. The collec-
 tion of the fruit was grown on this island, between Pashin and
 Louisa Point. The collection was made from orchard to orchard
 on this island, for the most part by Messrs. Hamilton and Arch-
 bold. The Society was fortunate in procuring the services of such
 thoroughly competent men, and the business of the collection is
 judged to be a fortunate one, which they took in selecting
 and examining the fruit. Between six and seven hundred plates
 five feet of which were sent to Philadelphia and the remaining
 five hundred were sent to the collection exhibited was so fine that

SECRETARY'S REPORT ON FRUIT EXHIBITION

AND

COLLECTION SENT TO THE INTERNATIONAL EXHIBITION, PHILADELPHIA.

The subject of sending a collection of fruit, grown in this Pro-
 vince, to the International Exhibition at Philadelphia, was brought
 before the Annual General Meeting in December last, by Mr. S. J.
 Lyman, and a resolution was carried, pledging the Society's
 hearty co-operation in the matter. No action, apparently, being
 taken to carry out this desirable object, and the Society having
 already expended \$117 of their funds in the publication of their
 Fruit Report, did not feel, in the then position of their finances,
 justified in undertaking this matter unassisted. Accordingly com-
 munications were opened with the Quebec Advisory Board, rela-
 tive to the matter, and the Society offered to perform the service
 for the sum of \$150. After some hesitation the amount was
 promised, and the Society immediately issued circulars to differ-
 ent parts of the country, asking persons to co-operate in the effort.
 This year being, unfortunately, a poor year for fruit in most sec-
 tions of this Province, the amount received from the neighboring
 districts was not as large as was hoped. Fruit was, however,

received from Abbotsford, St. Hilaire, Stanstead, Smith's Mills, Memphremagog, St. Remi, Hemmingford, Chateauguay, and Como. Some of the fruit from these districts was very good indeed, and considered worthy of being sent to Philadelphia. The remainder of the fruit was grown on this island, between Lachine and Longue Pointe. The collection was made from orchard to orchard on this island, for the most part by Messrs. Hamilton and Archbold. The Society was fortunate in procuring the services of such thoroughly competent men, and the fineness of the collection is largely due to the trouble and pains which they took in selecting and examining the fruit. Between six and seven hundred plates of fruit were got together; where possible, ten of each variety; the five best of which were sent to Philadelphia and the remaining five exhibited here. The collection exhibited was so fine that all were surprised and delighted to find that this Province could produce such magnificent fruit as was then displayed. Nothing could exceed both the flavor and appearance of the apples shown, and it is hardly probable that any country could show as fine a collection of seedlings. This effort has brought to light many fine apples, some of which appear well worthy of being cultivated, and the very existence of which was wholly unknown to some of the oldest fruit growers on the island. The Fruit Committee, consisting of Messrs. Springle, Gibb, Raynes, Shepherd, Jack, Craig, Hamilton, Archbold, Imrie, and Bain, performed their duties in a most painstaking and systematic manner, tasting all the fruit and noting any necessary points—a labor which occupied them two or three days. The Committee then selected some of the finest specimens to be sent to Philadelphia, generally sending five specimens of each kind; but, in the case of a few varieties, such as Fameuse, Alexander, St. Lawrence, Cellini, Blue Pearmain, etc., a large dishful was sent. Two hundred and thirty-three distinct varieties were sent on, as follows: Named varieties, fifty-nine; varieties for name, forty-two; named native seedlings, twenty; unnamed native seedlings, one hundred and twelve, selected from the following, which were on exhibition:

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 Cox's Ora
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 Ribston P
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 Manks Co
 Keswick C
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 Cornish G
 Court of W
 Minchel's
 Pearson's I
 John Richa
 Cellini.
 Lawson's E
 Hawthornd
 Dutch Migr
 Herefordshi
 Blue Pearm
 Red Winter
 Golden Ball

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LIST OF APPLES EXHIBITED AT A SPECIAL EXHIBITION HELD IN
MONTREAL, SEPTEMBER, 1876.

Fameuse.	Fall Pippin.
Pomme Grise.	Holland Pippin.
Bourassa.	Maiden's Blush.
Roseau (so called).	White Winter Calville (of Abbotts- ford).
Peach (of Montreal).	Yellow Bellefleur.
Canada Reinette.	Jonathan.
Irish Peach.	Rambo.
Irish Pitcher.	Bethel.
Kerry Pippin.	Baldwin.
Blenheim Pippin.	Esopus Spitzenburg.
Cox's Orange Pippin.	Hubbardston's Nonsuch.
English Golden Pippin.	Sops of Wine.
Ribston Pippin.	Golden Reinette.
King of Pippins.	Golden Russet.
Manks Codlin.	Roxbury Russet.
Keswick Codlin.	Northern Spy.
Monstrous Codlin.	Northern Sweet.
Cornish Gilliflower.	Talman's Sweet.
Court of Wick.	Bailey's Sweet.
Minchel's Baker.	Late Strawberry.
Pearson's Plate.	Chenango Strawberry.
John Richardson (so called).	Early Red Margaret.
Cellini.	Early Joe.
Lawson's Edinboro'.	Tetofsky.
Hawthornden.	White Astrachan.
Dutch Mignonne.	Red Astrachan.
Herefordshire Pearmain.	Duchess of Oldenburg.
Blue Pearmain.	Alexander.
Red Winter Pearmain.	
Golden Ball.	

NATIVE SEEDLINGS.

Blinkbonny.	Mertranche.
Strawberry (of Montreal).	Rouge de Vin.
Fameuse Sucrée.	Mountain Beet.
Fameuse Noire.	St. Hilaire.
St. Lawrence.	Râle.
Decarie.	Canada Baldwin.
Rambour Barré.	Pomme de Fer.
Verdun.	White Winter Calville (of St. Hilaire).
Mountain Tulip.	McGregor's Baker.
St. Antoine Hall.	

It may here be noted that Mr. Newman, of Lachine, contributed eighty different seedling apples to this Exhibition, sixty of which were deemed worthy of being sent to the Philadelphia Exhibition. Fourteen varieties of crabs were also sent, viz.: Transcendent, Hyslop, Elliott's Beautiful, and Rose of Stanstead. Seedlings, natives of this Province, Montreal Beauty, Montreal Waxen, Wilson, Capt. Raynes, two from R. W. Shepherd, jun., two from Henry Judah, one from Jas. Morgan, jun., and one from G. W. Cooke, East Hatley. A good collection of pears was also exhibited, from which the following eighteen varieties were selected and sent to Philadelphia, viz.: Flemish Beauty, St. Ghislain, Baronne de Mello, Belle Lucrative, Seigneur d'Hiver, Oswego Beurré, White Doyenné, Sieulle, Doyenné Boussock, Fondante d'Hiver, Easter Beurré, Bon Chretien, Gansel's Bergamot, Suzette de Bavay, Passe Colmar, Chaumontel, Winter Bell, also, for name, one variety. On the spur of the moment a collection of out-door grapes was also got together, as it was desired to show what the country can do, and the Society are indebted to Mr. Jas. Morgan, jun., for a fine collection, consisting of the following fifteen varieties, Adirondac, Hartford Prolific, Delaware, Concord, Agawam, Champion, Rogers No. 6, Rogers No. —, Sweet Water, Golden Chasselas, Rebecca, Senasqua, Creveling, Telegraph, and one for name. It is gratifying to note that TWO AWARDS have been made for this fruit by the American judges, one for grapes and one for seedling apples.

Mr. William Evans, the Vice-President of the Society, being about to visit Philadelphia, was named the Society's representative there, and agreed to look after the fruit on its arrival. This he did, and, owing to the care taken in packing it, each apple being wrapped separately in paper, and then packed in paper shavings, it arrived in splendid condition. The Society spared no expense in having everything done in the most thorough manner. Cards were provided, stating where the fruit was grown, that it was exhibited by this Society, and the name of the apple or seedling, and by whom grown, was also written on each card. Clips to hold

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the cards were provided so that every plate of fruit was properly marked, and visitors could not fail to know that it was Canadian fruit. On the Vice-President's return from Philadelphia your Secretary, being about to visit there, was named the Society's representative in the absence of the President and Vice-President. The fruit was removed from the Pomological Hall to the Agricultural Hall on the day of my arrival, and I assisted Mr. Harry Prendeville in placing it in its new quarters. Most of the apples were then, and up to the end of October, in fine condition, and were greatly admired, by Americans and others. Many persons asked me questions about the fruit, and several took notes of some which they admired with the intention of corresponding with this Society. The fine collection of Ontario and Nova Scotia were alongside ours, and it was evidently a surprise to most persons to see that Canada was capable of making a display of fruit so fine and so various.

Had the Society been thoroughly aware of the magnitude of the work a far larger collection of fruit could undoubtedly have been got together, and, indeed, on account of the very unfavorable weather, it was at one time feared that it would not be possible to get together a collection that would be creditable to the Province. As it is, some apples have been found that may prove very valuable to the country, and, had the search been more thorough and complete, some might perhaps be found that would supply the great desideratum of winter apples.

The Society has expended about \$211 in making the collection of fruit, towards which they have so far received \$150 from the Quebec Advisory Board. The money has been certainly well expended in the information gained, though perhaps not so apparent now as in the future, and it is to be hoped that the work will not be permitted to stop here.

The Fruit Exhibition was visited by a large number of persons during the four days it remained open, and great surprise was expressed both at the size and quality of the collection exhibited.

At its close a quantity of fruit was selected and put away for

future examination. This took place on the 9th Dec., and though some had decayed, a large quantity was found in good condition. Some of the best has been again put aside for future examination. The further the work progresses the more apparent becomes the necessity for its prosecution. The Society are much indebted to each and all for the friendly aid and assistance accorded them, many of the contributors, especially those at a distance, having taken a great deal of trouble in getting good specimens of fruit and also all the information in their power.

MONTREAL, December, 1876.

HENRY S. EVANS,
Sec'y and Treas.

NAMES OF CONTRIBUTORS.

Hon. J. J. C. Abbott,	Montreal.	Captain Campbell, St. Hilaire.
J. S. Evans,	"	Capt Letetu, "
T. Caverhill,	"	J. White, Halerton.
J. H. R. Molson,	"	Whittaker Pool, Smiths Mills.
A. Molson,	"	O. Smith & Son, "
Wm. O'Brien,	"	G. W. Cook, East Hatley.
R. J. Reekie,	"	J. G. Field, Stanstead.
Walter Benny,	"	Wm. Burpee, Lineboro.
Jas. Morgan, jun.,	"	J. Laboire, "
H. Judah,	"	N. C. Fisk, Abbottsford.
Judge Coursol,	"	Chas. Gibb, "
W. F. Lewis,	"	J. M. Fisk, "
Seminary of St. Sulpice,	"	Jas. Roach, "
Captain Raynes,	"	Wm. Gill, "
Mrs. Chas. Phillips,	"	Wm. Honey, "
Henry T. Lamplough,	"	Rev. T. Johnston, "
B. Gibb,	"	S. Browning, "
M. H. Seymour	"	J. Whitney, "
Mrs. Starke,	"	Robert Brodie, Coteau St. Pierre.
P. McKenna, Cote des Neiges.		Seraphin Cloutier, "
Wm. Brown, "		Jérémie Decarie, "
Simon Lacomb, "		Gabriel Decarie, "
Wm. Thomson, Hemmingford.		Moise Gougeon, "
H. T. Griffin, Rigaud.		Benjamin Lavallee, "
R. W. Shepherd, jun., Comc.		Gilbert Leduc, "
J. Hodgson, "		Mrs. Mills, "
I. J. Gibb, "		Gilbert Pominville, "
R. Jack, Chateauguay Basin.		Hon Eust. Prudhomme, "
Wm. Craig, "		Stanislas Viau, "
A. Lang, "		J. W. Newman, Lachine.
W. Wright, "		John Crawford, Verdun.
L. A. Taillefer, "		

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THE APPLE.

PRELIMINARY ESSAY.

BY THE LATE J. H. SPRINGLE, ESQ.

It may, I think, be claimed for the Province of Quebec, that the apple has been cultivated there for a greater length of time than in any other part of North America. Its earliest settlers came from one of the foremost fruit-growing countries of Europe, and they were not slow in giving practical effect to the pomological predilections of their forefathers. The collections of fine fruit, which even at that early time were quite extensive in France, were familiar to many of the learned and zealous men of the religious orders who subsequently made Canada their home, and who promptly turned their knowledge to good account by introducing and planting many varieties of apples, pears and plums long before such varieties were known to any great extent in many countries of Europe.

As the climate of the Province proved to be eminently suitable, one of the results of this national partiality for the cultivation of fruit soon became apparent in the number of native varieties of apples which were raised here from seed. These varieties being naturally adapted to the climate gradually displaced their European progenitors, and there was established here at this early period—when the great West of Canada and the United States was an untrodden wilderness—a Canadian Pomona quite as extensive in varieties of apples as that which has arisen within the last fifty years in the Northern and North Western States and Western Canada, which at the present time comprise the largest and finest area of hardy fruits in the world.

In view of the immense progress in horticulture, which has taken place in Ontario and the United States, the question naturally arises as to how it is that the Province of Quebec with all its treasures of seedling fruits has scarcely been heard of? and I can only attribute it to the want of an organized co-operation on the part of those interested in fruit growing in bringing to public notice the meritorious fruits of the Province and having them propagated and disseminated, and in seeking the fostering aid of the Legislature for testing, naming and cataloguing the entire Pomona of the Province. This lack of united efforts is now be-

ing remedied by the Montreal Horticultural Society, which has undertaken the work, and the Provincial Government has also signified its intention of rendering pecuniary aid towards the execution of the same.

Of the importance of fruit culture to a country as a branch of industry, it is hardly necessary to say a word, and the apple, apart from its being the healthful fruit luxury of all classes, is rapidly becoming a most important article of export. Instead of the few barrels which were formerly shipped to Britain as Canadian curiosities, the markets of Europe are now supplied annually with many thousands of barrels of Canadian apples, and the demand is greater than the supply. Now, can there be a doubt that Canada and the North Western States are destined to supply the European market with this fruit in enormous quantities and of unsurpassed quality, and it is my impression that Quebec and the Maritime Provinces will, from their facilities for direct shipment, always furnish a large share of that supply, for, while we concede to the neighboring States the advantages of a less rigorous climate, we claim, nevertheless, that apple trees raised in the Province of Quebec have a hardiness of constitution and capacity for withstanding the extreme temperatures of our climate which will always give them the preference over trees raised in a milder climate.

In proof of this I may refer to the universal popularity of such varieties as Fameuse, St. Lawrence, and Pomme Grise, of Canada, and to the Red Astrachan, Duchess of Oldenburgh, Tetoffsky, and Alexander, from the North of Europe. These varieties are grown over a larger extent of country than any other, and maintain their popularity in the face of the vast number of new apples which have of late years been raised in the West.

In addition to the above popular varieties of northern fruit, I have to state that there are at the present time on the Island of Montreal alone upwards of a hundred varieties of native apples of excellent quality and of unsurpassed beauty, which have never been named or disseminated, besides many other valuable seedlings in different parts of the Province. The testing and selecting for general cultivation from these seedlings will be a work of years, but I have no doubt that this arduous labor will be rewarded with the most extensive addition to our fruit list of hardy apples that has ever been made.

All that can be done in the present report is to submit (under numbers until names have been given) a brief memorandum of a

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few of those which, by the light of our present experience, appear deserving of general cultivation. In the meantime it may be stated that, as is usually the case with seedlings, a large proportion of these apples are autumn varieties, a few are summer, and a very few are winter varieties. Now, it so happens that our Quebec list of apples is especially deficient in summer and winter kinds (particularly the latter), and one of the most interesting pursuits that can engage the attention of our horticulturists ought to be, and I have no doubt will be, to remedy this deficiency by a judicious, intelligent crossing of our native varieties in order to obtain the summer and winter apples that we are at present most in need of; and having been engaged during the best part of a lifetime in raising seedling fruits and crossing or hybridizing the same, I shall take advantage of the present opportunity to "say a few words" on the subject of new varieties of fruit, and the several theories of their origin.

Vegetable growth and development being (like animal growth) intangible to the senses, we can only *see its results*, and reason therefrom as to the causes, and in doing this there is some danger that these results will not receive that vigorous examination which as the ground-work of our reasoning, they are entitled to. It may take years of patient observation to acquire the facts necessary for a true theory, and hence the temptation is very great to theorize without the facts, or with a very superficial consideration of them. In no other way can we account for much of the mystification and uncertainty in which this subject of raising new varieties of fruit has been enveloped by the many eminent men who have endeavored to give a clear, intelligible account of it and most certainly have not succeeded.

About the commencement of the present century the raising of new varieties of fruit occupied the attention of many scientific horticulturists in Great Britain and on the Continent. The theories under which the subject was prosecuted differed widely, but it will only be necessary here to notice the two most celebrated, viz.: that of Dr. Van Mons of Belgium, and of Mr. Thos. Andrew Knight of England. Van Mons insisted that the only true natural way of raising new varieties of fruit was by successive plantings of the seeds of five or six generations of the fruit to be improved, and he contended that each generation would continue to improve up to the sixth or seventh, but if continued beyond that, the fruit would begin to deteriorate. He says in his *Arbres Fruitiers*: "To sow, re-sow, to sow again, to sow perpetually, in

short, to do nothing but sow, is the practice to be pursued, and which cannot be departed from, and this is the whole secret of the art I have employed." Van Mons also asserted that all our best fruits were artificial products, and when grown from seed all tended to return to a wild state, and that the seeds of old trees were more liable to do so than young trees, while the seeds from grafted fruit were more liable to do so than any other.

In carrying out his views Dr. Van Mons spent the greater part of his active life, and he succeeded in producing quite a number of new varieties of first-class fruits; but great doubts were expressed at that time and since as to these new varieties being the legitimate result of his method, and I think it will not be difficult to shew that these doubts were well founded, and that his success was owing to very different means than planting successive generations of seedling trees.

Mr. Knight and the English horticulturists introduced and practised the method of creating new varieties of fruit by crossing. This method had been in use on the continent for a century previous, but had fallen into disrepute, as varieties produced by crossing were found to be unhealthy, short-lived and unsatisfactory in many other respects; and it must be admitted that, of the many seedlings raised by Mr. Knight, scarcely any are now known even by name, although twenty-five years ago many of them had a great reputation.

Many conjectures have been hazarded as to the cause of the unsatisfactory condition of varieties produced by hand-crossing. I have no doubt the principal cause is the clumsy and unnatural manner in which the operation has been performed. If we consider the lavish production of fertilizing pollen, as compared with the astonishingly small and almost imperceptible quantity required for impregnation, (as is shewn in the case of a row of staminate strawberries fertilizing a bed of pistillates on each side of it, or in the many kinds of those trees and plants in which the male and female blossoms are on separate trees, the impregnation, nevertheless, being complete throughout,) we can form some idea of the impropriety of gorging the delicate pistil of a blossom by painting it with pollen on a hair pencil, on the end of a finger, or even dusting pollen over it. Moreover, although we have no positive proof, it is pretty certain that some varieties of the same kind of fruit are naturally better suited to unite in the formation of a new variety than others, both as regards the

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health and hardiness of the tree and quality of the fruit, whereas hand-crossing admits of no such discrimination.

If we examine the practice of the most eminent horticulturists of Europe and America, from the time of Van Mons to the present day we shall find that the most successful in producing new varieties of fruit paid little attention to hand-crossing, and many of them ignored it altogether. More dependence seems to have been placed in planting seeds of the finest specimens of fruit grown on the branches of trees adjoining or interlacing each other and trusting to mere proximity for crossing the varieties. If, however, a number of improved varieties of fruit trees are planted close together, (as they ought to be for raising new varieties,) the blossoming of these trees will so affect each other that their seeds would be sure to produce new varieties, some of which would be worth preserving, and, perhaps, a few of great merit. This was the way in which the large collection of Dr. Van Mons, of nearly a hundred thousand seedling trees, were planted, and was, I have no doubt, the principal means, along with high cultivation, of his remarkable success.

While, however, the above method of obtaining new varieties by promiscuous crossing has been very successful, and is still well suited to the wants and circumstances of older countries

[Thus far had Mr. Springle written when suddenly, without a moment's warning, death arrested his hand, and this article, which promised so much, was left unfinished. The present writer has been requested to add such suggestions as may give completeness to the paper so abruptly terminated.]

where pomologists abound, with wealth and leisure to devote to these subjects, and where gardens and orchards remain as such for centuries, it is scarcely possible to find men in comparatively new countries whose circumstances and tastes permit them to engage in pursuits of this kind, which are manifestly for the benefit of future generations. Besides this, the garden or orchard of to-day may be city lots to-morrow. This uncertainty of tenure and residence incidental to new countries is a great discouragement to attempts at experiments in pomology which require a series of years for their completion.

The practical question arises what can be done, under the circumstances, to improve pomiculture in this country? We cannot have a Van Mons nursery, with its hundred thousand seedlings, but something can be done even in raising seedlings from which to

select fruit of particular merit. In fact, attention to this would no doubt, prove profitable. If a new potato (like the early rose) could be sold for \$30,000, how much more might be realized from a new variety of apple. Let us consider the origin of the apple. And here we must not go back to Eden, for the fruit we recognise as the apple was not that which tempted mother Eve, as it is unknown in the supposed region of the first garden, but was, without doubt, the pomegranate, a much more significant fruit than the common apple. We must find the apple of to-day in successive ages of improvements from the common wild apple. Probably a tree growing in very favorable soil produced a fruit larger and more palatable than any hitherto known; this tree has been transplanted to a garden; change of soil and cultivation still improves it; from its seed another improved apple is found, and so in successive stages of improvement, till we arrive at the common crab. From this, by successive stages of change in soil and cultivation, as well as climate, we reach the apple of the orchard of to-day. As we find different varieties of apples invariably with particular form and color, so the same distinction is observed as we descend the scale. In the crab we recognize the Alexander, Greening, Fameuse, Russet, etc.; so, too, the same distinction prevails down to the wild apple, from which we started. Here we may notice the rudimentary Alexander, the Russet, Greening, and others. Now what has been done to bring the apple to its present stage may be done to carry the fruit to still higher perfection. Thus the Alexander of Canada, which weighs 15 oz., is found in California to weigh 32 oz.; so, too, the Bartlett pear increased more than double the size on the Pacific coast. The Greening of British Columbia is twice the size of that of Canada, and this is true of most of the apples. The flavor of those of the N. W. Province is nearly equal to the Canada apple. Now, when we cannot change our climate to increase the size of our fruit, there are certain practical things we may accomplish to improve the variety and quality of our apples. The first is the planting of the best seeds of the best apples for the propagation of seedlings. This ought to be done yearly, so that there should be a continuous supply of seedlings, either for fruit or for grafting upon. This much for producing new varieties.

How may we cultivate best the varieties of apples now grown? In the first place the sorts of apples best suited to the climate should be selected and well cultivated. Of the varieties most desirable, experience has taught us what kinds will best repay

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cultivation. In deciding this, regard must be had to three points, the longevity of the tree, the quality of the apple, and its prolificness. Many trees, like the Northern Spy, are unexceptionable in flavor and bearing qualities, but the tree does not last in Canada over twelve years from planting. Some apples are of excellent flavor, but are easily affected by climatic changes, while others are lacking in keeping qualities though prolific.

Another point of great importance is the constant renewal of the orchard. From accident or from decay or severe frosts, trees are constantly dying. Ten per cent. of new trees should be added every year to the orchard. These should be judiciously planted so as not to make the growth too thick. If this system is attended to, there will be no complaints of orchards dying out. It is not necessary to allude to the cultivation necessary to keep an orchard in good bearing condition. The necessity of stirring up the soil with the plough, of careful pruning and of trimming the tree is self-evident. Long spreading branches which thrash each other in the wind and cast off apples before ripe should be avoided. A trim round apple tree is less exposed to wind and frost than one with open spreading branches. Another important point for pear and apple trees is protection from the northern winds. This is best accomplished by high fences, and especially by spruce or cedar trees closely planted around the orchard or on the north side. As by careful cultivation an apple may be developed from a wild bitter apple to a most delicious fruit, so by neglect an apple will, in time, degenerate almost to its original condition. The great question which in this country we are compelled so often to ask, Will it pay?—in regard to the apple, experience tells us that a well cultivated orchard of apples is one of the most certain sources of income that the farmer has in this part of the Dominion. It is not necessary to cultivate great varieties of apples, but simply those which we find flourishing in the neighborhood. There are strong reasons for urging attention to the cultivation of the apple orchard in Quebec. We know well how once the beautiful valley of the Richelieu was the greatest wheat growing district in Canada. Now the farmers are supplied with wheat from the West. Neglect and bad farming have reduced this once fertile valley almost to barrenness. The same carelessness and inattention to the orchard, and Montreal Island will lose the reputation it enjoys of being the finest apple-growing district in Quebec.

S. J. LYMAN.

THE LATE J. H. SPRINGLE, Esq.

CIVIL ENGINEER AND ARCHITECT.

IN justice to one who for many years evinced the most active interest in the welfare of the MONTREAL HORTICULTURAL SOCIETY, we cannot allow the event of his sudden death to pass without recording the great loss this Society has sustained in common with the public generally.

Mr. SPRINGLE was born at Great Yarmouth, England, September, 1819, and came to Canada at the age of 14. He occupied himself in preparing for the profession of Architect and Civil Engineer until he arrived at the age of 24 years, when he made the tour of the continent. He remained at Brussels and Paris several years, perfecting himself in his profession. On his return to Canada he took up his residence in Montreal, practising his profession. He was often employed as arbitrator. Latterly Mr. SPRINGLE devoted much time to sanitary engineering, and has made many valuable improvements and suggestions in construction of house drainage. Mr. SPRINGLE was an enthusiastic pomologist, giving especial attention to pears, which he cultivated with great success, often taking the best prizes at the Exhibition. When the hand of death overtook Mr. SPRINGLE, he was engaged in writing a paper on the cultivation of the apple. He died suddenly from heart disease on the 7th January, 1877, leaving a widow and six children to mourn his loss. The Society desires to place on record the high esteem in which Mr. SPRINGLE was held for his genial and courteous manner, and its obligations for what he has done for the advancement of Horticulture, and further to express their deep sympathy for his afflicted family.

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PROPAGATED SEEDLINGS AND OTHER "UN-DESCRIBED" APPLES,

(IN ORDER OF RIPENING.)

B. HAMILTON.

C. GIBB.

When the Fruit Committee of our Society first entertained the idea of sending a collection of apples to the Centennial Exhibition at Philadelphia, the object contemplated was merely the favorable representation of the Province of Quebec, with perhaps the additional motive of interesting our own people in the subject of the fruit capabilities of our province, but it was soon found that an equally important object might be attained by the same means, namely: that of procuring information about any new varieties that were in cultivation among our Quebec fruit growers. In order to attain this desirable end, two practical, intelligent men were employed to make the collection. They were very successful, and in the short time allowed them, made a creditable selection, as all who saw the exhibition of fruit in Montreal, prior to its being sent to Philadelphia, will allow. When the collectors began their work, no member of the Society had any idea of the great number of really fine seedlings that were to be found in the Province, and were to repay them for the interest shown in this branch of their work.

The collectors were directed to procure all the information they could with regard to any new variety that might come under their notice, and were supplied with printed forms, containing questions to which answers were required. One of these forms was filled up with each variety procured, and sent on with the fruit.

During the first few days of the collectors' tour on the island of Montreal, a great many old named varieties were found, but in very few cases had the names been retained. Continued search, however, resulted in the discovery of several fine new sorts that had been to some extent propagated but not disseminated, in fact some of the best were not known two or three farms from that where they originated. Later still a large number of very fine sorts were found that had never been propagated, some of them of such marked excellence that some members of the Fruit

Committee thought it would be wrong to allow the opportunity to slip, and determined to pursue the search further. Accordingly, as soon as the Exhibition was over, two members of the Committee concluded to follow the matter up, and, in furtherance of their object, made several visits to the various orchards from which good seedlings had been procured, to examine the trees and interview their owners. Many questions were asked, so as to elicit all that was worth knowing with respect to the varieties examined, for it was felt that only by a thorough investigation could really valuable information be procured.

The trees were minutely examined, as to their style of growth, health, vigor, hardiness, age, etc., so that nothing should be laid before the public which was not perfectly reliable.

Though many of the seedlings examined were really good, it was finally determined, after a careful consideration of their various merits, to recommend very few of them for trial, but to wait for another season, or perhaps longer, until they could be further examined, and their good qualities ascertained beyond doubt, when those found to possess points of special excellence might be recommended for a not too extensive trial. Hence the reason for venturing to describe so few as are found in the following list, out of over a hundred "undescribed" promising varieties.

The apple that is specially needed in this province, however, namely, one that will be equal to Fameuse in hardiness and productiveness, and to Pomme de Fer for keeping qualities, has not yet been found. The efforts of the Society will doubtless be directed towards finding and bringing into notice such a variety, if it exists.

STRAWBERRY (OF MONTREAL).

First in importance and order of ripening comes the apple grown in Montreal under the vague name of Strawberry. It is certainly not the Early Strawberry of Downing, being more upright in growth, shorter in stalk, and on its surface the very reverse of "smooth and shiny." Of its origin we know nothing. The oldest tree we are acquainted with, and that a grafted tree, was planted by the late Charles Bowman at Forden, Côte St. Luke, about the year 1835. About thirty years ago a good many trees were propagated from this. There are also old trees of this variety in the orchard now owned by Mr. Thomas Phillips of Outremont. Of late years Messrs. Lacombe, Bigarreau and Desmarchais, of Côte

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des Neiges, have propagated it largely. M. Desmarchais esteemed its marketing qualities so highly that he planted out, some nine years since, some two hundred trees of it in orchard. The growth of these trees has been rank without being unhealthy, but as yet they have borne so sparingly as to disappoint their owner. This led us to suppose that the tree was tardy in coming into bearing, until positively informed it was not so by several authorities, who, indeed, place it among the best five kinds for profit.

This tree is "extra" hardy, and its stout vigorous growth and clean glossy bark show it to be specially adapted to our northern climate. It is erect in growth, without having a dense head. It, therefore, can be planted close, and needs but little pruning. It not only bears when fairly young but also bears heavily.

Fruit, above medium size, sometimes large, roundish conic, yellowish, mostly splashed with red. Flesh, yellowish, tender, moderately juicy, mildly subacid.

It ripens at the same time as Duchess, an apple unknown to the growers of the Strawberry. The latter has, however, been grown alongside of "Peach" and tested with it. "Peach" bears most, but "Strawberry" fetches better prices (although its price falls about the time that Peach enters the market), and some think Strawberry the more profitable apple of the two.

On the whole it may be asserted that Strawberry deserves more extensive cultivation, as a hardy tree, whose fruit, ripening at the same time as Duchess, is yet superior to it in quality, and at least second-rate for table use, and one which commands a ready sale in the market.

FAMEUSE SUCRÉE

is the name given to an inviting, blackish-red, little dessert apple. There are about a dozen trees of it in the orchard of the Hon. E. Prud'homme at Coteau St. Pierre. They have been planted some seven or eight years, but some of them are twenty years old. There are many other trees of this variety along the Coteau. What is believed to have been the original tree stood upon the premises of Mr. Maurice Gougeon.

The tree seems as hardy as Fameuse, it is upright in growth, it spreads but gradually, its branches bear the bright gloss of health. Like Fameuse it bears light and heavy crops alternately. Mr. Prud'homme's gardener, M. Lortie, says that it equals the Fameuse in yield.

Fruit, fully medium in size, roundish or slightly oblate, very dark red. Flesh, white, deeply stained with red. It is very tender but at first crisp; it is, at once, mildly subacid and sugary, the latter quality producing a rich flavor.

For the market it should be picked early, soon after Red Astrachan. When there, it is attractive in appearance, and, therefore, very saleable; for, though its tender flesh bruises easily, the bruises do not show, and result mainly in a dry rot. It has proved profitable, but is not among the five best kinds for profit.

Its chief merit is as a dessert apple, for which purpose it "comes in" just before the middle of September.

Next in order of ripening comes an apple strongly resembling William's Favorite, to be found growing in the orchards of Messrs. Don. Ross, R. Brodie, and J. H. R. Molson. On the limestone ledges of Mr. Ross' orchard the tree grows slowly with a compact head, and is apt to die when young of overbearing. In Mr. Brodie's rich soil it grows more rapidly, and produces good crops without being injured by them.

Fruit, above medium to large, oblong conic, light red, largely covered with dark dull red in broad stripes. Flesh, whitish, rather tender, only moderately juicy, with a mild and slightly aromatic flavor. Season, October and November.

We might have supposed this apple to be William's Favorite but for Mr. Downing's opinion to the contrary. William's Favorite is well known elsewhere, and sells readily, and so would this apple, which is so much like it, if grown for the purpose.

DECARIE.

What, if a seedling, was the "original" tree, producing this noble apple, stood in Jérémie Decarie's orchard in Coteau St. Pierre, east of the Côte St. Luke road, which orchard is now owned by his grandson, Jérémie Decarie. It was cut down a few years ago. It was then about a hundred years old, had a butt as large as a flour-barrel, and was of a height so remarkable as to be compared to an elm.

The tree is a vigorous grower, and forms an erect head, which spreads but very gradually, so that, though it attains great size, yet it may be planted fairly close. We have seen eighty if not a hundred of these trees planted some fifteen years ago on the Coteau, and growing in sandy loam, and from these we judge the tree to be hardy and healthy. It bears heavy and light crops alternately. We once

saw seven planted. I think that they were worth \$1.15 a bushel. Apples of this kind are the most ready.

Fruit, often referred from the fact of being cultivated, in the form, round, with a deep red, medium in size, and cause much

Color of the fruit and covered with a medium-sized "with," say in the season,—Season,—Season.

At Philadelphia Fruit Growers' not only in the old French pronounced by I did not recall. The latter is with strong full bearing quite large I cultivated and resemblance with some few may be defined an accurate

Amateurs hardy, saleable place five or six it.

POMME GR

This is another twenty trees

saw seven barrels under one tree which had been fifteen years planted. Mr. Lortie, after marketing them for many years, says that they are very profitable. We find that they sell for \$1.10 or \$1.15 a bushel, while Fameuse fetches \$1.25. But the fact is that apples of the Fameuse type, even though inferior, meet with the most ready sale.

Fruit, on trees grown in meadows, even when they have suffered from want of drainage, large; but, when the soil was cultivated, very large, and commanding marked attention. Form, roundish conic to oblong conic, often deeply ribbed, with a deep, narrow, russet cavity, and a basin which, though medium in depth, is wrinkled and obscurely ribbed so as often to cause much waste in paring. The calix is small and closed.

Color of skin, light or dark red, sometimes very dark all over, and covered with a beautiful, bluish-white bloom, and with many medium-sized grey dots. Flesh, whitish, rather firm, juicy; "with," says Downing, "a slight and peculiar quince-like flavor." Season,—September 15 to October 1st.

At Philadelphia, Mr. R. W. Starr, Secretary of the Nova Scotia Fruit Growers' Association, was at once struck with its resemblance not only in look but in taste to the "Red Autumn Calville," an old French apple grown in Nova Scotia for over fifty years, pronounced by Downing to be true to its name. Mr. Downing, however, did not recognize the Decarie as being the last-mentioned apple. The latter is described by Mr. Starr as being "an upright tree, with strong, straight shoots when young, but spreading when in full bearing. The fruit spurs are short, and grow frequently on quite large limbs. The tree is not a large one, and requires to be cultivated and well cared for." We here see many points of resemblance between the Decarie and the Red Autumn Calville, with some few differences. Scions have been exchanged, that it may be definitely settled whether the two are identical or not, for an accurate nomenclature is worthy of much trouble.

Amateurs should grow this handsome fruit; but, though it is hardy, saleable and a heavy bearer, yet commercial orchardists place five other apples on the list of those to be preferred before it.

POMME GRISE TENDRE.

This is another of Mr. Prud'homme's seedlings. There are about twenty trees of it twelve years planted in his orchard. Tree has a

low spreading head, bears well, and is said to be profitable. Fruit, below medium size to small, roundish, russetty-grey, on a greenish or yellowish ground. Flesh, of a greenish-white, firm and breaking with somewhat of the elastic texture of the russet, moderately juicy, mild subacid. Season,—September and October.

This apple is a true russet in color, flavor and texture. It bears well, and meets with a ready sale, having no other russet to compete with it in its season.

In the orchard of Mr. W. F. Lewis, Dorchester st. West, are two trees, twenty-five years old, showing a much more vigorous health than the others in his orchard, and producing heavily a large fruit of the St. Lawrence type, form and color. Flesh, white, tender, crisp, pleasantly acid or subacid. Season, as late as December 15 or January 1st. This fruit, having good dessert qualities, and being like the St. Lawrence, which is a great favorite, would command a ready sale.

In Judge Coursol's orchard are trees bearing a large handsome red apple,—the trees themselves being bright and healthy, and bearing very heavily. The flesh of this variety is yellow, rather tender, not juicy, rather granular, of a peculiar and yet pleasant flavor, but, when over-ripe, mawkish. It keeps as long as Fameuse, and would, doubtless, sell well.

FALSE ST. LAWRENCE.

The origin of this apple, which is to be found scattered about among our orchards, is unknown. Tree, stout and vigorous and of the St. Lawrence form, though slightly more compact; bears good crops, yearly. Fruit, large, roundish conic, of the St. Lawrence type, though somewhat duller in color. Flesh, firm, almost hard, rather coarse in texture, juicy, pleasantly subacid. Season,—till January.

It is but a moderately good kitchen fruit, but, being showy, it sells well.

POMME BARRE

is the name given to a seedling in the orchard of Hon. E. Prud'homme. Tree, spreading, slightly drooping in habit, and bears, so Mr. Lortie says, about as well as Fameuse. Fruit,

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above medium, roundish, somewhat conic. Flesh, greenish-white, firm and crisp, juicy, and of a mild and pleasant subacid.

It ships and keeps better than Fameuse, and Mr. Lortie has found it to sell as well, and places it among the best five kinds for profit. But some who have this Pomme Barré wish they had Fameuse instead.

ST. ANTOINE HALL

is a seedling which originated on the south-west side of the Hall, whose name it bears. The parent tree was producing fruit thirty years ago at least, and was then propagated by the nurserymen of that time. The late Father Villeneuve (once a President of our Society, and a most successful promoter of its aims and objects) esteemed it highly, and Mr. Archbold strongly recommends its propagation. Mr. Jas. Gorman, on his light and dry soil, finds it variable in size and quality, and apt to spot, and otherwise unsatisfactory; while elsewhere on his own ground, and in Mr. Horrigan's orchard, on a moist and heavy soil, both the tree and fruitage give good satisfaction.

The tree is a good yearly bearer. Fruit, above medium or large, roundish oblate, yellow, speckled and splashed or nearly covered with red. Flesh, whitish, firm, crisp, coarse, of a sprightly though mild subacid, sometimes inclining to saccharine. Season,—December. The specimens we examined lead us to value neither its dessert nor its cooking qualities, yet Mr. Archbold and others say that it is good for table use, and we can certainly certify to the fact that it is saleable.

ST. HILAIRE (CABANE DU CHIEN.)

This is an apple of Fameuse type, and probably of Fameuse parentage. It is hardly known in Montreal, but it is a favourite at St. Hilaire, and the most valuable of all their seedlings. The original tree was in the orchard of the late Alexis Déry, and was killed by caterpillars in 1822, or thereabouts. It has been propagated to a limited extent for many years, with a tendency of late to increase in favor. Tree, hardy as Fameuse, bears about as young, and does not spot so much. Fruit, often larger than Fameuse, but more variable—so like it, that it has been used to "top" barrels of it. It can be quickly distinguished, however, by being minutely dotted with red round the basin. Flesh, firm, with a little more acidity, but perhaps slightly less flavour than Fameuse;

keeps, so its growers all say, between three and six weeks longer. It should be tried generally, and especially where Fameuse "spots" badly.

WHITE WINTER CALVILLE (OF ABBOTTSFORD).

This fruit, though smaller, yet strikingly resembles the "Calville Blanche d'Hiver" of France, which (thanks to the noble library, and, may we add, kind librarian of the Massachusetts Horticultural Society) we find represented in St. Hilaire's beautifully detailed illustration, in his work published in Paris in 1837, which apple was described also by Poiteau in 1846, and by Duhamel in 1768, and was one of their most valued fruits. The descriptions of the fruit as given by these French authors show only such differences from the Calville grown at Abbotsford as might result from climate, while their description of the tree is not as full as we should wish. This White Winter Calville was early imported into the States. Manning describes it in 1838 in his "Book of Fruits" (and Mr. Manning, we understand, described only those varieties tested by himself); Kenrick in his "New American Orchardist," in 1833, under the name of the W. W. Calville of Duhamel; and even Coxe of New Jersey, in 1817, whose description if not resulting from his warmer climate must have been copied from the French, with which it has an exact agreement, as also with the fine specimens we have seen grown in France and for sale in Covent Garden Market, in London, England, for sixty cents each. Cole, however, in his "Culturist," published in 1849, describes a W. W. Calville which he thought to be of Virginian origin, and which greatly resembles the old French variety. J. J. Thomas, in 1846, in what we suppose to be the first edition of his works, mentions it as of little value, and it soon ceased to be grown in the States; for, though productive, as agreed by all, yet its colour and its keeping and shipping qualities in the longer ripening seasons of the South were such as to cause it to become forgotten in the home of the Baldwin and the Greening.

This Calville of Abbotsford, (as we will now call it) was brought from St. Hilaire twenty years ago, though, strangely enough, the St. Hilaire apple growers have not, so far, recognised it.

Tree, in nursery, very erect in growth, not quite as hardy as Fameuse or Canada Baldwin; in orchard, it forms a close compact head, opening according to the weight of fruit; its twigs are quite hardy, but its trunk and crotches sunscald somewhat, so that the trees eighteen years planted, the oldest, do not bid as fair for a

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long life as Fameuse; bears as young as Fameuse, and is nearly equal to it in yield. Fruit, nearly as large as Fameuse (the authorities in the States give the size of their Calville as large, and in France as very large). Form, oblate to roundish-oblate, and slightly conic; often ribbed from base to apex; basin often deeply corrugated, yellowish, with a blush, very often, on the sunny side. Flesh, whitish, firm, granular, juicy, mildly subacid, often slightly saccharine. Season, till March.

It is really a nice table apple, though it has its faults, for, owing to its colour, while it does not bruise readily yet it readily shows its bruises. Its size is against it in first-class markets, but, owing to its hardness, yield and quality, it will be planted both for home use and local markets.

From l'Islet County, seventy-five miles below Quebec, Mr. Auguste Dupuis sends us another aspirant to the title of White Winter Calville. In his neighbourhood are trees producing it, a hundred years old, which tradition says came from France. The fruit is less oblate in shape, more yellowish in flesh, and is much less like the old French variety. Mr. Dupuis also sends us an extract from a deed dated 1780, in which the buyer of an estate promises to pay "400 minots of Calvilles (red or white), hand-picked, annually, for 10 years." This agreement shows an interest in Pomiculture in that distant locality in advance of most districts at the present time.

Of other White Calvilles we will mention the White Winter Calville of St. Hilaire and the Calville Blanche d'Été.

THE WHITE WINTER CALVILLE OF ST. HILAIRE

is a seedling originating there, in the orchard of the late Jean Marie Ducharme. The original tree was in bearing in 1822, and still bears. Some say that this tree bears when eight, others when fifteen, years planted. It bears heavily. Fruit, large, roundish, whitish, blushed on sunny side. Flesh, tender, juicy, and a pleasant subacid. This apple is attractive, and would be saleable but that its tender flesh and delicate colour make it to be easily bruised and injured, and this, added to its tardy bearing qualities, will prevent its being much planted in future.

THE CALVILLE BLANCHE D'ÉTÉ,

known once on a time at St. Hilaire as the "Calville Blanche d'Été de Mr. Finlay," (!) was in bearing at St. Hilaire as early as

1822, and was known to be a grafted tree. We cannot trace its importation, but we doubt not but that it is the apple described by St. Hilaire and represented in his beautiful illustration. The fruit is strikingly like the Calville of Abbotsford, although very different in season. Tried at St. Hilaire and Abbotsford, it is no longer thought worthy of cultivation. We mention it because of the bearing it has on the question of the identity of the different Calvilles.

CANADA BALDWIN

is a seedling originating in the orchard of the late Alexis Déry, St. Hilaire, and (so it is believed) from the Pomme de Fer.

Mr. N. C. Fisk tried it at Abbotsford in 1855. It shewed itself to be vigorous, stout and hardy in nursery, and promised equally well in orchard, and so was widely propagated and planted. But its hardihood has not proved lasting, and now Mr. Fisk wishes to call attention to his trees, sixteen years planted, badly injured by decay of bark on the trunk and larger branches. Such is the case on the light gravelly slopes of Yamaska Mountain. On heavier soils elsewhere it has kept so free from sunscald that for them, after further observations, it will probably deserve strong recommendation.

In the orchard the Canada Baldwin carries a somewhat upright though gradually spreading head. It has fruit-bearing spurs even along the large branches, and bears as young as Fameuse, in alternate heavy with light crops. The crops are indeed sometimes so heavy as to cause the fruit to be small.

Fruit, slightly smaller than Fameuse, roundish-oblate, overspread with streaks and splashes of dark over light red, with many distinct grey specks. Flesh, white, often much stained with red, tender, crisp, juicy, mildly subacid; "of a quality," says Downing, "which is good, if not very good." It keeps till May or June.

Another apple appeared upon the Exhibition table last September under the name of Canada Baldwin from Chateauguay Basin, Coteau St. Pierre, and other places. It was very like the Pomme de Fer, but, though firm in texture, it was white in flesh, sweetish in flavour, and, we should say, of no great value.

POMME DE FER

is the late keeper of the apple growers of St. Hilaire Mountain. To this place scions were taken in 1832 by Mr. M. B. Southwick

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from Chambly. In Chambly there were at that time eight or ten trees seventy years of age, said to have been brought from Philadelphia by the then seigneur. This points directly to an American origin, but Mr. Downing cannot recognise the apple.

Tree, fairly hardy, a moderate bearer. Fruit, above medium, roundish to roundish-oblong, dull red, with many very distinct grey dots and somewhat like the Flushing Spitzenburg. Flesh, yellow, very firm, moderately juicy, mildly subacid, somewhat aromatic. This apple keeps till June, has kept into July, and thus has been valued for its keeping qualities, and fetched large prices, but is not likely to be planted in future, except in limited quantity for home use.

UNPROPAGATED SEEDLINGS.

(IN ORDER OF RIPENING.)

In unpropagated seedlings we can do little more than recommend to notice. Most of them are Mr. Newman's. We would have liked, alongside of our own views as to the quality of the fruit, to have stated his estimate of the yield, profitableness, etc., and to have agreed upon names for his varieties. The warm weather last fall may have led us to underrate their keeping qualities.

NEWMAN, No. 37, OF REINETTE TYPE.

Fruit, above medium to large, roundish oblate; of a greenish white, with numerous medium-sized dots. Flesh, white, tender, rather juicy, pleasantly tart. Season, from middle of September to middle of October. Mr. Hamilton thinks highly of its dessert qualities. Mr. Gibb does not. It bore heavily last season.

NEWMAN, A.

a little dessert apple of oblate form, almost entirely suffused with pale red, over which are distinct splashes and stripes of dark red. Flesh, whitish, very tender, juicy, of a mild subacid, fine flavoured. Season,—September and October. Use,—dessert only.

VERDUN

is a tree of fifteen years growth in the orchard of Mr. John Crawford of Verdun, in Verdun Municipality. The tree is

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somewhat upright, and bears between two and three barrels yearly. The soil in which it grows is a rich, strong loam, with clay subsoil, yet the fruit does not spot as Fameuse would be apt to do in it. Fruit, above medium, roundish, slightly oblate, yellowish, mostly covered with light red, splashed with darker red. Flesh, whitish, firm, juicy, mildly subacid, with a rather rich flavour. It seems especially adapted to its soil. It is a nice table apple, though not equal to the St. Lawrence, with which it ripens, and with which it has fetched equal prices.

There is a tree north-east of Mr. Newman's summer house, about fifteen years old, which has made slow growth, owing to its having borne heavily, and not having been cultivated, and other causes. Tree, of a spreading habit. Fruit, above medium, somewhat oblate. Skin, mostly covered with rather bright red. Flesh, whitish, crisp, but tender, pleasantly subacid. Season,—October or November. Use,—dessert, kitchen or market.

This apple is of the Fameuse type in size and general appearance. It is hardly equal to it in quality, and does not keep as long, but it carries better, and does not get injured or show its injuries readily. It would sell well. Mr. Newman speaks highly of its productiveness and market qualities.

There is another tree of about seven years growth, in what was an old nursery on Mr. Newman's grounds, which claims mention. Growth, healthy, vigorous, upright and somewhat spurry. Fruit, rather large, roundish, of a waxy greenish-yellow or greenish-white, mottled, splashed and mostly covered with bright red. Flesh, whitish, rather firm, very juicy, of a sprightly subacid, and slightly aromatic.

This is a handsome fruit, but it must be handled with care.

NEWMAN, No. 57.

Fruit, large or largish, roundish oblate; skin, greenish, blushed with dull red on the sunny side. Flesh, whitish, rather tender, moderately juicy, moderately subacid. Season, October and November. Use, kitchen, market and table. It carries fairly, and would sell readily, though not a "red apple." Mr. Newman speaks highly of its bearing qualities, and says it crops heavily two years out of three.

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NEWMAN, No. 19.

A low spreading tree, whose branches are apt to cross one another, and need more than usual pruning. Though grown in grass it shows every sign of health, with moderate vigor. Fruit, rather large, roundish, slightly oblate, well covered with red. Flesh, whitish, rather firm, rather crisp, juicy, subacid, pleasant. Season, same as Fameuse. Use, market, kitchen or table. Mr. Newman esteems it very productive and profitable.

NEWMAN, No. 1, OF 2ND DAY.

This is an apple from a tree south-west of Mr. Newman's summer-house, of an upright, though gradually spreading habit, and large and healthy. It is eighteen or twenty years old. Fruit, above medium, roundish oblate. Skin, red intermingled with indistinct splashes and stripes. Flesh, yellowish, rather firm, crisp, sprightly and pleasantly subacid. It keeps somewhat longer than Fameuse.

There is a tree near the hedge which divides Mr. Newman's from Mr. Roberts' grounds, about twelve years old, of compact and healthy growth. Fruit, medium, roundish oblate. Skin, pale waxy green with a brownish blush. Flesh, white, tender, juicy, mildly subacid. Season, at least till January 1. Market qualities spoken highly of by Mr. Newman.

NEWMAN, No. 59,

is a large and straggling tree about thirty years planted. Fruit, medium to large, oblato-conic. Skin, mostly covered with splashes and stripes of red. Flesh, white, coarse in texture and somewhat hard, yet yielding in an indescribable way; juicy, but juice, if we may so speak, not well wrapped up in the flesh. In flavour it is a sprightly and pleasant subacid. Mr. Newman specially recommends its market qualities, and states that it keeps till March.

BEST FIVE VARIETIES OF APPLES FOR PROFIT.

CHARLES GIBB.

If apple-growing is to be looked upon as a commercial enterprise, it is very important to find out what varieties, giving due consideration to their length of life, average yield, and market value, pay the largest dividends on capital invested.

The following tables, in the main, speak for themselves, yet there are a few additional facts to which I wish to call attention.

FAMEUSE

holds the first place without a rival, and especially on account of its adaptability to various soils. In a similar table in the Wisconsin State Horticultural Report for 1876, it likewise stands first. It is our heaviest cropper, and sells at \$3 per barrel of three bushels.

CITY AND SUBURBS.

	Capt. Raynes, Côte St. Antoine.	J. Archbold, Côte St. Antoine.	R. Brodie, Coteau St. Pierre.	Louis Lortie, Coteau St. Pierre.	Gilbert Leduc, Coteau St. Pierre.	Jérémie Decarie, Coteau St. Pierre.	Wm. Brown, Côte des Neiges.	Jas. Swail, Côte des Neiges.	Jos. Lacombe, Côte des Neiges.	Felix Fortier, Côte des Neiges.	Jas. Gorman, Outremont.	Wm. Lunn, City.	Jas. Middleton, City.	Jos. Jordan, City.	J. S. Murray, City.	R. Hamilton, City.
Fameuse.....	1	1	1	1	1	1	1	1	3	4	1	1	1	1	1	1
St. Lawrence.....			2	2	2	2			5	3	2	2	3	2	2	3
Alexander.....	3	2					2		4	5	5		4	3	3	2
Peach (of Montreal)....	4	5	5	3	3	4		2	1	1	4		5	5		4
Red Astrachan.....	2	4					4							2	4	4
Strawberry (of Montreal)			4	4	4	3			2	2	3					
Duchess of Oldenburg...	5	3					3									
King of the Pippins.....												5			5	
Pomme Barré.....				5	5											
McGregor's Baking.....		3														
Pomme Grise.....												3				
Bourassa.....												4				
Golden Russet of W.N.Y.							5									
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Fameuse.....
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Red Astrachan...
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	C. D. Manning, Rockburn, Huntingdon Co.																		
	R. Jack, Chateaugay Basin, Chateaugay Co.																		
	S. W. Brisbain, Lacolle, St. John's Co.																		
	J. B. Masten, Lacolle, St. John's Co.																		
	E. Winterbotham, Henrysburg, St. John's Co.																		
	D. Westover, Freleighsburg, Missisquoi Co.																		
	N. S. Whitney, Freleighsburg, Missisquoi Co.																		
	R. W. Shephard, jun., Como, Vandrevil Co.																		
	Ang. Dupuis, V. Aux Aulnaies, L'Islet Co.																		
	M. B. Southwick, Mt. St. Hilaire, Rouville Co.																		
	Chas. Wilkins, Rougemont, Rouville Co.																		
	Fruit Growers' Association of Abbotsford, Rouville Co.																		
Fameuse.....	1	1	1	1	1	1	1	1	5	1	1	1	1	1	1	1	1	1	1
St. Lawrence.....	2	5		4	2	3	5	2	4	3	3	3	2						
Red Astrachan.....	3	2	2	5	5	4	2	3		3	3	3	2						
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ST. LAWRENCE,

like the Fameuse; is known everywhere, and therefore some blame is due where it is passed over. It bears yearly, and from one-half to three-fourths the amount borne by Fameuse. It brings in the city market \$1.50 per bushel, or at the very least thirty

per cent. more than Fameuse. In local markets the price is lower. It needs, too, a ready sale, and for these two reasons stands somewhat higher in the city lists than in the country returns.

ALEXANDER

is less generally grown. The tree is in some cases short-lived, but is more often found bearing fine fruit in old age. It bears about two-thirds the crop of Fameuse, but with slightly more waste, and sells in Montreal at \$5 per barrel. It both keeps and carries well, and largely on this account it is, that in the country districts, where known, it stands second only to the Fameuse.

RED ASTRACHAN

is the most variable of those named hitherto, both in health and yield, yet even old trees of it have borne crops only one-third less than Fameuse, while it sells at \$2, and even as high as \$2.50, per bushel.

The Fruit Committee last year decided that it needed a deep and somewhat moist soil. It should be planted largely, only where already proved, or when it thrives on similar soil close by.

DUCHESS OF OLDENBURG.

It is much to be regretted that a spurious variety was imported and propagated under this name. Hence this apple is mentioned but three times in the city lists; while in those parts of the country where it is known, it averages above St. Lawrence. In bearing capacity, it must very nearly equal the Fameuse, if not per tree, at any rate per acre, for, as the tree is smaller, it can be planted closer. In the city it sells at \$1.50 to \$2 per bushel.

PEACH (OF MONTREAL)

grows quickly into a large tree, through which the apples are interspersed. The fruit in the centre ripens later, and is less likely to be of first quality. The tree lives long. It bears about three-fourths the amount of the Fameuse, and sells as high sometimes as \$1.50 per bushel. It needs a quick demand and near market, and must be marketed in baskets. This may prevent its having a high commercial value in the rural districts.

STRAWBERRY (OF MONTREAL)

bears slightly less than Peach, but brings more per bushel, so that, with several, it has been a very difficult question to which to

give the price from \$1.50 fetch even an apple, and varieties must

Thus we have an apple it be understood class fruit, and fruit the high

About winter general agricultural sorts are named showing our Golden Rus. In the Mont States cannot

To begin catalogues of yet I have not well here if the cultivation years past about tree in company kept up to show I found no difference pear or the apple and there are be grown from by taking the rows when the some of the Green Gage, Seedling, Law am not aware different varieties

give the preference. It ripens somewhat unevenly, and sells at from \$1.50 to \$2 per bushel; and the first and finest specimens fetch even more than this. It bears carriage well for so early an apple, and does not need a rapid sale to prevent loss. These qualities must make it valuable in local as well as in the city market.

Thus we see that what pays to plant for the Montreal market is an apple which will not bear any distant importation; for, let it be understood, that the prices above quoted refer only to first-class fruit, uninjured by carriage. We see, too, that the earlier the fruit the higher the price obtained for it.

About *winter* varieties, there is in the country districts no general agreement of opinions; one, however, if not two, of such sorts are named in each case among "the five best kinds for profit," showing our need of late keepers for *local* markets; of these, the Golden Russet and Talman's Sweet are thought most highly of. In the Montreal market, however, the products of Ontario and the States cannot be competed with.

THE PLUM.

To begin and describe the long list of Plums put forth in catalogues of nurserymen would be no easy task to go through, yet I have no doubt but that there are many of them would succeed well here if they were treated properly. I am sorry to say that the cultivation of the plum has been sadly neglected for many years past about Montreal. Admitting that it is but a short-lived tree in comparison to other fruit-bearing trees, still it could be kept up to supply the want by propagation and good cultivation. I found no difficulty in propagating the plum any more than the pear or the apple from the bud, by working them in due time, and there are some good seedling plums about Montreal that can be grown from suckers that grow up some distance from the tree, by taking them up and transplanting them two years in nursery rows when they would be fit for finally planting out. There are some of the good old favorite sorts about Montreal still: the Green Gage, Lombard, Bradshaw, Bolmar's Washington, Pond's Seedling, Lawson's Golden Gage, and probably many others that I am not aware of. As to the hardiness of the plum, in the different varieties, I have found them all nearly the same. The

wood of the Bolmar's Washington and its maiden shoots seems to me to be as soft as any of the varieties that I know, yet it has survived the severities of our winters as well as other sorts whose wood and maiden shoots seemed to be much harder. I would recommend that the plum should be planted more generally about Montreal, if only a few every year, to keep up a succession. In the palmy days of plum-growing in Montreal I had as many as forty-three varieties in cultivation, but I fear many of them are now passed away.

JOHN ARCHBOLD.

MONTREAL, Dec. 4, 1876.

GRAPE CULTURE.

PHILIPSBURG, Jan. 18, 1877.

HENRY J. EVANS, Esq.,

Secretary-Treasurer,

Montreal Agricultural and Horticultural Society.

DEAR SIR,—I have the honor to acknowledge the receipt of your courteous letter, intimating that your Society was about to publish a second "Fruit Report," and that I had been "at once selected by the Report Committee as the most suitable person they could choose to give a report on Grape Culture." I feel that you have over-estimated my ability in this flattering compliment, and that my limited experience in the culture of the vine does not qualify me to treat the subject referred to in a way commensurate with its demands and importance. I am mainly indebted for the information I do possess in the matter to the kind assistance and advice afforded me by my friend, J. W. Bailey, Esq., the distinguished Horticulturist of Plattsburg, and to my own experience and observation, the books I have consulted on the subject being calculated rather for the use of wealthy amateurs and for hot-house culture than for that of new beginners and those desirous of growing the grape in open air.

The grape has been of old a type and symbol of prosperity and abundance, and all tastes agree that it is one of the most delectable and refreshing of all the products of the earth. As regards its cultivation, whether for pleasure or profit, the important question

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has been and is constantly recurring : Is the vine indigenous to our soil and climate, or can it by any resources of science be made more available as an element of wealth in our country? My own experience leads me to express a positive conviction that the success which I have admittedly attained in a miniature vineyard can be extended indefinitely, and that grapes can be grown in Canada in as great variety and perfection as in the New England States. At the late Vermont State Fair I exhibited ten varieties of grapes grown in open air in my vineyard here, and I was awarded the highest prize. In the month of September, 1875, through the courtesy of L. W. Decker, Esq., I visited his garden at "Decker's Park," Montreal, where I had the pleasure of confirming the above expressed conviction by observing a most successful result of the open air culture. Mr. D. had, I should judge, about two acres of ground enclosed with a high board fence, about seven feet in height, and within the enclosure he had planted in 1872 some 120 vines, and a more abundant and prolific growth than these presented to view, and a more beautiful crop of grapes for their age, I have never seen in Canada or elsewhere. The variety in greatest number was the Champion, but he had also the grape *par excellence*, the Adirondack, and also the Hartford Prolific, Concord, etc. The method adopted by Mr. D. was the single stem or dwarf system, very simple and easily managed. The trellises used were made in the same manner as those described elsewhere in this paper, omitting the upright slats. The vines were set about six feet apart and allowed to grow to the top of the trellis with two laterals—one either side, all others pinched off. He prunes the vines in the fall and lays them down for winter protection. I have never practised this single stem system though a greater length of arm would produce more fruit. It is stated by a writer in that able journal, the *Canada Farmer*, that the Concord will grow more and better fruit when its arms are extended beyond the regulation rule of four feet, and he cites a successful experiment of Concord vines covering forty-eight feet of trellis, the arms being twenty-four feet each way. The advantages claimed by this writer are, more work for the vine and better health, more room for the fruiting branches, producing more and better fruit that ripens earlier.

A better distribution of fruit of equal quality. Less work in laying down the vine when necessary. Less work in pruning

and tying up. I do not doubt that this suggestion, if correct, is adapted equally to other varieties.

I quote from a letter received by me from Mr. Bailey, the following extract, which I think will be pertinent and of interest:

"I will give you herewith a list of varieties that have proved most reliable and satisfactory here. Our location is about fifty miles south of Montreal, and difference of climate very little. The selection of varieties in my list combines earliness to the extent of ripening in ordinary seasons, *good quality to best*, and a good degree of hardiness, and prolific. My late experience has caused me to change my former practice of covering my vines with earth, as a winter protection, to a covering of straw or other litter with any old boards on top to keep it in place, the object being to keep the vines from the effects of the sun and winter-thawing followed by freezing. Your own practice of pruning, training, &c., which has been attended with good success, will possess an interest for Canadian Horticulturalists superior to any report from the United States. The list I send you herewith I feel confident is the best that can be made for your region and other parts of Canada."

The following are the varieties referred to by Mr. Bailey:—

EUMELAN.—Bunches of large size, with fine bloom and clear surface, adhering firmly to the bunch long after being picked; berries of medium size, with rich bloom. One of the most promising of the new grapes, very early, hardy, and prolific; fine for the table or for wine.

ISRAELLA.—Bunches, medium to large, shouldered, compact; berries, large, slightly oval, black; flesh, tender, sweet, and rich. Early.

MARTHA.—A new variety, seedling of the Concord, and partaking of its hardy, vigorous character. Bunch, medium size; berry, above medium; color greenish-white; sweet, juicy, and excellent. Early.

REQUA.—(No. 28.)—Red; bunch and berry, medium; sweet; early; one of the best.

SALEM.—(RED.)—This grape is a hybrid between the Native and Black Hamburg. Bunch, large and compact; berry, large, of a light chestnut color; thin-skinned; perfectly free pulp; very sweet, with a most exquisite aromatic flavor; not equalled by any other out-door grape for wine or table; as early as Delaware.

WILDER.—(No. 4.)—A splendid-looking fruit; berries, large, slightly oval; skin, thin, with thick bloom; flesh, tender, sweet, and melting. Nearly as early as the Delaware.

ALLEN'S HYBRID.—Bunches, medium to large, shouldered; berries, medium; skin, thin; pale amber when ripe; flesh, tender, without pulp; sprightly and excellent; early; ripens with the Delaware.

CREVELING.—Bunches, medium, loose, long; berries, medium to large, black; flesh, juicy, sweet, good. Vine, hardy and vigorous. Ripens with the Delaware.

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ROGERS HYBRIDS.

AGAWAM.—(No. 15.)—Bunch, good size, shouldered, rather loose; berries, roundish, large; color, reddish, darker than the Delaware; tender, juicy, and rich; flavor, aromatic. Ripens nearly with the Delaware.

BARRY.—(No. 43.)—Bunch and berry, large, black; flesh, tender, juicy, and good. Early.

LINDLEY.—(No. 9.)—Bunch and berry, large, dull red; early, sweet. A very good variety.

MASSASOIT.—(No. 3.)—This is one of the earliest of Mr. Rogers' hybrids. Bunch of good size; berry, round; color red, like Diana; skin, thin; flesh, very tender and juicy.

In justice to those who are somewhat dissentient from myself in their opinions I feel bound to refer to a letter I have received from Col. Rhodes, whose scientific acquirements in all the arts of husbandry are extensively recognized. His experience, it must of course be observed, is in the latitude of Quebec. Col. R. thinks that he wants "one week more fine weather to ripen the fruit; the vines do not winter well, the grape grows large, only it does not ripen sufficiently to make it a marketable article." History, he writes, tells us that the Isle of Orleans was remarkable for its grape vines, and was called the Isle of Bacchus, but Col. R. is not able to verify this tradition from his own observation.

I regret that I cannot furnish any more novel information on this subject, and I am constrained, for the lack of better material, to supplement the above remarks with the paper formerly read by me before the District of Bedford Agricultural Conference, which was favorably received by the public at the time of publication.

I.

From my own experience in the culture of the grape I am satisfied that there is not a town in the Eastern Townships in which the grape, by proper management, cannot be successfully grown in the open air. The difficulty heretofore has been in obtaining varieties that would ripen, but, thanks to the zeal of our American cousins, that difficulty no longer exists.

The Adirondac, a grape of rare excellence, introduced by Mr. W. H. Bailey of Plattsburg, N.Y., is, perhaps, for our latitude unequalled. I give a brief description of this grape below.

Rodgers' Hybrids are also attracting, and I think very deservedly so, a great deal of attention among our amateur grape-growers. Aside from my own experience in their cultivation, reliable parties who have fruited these grapes speak of them in glowing terms, and my opinion is, that for open ground culture, several of his early varieties, particularly those briefly described further on, are just the grape for Canada culture. The following

varieties are presently being successfully grown, in open air, and with the most gratifying results, in the Philipsburg Vineyard, namely:—

THE ADIRONDAC.—Numerous medals have been awarded Mr. Bailey, by the Horticultural Societies in Canada and elsewhere, as promising to be the best grape for open air culture in our latitude that has yet been brought before the public, and, no doubt, more has been said and written in its favor than of any other native grape, and, from my own experience of this vine, I must confess that, in my judgment, its merits have not been over-estimated. Mr. W. H. Bailey thus epitomises this grape:—"The Adirondac is believed to possess qualities that will make it the most popular of all native grapes, among which are the following: Ripening decidedly earlier than any other good grape; its larger size, thin skin, and perfectly melting flesh, with a flavor of the most delicate and excellent character, approaching more closely that of the best vinery grapes than any other native, or any hybrid that has yet been brought before the public,—all united in one variety constitute the *desideratum* long sought for, viz., *a grape of the very best quality, that will ripen in all the Northern States and the Canadas.*

The quality of the fruit is positively delicious. Bunches, large and long, shouldered and compact; berries, large, round, nearly black, covered with bloom; skin, thin; flesh, melting; no perceptible pulp; possessing a most refreshing flavor. Ripens first September.

RODGERS HYBRID, No. 3.—This is one of the earliest of Mr. Rodgers' hybrids that we have fruited. Bunches and berries, of good size; color, red, somewhat resembling the Diana; skin, thin; flesh, very tender and juicy. Ripens with the Adirondac.

RODGERS, No. 33.—A magnificent grape, bearing a strong resemblance to the Black Hamburg, and some of its bunches grown in my vineyard (Philipsburg) last summer, were, in my judgment, quite equal to some of the Black Hamburg grapes *grown under glass*, and exhibited in Montreal at the Horticultural Exhibition last fall. Bunch and berries, large and very compact; color, black; flesh, tender, sugary, rich and of high flavor. Ripens a little later than the Adirondac.

HARTFORD PROLIFIC.—A great favorite with those having fruited it. Bunches, large and compact; berries, medium to large; skin, rather thick; color, black; flesh, sweet and juicy. Ripens a little later than the Adirondac.

REBECCA.—A delicious aromatic grape, free from pulp. Bunches and berries, medium to large, slightly oval; skin, thin; color, pale green, tinged with yellow, with a light bloom. Ripens with the Hartford Prolific.

CONCORD.—Bunches and berries, large; color, almost black, thickly covered with beautiful bloom; flesh, moderately sweet and juicy; pulp, quite tender; vine, exceedingly vigorous and productive. Ripens 20th September.

DIANA HAMBURG.—A magnificent grape. Bunches and berries, large; color, dark-red; skin, thin; flesh tender without pulp, sprightly and vinous. Ripens 15th September.

DELAWARE.—An exceeding hardy and productive grape—a great favorite with many. Bunch and berries, medium to small, and shouldered; skin, thin,

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DIANA.—Bunches, medium compact; berries, medium; skin, thin; color, pale-red; flesh, tender with some pulp; juicy, rich, sweet and vinous. Ripens a little later than the Delaware.

UNION VILLAGE.—Bunches, very large, compact, shouldered; berries, large and round, quite sweet with not much pulp; skin, thin; color, black, covered with bloom. Ripens with the Diana.

WALTON—A cross between the Delaware and Diana vine, vigorous and productive, hardy; bunches and berries medium size, claret color; very sweet and juicy, and fine flavor. Ripens with Hartford Prolific.

II.

The foregoing varieties, and, no doubt, some others, of like marked excellence, which I have not fruited, can, by proper management, be successfully grown here, *in open air*, or in any place where corn will ripen. Hence, I have pleasure in recommending them to our amateur grape growers, or to those who may be disposed to try grape culture.

The following brief observations may be useful to the latter, or to those who have had no experience in the culture of the "most delicious of all fruits," the grape.

Soil, location, protection and moderately rich black loam, with a sprinkling of gravelly limestone is, no doubt, the best, but any land suitable for wheat or corn will answer. It must be naturally dry or thoroughly drained, with a southern, or south-western aspect, and a full exposure to the morning sun—and, above all, thoroughly sheltered from the effects of our cold harsh winds—so disastrous to the grape. For this purpose a close board fence, on the north and north-west, say seven feet high, would form a good protection. Of course a wall would be better, or a line fence still better, but the former will answer a very good purpose. In our latitude (45 parallel), winter protection is also indispensable. Some of the above-named varieties might escape being winter-killed, but should they live, would likely be feeble and unproductive. Hence, the hardiest sorts should be laid down just before the ground freezes up, and covered with a few inches of earth, just sufficient to protect them from the changes of the weather.

PLANTING.—Having prepared the soil, the method I adopted was to trench (from east to west) to the depth of about fifteen inches, and two feet about the grape vine, then fill in with compost to within seven or eight inches of the surface and complete the filling with rich pulverized soil. Having secured your vines, of not less than two years, nor more than three years growth, *from a reliable nurseryman*, set them out not less than twelve feet apart (twenty-four feet would be better) in the trench thus prepared, about six inches deep—extending the roots in their natural position,—and the earth should be carefully worked in among and around them, by

the hand, and moderately pressed down, leaving the ground a little elevated around the vines to allow for settling. As a fertiliser I know of nothing better to put around the roots than ground bones. They need not be finely ground. The finest portions will furnish immediate pabulum or food for the roots, while the coarse portions will decay gradually, and continue for a series of years to supply nutriment. A patching of some refuse matter should be placed around them, to keep the ground moist.

Vines of the above-named growth, say three years, will require less attention than young vines, and the following year, with proper care, you may have fruit without injury to the vines; but to promote and forward their maturity, the greatest possible care must be exercised, and a little *practical experience* at this time in pruning, training, pinching, etc., will be worth more to at least the majority than any written instructions one could give them.

PRUNING.—Vines in this climate should always be pruned in autumn, as soon as the frost loosens the leaves. If deferred till spring, excessive bleeding ensues, thereby exhausting, if not entirely destroying, the vine. The moral of this is, *prune in the fall*.

GRAPE TRELLIS.—An exceedingly simple and convenient trellis may be made by setting posts ten or twelve feet apart, upon the north side of your trench, and nailing three 4-inch slips of wood horizontally, about eighteen inches apart, and narrow upright slips about two inches apart, (sawed laths answer a good purpose for the latter,) resembling somewhat, when finished, a picket fence. The foregoing observations will be found ample for any one to build a grapery sufficiently large to supply himself, family and friends with grapes.

Should there be any, however, who may think these conditions too hard, we advise such persons not to try grape culture.

I am, dear Sir,

Your obedient servant,

W. W. SMITH.

RASPBERRY CULTURE.

We believe no kind of fruit will yield a more prolific or better paying crop than the raspberry, especially in Canada, its being subject to so few enemies in the shape of insects or grub, and, after ten years' experience, the plants have never once been winter-killed with us. We have one or two kinds of raspberries, but have found the true "Falstaff" to be superior to all others under our mode of culture, but we state this as the experience of amateurs, not professionals. We spell the name of this raspberry "Fal-

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staff." Whether the name is derived from the stout gentleman celebrated by Shakspeare, or from some locality in England where this sort has originated, we cannot say. The fruit is very large and firm, a dark red in colour and of first-class flavour. As to its prolific qualities, I need only say that a small patch in my garden has yielded by the bucketful from day to day. They will continue giving fruit more or less for a full month. Late in the fall we dig close to the stools, cutting away all the roots and runners outside of the plant. This process confines the new canes to the space occupied by the original stool, and greatly increases their vigor. We never cut away the old canes in the fall as it weakens the new shoots. Why it should do so after the fruit is gathered and the old cane gradually dying we cannot tell, but it does so much better to leave them alone till the spring and then cut them out that we advise all to try this method. We keep the canes all tied up to a stake and cut them down to about four to five feet. We dig no manure into the ground, but every spring, a few weeks after the snow is off the ground, a bucketful of liquid cow manure is thrown upon each stool and repeated once or twice shortly afterwards. It is no unusual occurrence to have the canes running up to the height of nine to ten feet, and we have often gathered berries measuring two and a half to three inches in circumference under this mode of cultivation.

There is one pest, and only one, that we know of that must be guarded against. It is a beautiful dark blue fly of the Ichneumon species, about an inch long and the thickness of a straw, and when the young canes are about three feet high, near the top it inserts with its ova depositor a small egg $\frac{1}{16}$ of an inch long, and it then cuts the bark half through half an inch below, and cuts the bark entirely through half an inch above the egg, completely destroying the further growth of the cane. This grub in the course of ten days begins its work, and with its hard auger-shaped boney head commences gradually to descend the pith of the cane, ejecting the sawdust from small holes two inches apart, and, if left, it will gradually eat its way down to the stool, and next year the cane cannot bring its fruit to maturity. To prevent this result break off the inoculated part of the cane (whenever you perceive it drooping) at the lower incision, and if any canes in the fruit season fail to mature their fruit, if the dust-like excrement is under the cane, cut it off at the root, and, on splitting

down the centre of the pith, you will come to the cause of the failure, in the shape of the aforesaid grub, half an inch long. By a little care and perseverance this pest is, if not entirely eradicated, easily kept down.

N.B.—We never lay the canes down in winter.

JAS. BROWN.

THE RASPBERRY.

The raspberry will grow in any ground under good cultivation, but, like all other plants, they require proper attention in due season. I have been growing them the last forty years, and I do not remember ever losing a crop of good raspberries. My mode of culture was simply this: In the spring, as soon as frost and snow disappears, I get my stakes put in firmly into the ground, and tie the canes neatly to the stakes and cut them down to three or four feet or more, according to the strength or thickness of the cane, leaving from three to five to each stake. During the summer months, if they push up too many canes, it would be well to thin out some of the weaker ones, leaving a sufficient stock of canes for next year's crop. In early autumn, when they are done bearing, cut out all the old wood and tie in all the young wood to the stakes to prevent them from being blown about or broken by the fall winds. Before any hard frost sets in in fall lay your canes down carefully, and put in some clay under the bend to prevent the heavy snow from breaking them. Cover the ground with a good coating of manure, which can be dug into it in the spring.

A list of the raspberries I had in cultivation:

Red.
Falstaff.
Red Antwerp.
Imperial Red.
Barnett.

White.
White Antwerp.
White Monarch.
Brinkle's Orange.

JOHN ARCHBOLD.

MONTREAL, Dec. 4, 1876.

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THE GOOSEBERRY.

My experience of the cultivation of the gooseberry in Montreal for the last forty years is that it can be grown, with proper care and attention, to be profitable to the cultivator. I have seen it growing in different soils, some in gravelly, some in stiff clay, and some in scaly gravel, and all seemed to be bearing well. Still, I believe, to succeed well with the gooseberry, it should be grown on a tolerably stiff clay soil, to be well trenched to a depth of two feet, so as to retain moisture, which is very essential in this climate on account of its very dry hot summers. To go into details of different modes of pruning and culture I have observed in many places in the neighborhood of Montreal would, I fear, make this report too long. I, therefore, confine myself to the manner of pruning and cultivation I have practised myself. To begin, I would recommend that gooseberries should be grown on a single stem, say one foot, or nearly so, from the surface of the ground and formed into an upright or spreading head, as the natural growth of the plant will dictate. In the month of June, if there be any long or straggling shoots, I pinch them off. I confine the head of the plant to any number of bearing branches that choice might direct. In the month of October I dig a trench a foot or more, according to the size of the bush, all round it, and put in a good coating of well decomposed manure, and cover all in even with the surface of the ground. I also prune in October all the surplus maiden shoots, cutting into within two eyes of the bearing branch, which, in two or three years regular pruning, forms into a fine shaft of bearing wood, and very convenient for the picking of the berries. I would never recommend any one to plant the gooseberry under the shade of any tall growing trees, as I have closely observed the difference it causes in their growth and bearing. I had plants of the same varieties in shade and open exposure, and found the plants in the shade very poor bearers and subject to mildew, while the same in open exposure bore abundantly and free from mildew.

I believe there have been gardeners in the vicinity of Montreal who have grown the gooseberry profitably, and I do not see why they should not do so still, if proper care and attention were given to it, as they always sell at a good price in the Markets of Montreal. To give a list of the most profitable to cultivate is rather a difficult thing to do, as there are and may be many different

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opinions on the choice of sorts. For my part I had at one time on the grounds at Rosemount as many as 57 varieties, imported from different nurseries in England and Scotland. I will therefore give a list of the sorts that did best with me:—

GOOSEBERRY.

<i>Red.</i>	<i>Green.</i>	<i>Yellow.</i>	<i>White.</i>
British Crown.	Jolly Angler.	Dusk Wing.	White Lion.
Champagne.	Greenwood.	Bunker Hill.	Sheba Queen.
Top Sawyer.	Green Hairy.	Early Sulphur.	White Eagle.
Roaring Lion.	Jolly Tar.	Gorton's Viper.	Bonny Lass.
Lancashire Lad.	Glenten Green.	Golden Gourd.	White Smith.
Kean's Seedling.	Green Walnut.	Rockwood.	Wellington's
Leigh's Rifleman.	Green Prolific.	Yellow Cham-	Glory.
Crown Bob.	Heart of Oak.	pagne.	White Honey.
Warrington.	Laurel.	Yellow Ball.	Bright Venus.
Conquering Hero.	Green Gage.	Golden Fleece.	Lady of the Morn.
Wonderful.	Green Asian.	Yellow Smith.	Cheshire Lass.

There is one thing certain that the cultivation of the gooseberry, as well as many other plants, in a slipshod way, planting them out in ground not thoroughly prepared for them, and paying no attention to them after, but allowing them to grow choked with weeds, such treatment cannot give any good results; on the contrary, the more care and attention given to them is sure to result in increased productiveness.

JOHN ARCHBOLD.

MONTREAL, Dec. 4, 1876.

 THE CURRANT.

To grow the currant for profit, it requires the same treatment as the gooseberry; to be grown in good stiff clay soil and on a clean stem one foot from the surface of the ground and formed into a compact head. The red and white varieties should be pruned the same as the gooseberry, that is leaving a certain number of bearing branches on each plant, and annually spur in the surplus maiden shoots to two eyes next the bearing branch which will form in course of time a fine shaft of bearing wood. The black currant

does not require to be thinned out the same as the following list

White.

New White Dutch.
 River's White.
 White Crystal.
 Morgan's White.
 White Leghorn.
 Provence.
 Goodwin's.
 Victoria.
 Champagne.

MONTREAL,

THE CULTURE

The strawberry of the hood of Quebec is the du Loup. The fruit is remarkable for its very poor and low rates, about properly marketed once nearly any obtain a preference to look well.

I have been offered an average about twenty cents a quart, on account of the season with fruit. I have seen the omphale de Ghent the wild or early bright, firm, and

does not require the same pruning as the other varieties, only to thin out the surplus young wood and keep a good open head. The following list are the varieties I cultivated with success:

CURRANTS.

<i>White.</i>	<i>Red.</i>	<i>Black.</i>
New White Dutch.	Large Red Dutch.	Bangup.
River's White.	New Red Dutch.	Green Fruited.
White Crystal.	Morgan's Red.	Black Naples.
Morgan's White.	Red Grape.	New Black.
White Leghorn.	Knight's Sweet.	Russian.
Provence.	May's Victoria.	
Goodwin's.	Red Cherry.	
Victoria.		
Champagne.		

MONTREAL, Dec. 4, 1876.

JOHN ARCHBOLD.

THE CULTURE OF THE STRAWBERRY PLANT IN THE DISTRICT OF QUEBEC.

THE strawberry plant is indigenous to the soil of the neighborhood of Quebec, growing in great abundance from Quebec to River du Loup. The wild variety is one of the Alpine kinds, and is remarkable for the very fine flavor of the fruit. It is picked by very poor and dirty children (in bark caseaux) and sold at very low rates, about fifteen cents the quart. When the fruit is properly marketed it is very difficult to beat in flavor, but in appearance nearly any of the cultivated sorts are far superior and now obtain a preference with buyers. Fruit, like flowers, ought always to look well.

I have been cultivating the strawberry for some years, selling on an average about five thousand quarts per annum, which net us over twenty cents a quart. We generally sell at twenty-five cents the quart, on account of the Quebec market being overstocked early in the season with the refuse fruit from Rochester, and the local wild fruit. I have cultivated principally the late kinds, such as Triomphe de Ghent, Jucunda, Colonel Cheney, etc., which come in after the wild or early varieties. The Burr's new pine is an early sort, bright, firm, and quite as well flavored as the native wild fruit,

and I can highly recommend it, as it is sweet and a delicious berry. It ripens with us about the seventh of July, but we have to sell it at the market prices, which rule low owing to the market people being in the habit of buying imported berries. These imported berries are nearly always the Wilson's Albany, a fruit possessing no good quality, other than that of being a strawberry, when there are no others. The Wilsons grow readily, and where profit only is wanted they answer, as hotels, steamboats, and other cheap places will buy them, but they are farmers' berries and not worth the attention of a horticulturist, as they are generally sour and destitute of flavor, and obtain the lowest price in the market. Our hotels prefer my berries because so much sugar is not required in their consumption.

The Triomphe de Ghent and Colonel Cheney are very much the same berry; they give good crops for two years, a poor one the third year, when they had better be replanted. These berries are large, firm, and keep for three or four days when placed in an ice house. I have furnished berries which were in good order all the voyage (ten days) in the Allan Line of steamers to Ireland, but fruit will naturally keep well and longer in any ice house on board of an ocean steamer than elsewhere.

The Jucunda comes in the latest of all our berries, it is a capital fruit in all respects, but it is a shabby grower, looking rusty and unhealthy almost the whole time; it is, however, hardy, but I should think a more healthy plant would give a larger yield, so we propose to raise a better growing variety.

At the Centennial this summer the Seth Boyden is the variety recommended to succeed the older kinds, so we intend to be in the fashion and try some experiments.

I have cultivated a very great many varieties of strawberries, obtained in England and the United States. The Americans are decidedly in advance in this culture, producing both better and more profitable berries. My land is common farmers' land, decidedly poor, but it is getting rapidly enriched, so that we are pretty sure of good crops in spite of hot sun or want of rain, but as I only crop about one thousand quarts per acre, I am still a long way behind hand in what ought to be done.

The culture is managed as follows: Take the runners off the vines as soon as they appear and pit them in rich stuff; shade and water until the first week of September, then plant in early cab-

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bage land or vetch or corn ground which has been mown for the cows—the strawberry will therefore have about three weeks to settle before the cold nights in October stop all growth; pass a roller over the plants. We have a large rake with teeth two feet apart to mark the ground; this rake makes five rows, and we put in the plants at fourteen inches apart.

The strawberry plant does not get winter-killed with us, as we have always plenty of snow, unless they are planted too late in the autumn, so that they do not root. I have tried spring planting in May, but with no success, except when I used imported plants from Pennsylvania; they were strong, and got well settled before the dry weather checked them in June. The best way to plant is on a new ploughing. We plough in the morning, roll when the men go to their dinners and plant up to dark, this gives the plant all night to settle, and as the land does not dry up for some days, and probably not at all in September, the plant receives no check, but keeps growing as if it had never left the forcing pit. We water the pit well before we remove the plants. I have been a long time learning how to plant strawberries, but I think I have learnt now how it has to be done in this district.

We use strawberry boxes from Oakville, Ont. Fine handsome fruit put in pint boxes will bring nearly as good a price as the quart boxes. The pints are sold by the retailers at twenty cents, and delivered to them at fifteen cents; but the hotels and steamers prefer the quart boxes, they get more fruit for their money.

With respect to the future of strawberry cultivation it is only necessary to say Americans do not travel north till after the fourth of July, consequently there are plenty of markets for late strawberries in our neighborhood.

Fruit can leave Quebec at 8 p.m. and be delivered at Saratoga next day at 3 o'clock p.m. in time for their 4 p.m. dinner (from the tenth July to the tenth August), but their consumption is very large, several hundred quarts per diem per hotel; a small quantity they cannot do with, but in a hotel where there are fifteen hundred boarders, who pay from \$4 to \$6 per diem, they can afford to give fruit, especially as there are no good wholesome fruits just at that season. Our strawberry season commences on the eighth July and lasts one month, when we begin with raspberries.

In conclusion I may say, use all the manure you can get and especially top dress the rows of plants with a compost made as much as possible of manure and peat muck. This we put on in the

month of May at the rate of forty loads to the acre, we then chain-harrow the whole plantation, pass the roller to keep matters snug, and send a cultivator up and down the drills once a week; the consequence is the ground is soft and mellow, the peat manure retains the moisture, the bits of straw save the fruit from grit, and a good crop is certain.

I pick the berries by contract, two sous the quart, and we employ as many as thirty pickers for one month. Those who pick the smallest quantity are dispensed with first, also those who eat the fruit. In case of persons coming to steal, keep a watchman and a dog, but they cannot steal except on Sundays, as on other days the fields are full of people and at night they cannot see the berries, besides the fruit is not portable, like apples, etc., and cannot be sold to a profit. Now that Canada is beginning to feel the effects of modern improvements in the shape of "express companies," etc., it is an easy matter to reach distant markets, especially if the fruit produced is of a superior quality, but it must be good and look well. We have the hot sun and the cool nights and all the conditions requisite for a successful strawberry culture, and though it will be many years before a fruit train leaves Quebec in the month of July, yet we must not forget that enormous quantities of fruit are being shipped from the Saguenay, where it is said about \$50,000 worth of blueberries are picked every year. There is therefore no great prophecy in writing and in recommending strawberry cultivation as one of the subjects most worthy the attention of a Horticultural Society, and as an industry likely to be profitable to the inhabitants of the Lawrentides.

COLONEL RHODES' FRUIT FARM,
QUEBEC, 1st Jan., 1877.

WM. RHODES.

CRANBERRIES.

F. C. EMBERSON.

"Alba lignestra cadant, *vaccinia rubra* legantur!"

Virgil, Ecl. (amended).

THAT a farmer should be able to clear \$1000 a year off one acre of his farm (which is at the rate of \$100,000 a year from the ordinary hundred-acre farm!) would seem a statement too marvellous to

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be true. Truth is stranger than fiction. In some cases, on small plots of land this, and more than this, has been realized by the cultivation of that despised plant the cranberry, (*Vaccinium macrocarpon*), which in many places in Canada is looked upon as belonging to everybody in general and nobody in particular, being too insignificant to be specially appropriated.

The average crop of cranberries for three successive years from three-quarters of an acre of land belonging to P. Ryan, Atlantic Co., N.J., was no less than 300 bushels. This is at the rate of four hundred bushels an acre. Cranberries fetched during these three years an average of \$4 a bushel. This gives us \$1,600 as the gross return from one acre of cranberries for one year. Deducting \$500 for the expenses of weeding, picking, marketing, etc., this leaves us \$1,100 as the clear *net* profit from one acre in one year, which exceeds the thousand dollars of profit from one acre of land in one year which we mentioned above as so incredible.

This profit is not unparalleled. Addison Flint's land, in North Reading, Mass., produced as much. In Burlington Co., N.J., one (1) acre netted \$1,800 in one year. One square rod in the same place produced at a rate which would net \$2,000 an acre. Elsewhere two (2) acres of land netted \$10,000 in ten years. These are well authenticated facts. They do not stand alone.

Let us, however, take the ordinary average every-day returns of profit from the growth of this wonderful fruit. In Burlington county, New Jersey, the market value of the fruit sold from 2,000 acres (more or less) set with cranberry vines was \$116,000 or \$58 per acre. In Monmouth county the gross receipts from about 250 acres was nearly \$25,000, which is \$100 per acre. In Ocean county there were about 200 set with cranberries, and the gross market value of the fruit was \$200,000 (more or less), *i.e.*, \$100 an acre as before.

These profits, established by accurate statistical returns, are in spite of repeated failures, which came from past ignorance of facts now known. Take one instance:—Thousands of dollars have been spent to eradicate "millet-grass," (a plant which flowers under ground!) which is now known to do the cranberry no harm. Others have spent large sums, without return, in experimenting. We in Canada can reap the fruits of their labors gratis. We can draw the interest on the capital they have thus invested.

Nor is climate against us. Cranberries are now grown in Wisconsin and Minnesota, and actually reported on, as such, regularly

in their State Horticultural Reports. Their climate is as cold as ours, and perhaps less favorable to the cranberry, being drier.

Does it not then seem to be a strange national blindness, or gross national ignorance, which has prevented the cultivation of this berry which is even indigenous to Canada and grows wild all around us?

In our back townships, especially where there is much poor and swampy land, cranberries often grow wild, and are looked upon as the property of any one who will take the trouble to pick them. The owner of such a cranberry patch is often desperately poor, while he has a mine of wealth in what he looks upon as the least valuable part of his farm. As much as \$10,000 has been paid for five acres of cranberry vines, and \$20,000 refused for five acres which only cost \$500 to set out!

Many a farmer in the Province of Quebec, takes oats and hay to the nearest village and can get nothing but "store pay" for it, while his wiser compatriots at St. Brigide get \$3 a bushel, cash, at the Railroad Station, for the cranberries which grow wild on his land as well as theirs.

It is true that the way in which cranberries are grown in New Jersey requires an immense amount of capital. There, arrangements are made by elaborate dykes, dams and ditches to flood the land to a depth of two feet or more. Muck land is selected as the spot for cranberry culture, and pure white sand is carted at immense expense all over it, to a depth of two, or (in very rich muck) even to five (5) inches. In this way some large fortunes have been invested, and, through ignorance of some apparently trifling detail, have been lost through failure in crop. The average net profit, nevertheless, is shown by statistics to be no less than thirteen and a quarter ($13\frac{1}{4}$) per cent. on the total capital thus (part wisely, part foolishly) invested in flooding and sanding.

But what if flooding be unneeded, and heavy sanding hurtful? some judges say so. Flooding is mainly to destroy the fire-worm (which seems to burn the vines) or vine-worm (*Tortrix vacciniivorana*). Now enquiries and personal search at St. Brigide and elsewhere elicited no trace or news of this worm as extant in Canada, although the "scald" and the "fruit-worm" exist here. From this we draw two inferences: Firstly, Canadians may slip out from the ruinous expense of flooding. Secondly, they should not import vines from the States, for fear of introducing with them the fire-worm, which alone necessitates this expense.

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Hence the only obstacle to the cultivation of the cranberry universally amongst us seems removed—a result which repays the trouble and expense of those visits to New Jersey and Canadian plantations by which it was obtained.

In New Jersey, except for the ravages of the fire-worm, unflooded lands produce as well as those flooded. This very worm, too, can be effectually destroyed, by burning the patch where it exists. True, the chance of fruit for two years, (if not three) is thus lost. But then the vines bear better than ever afterwards, and the loss of a few years crop can be better afforded where the capital invested is so trifling as it needs to be where there is no expense of embanking and flooding. In any case the cranberry planter has to wait two or three years for the marvellous returns for his toil mentioned above. It seems a law of Providence that great returns do not come without long waiting. Were it not for this we should, almost in the teeth of all proof, be half inclined to discredit the wonderful profits of cranberry culture mentioned and enumerated by ourselves.

As we incidentally remarked, the cranberries grown at St. Brigide fetched \$3 a bushel at the Railroad Station, and the French habitant who grew them once got for one year's crop no less than \$2,750. We have growing wild in Canada most if not all of the different varieties mentioned as good for different purposes in the treatises on the cranberry published in the United States. The "Bell," the "Bugle," and the "Cherry" cranberry can all be found in our marshes. Why go elsewhere for them?

The most important thing for those who would benefit themselves and their country by attempting, on ever so small a scale, the culture of the cranberry, is to go to some of the "patches" near them in the fall and select the best vines. In the fall they can see the fruit on them. For marketing purposes select a fruit of a fine deep red color. Next to a full color, a full size in the fruit commands the best sale. Next to size we should consider the keeping qualities of the kind we select to plant. The larger-sized cranberry is often hollow and does not keep so well as the smaller varieties. But we can get as good varieties as we want here, in Canada, without going to the States.

But, though these plants must be selected and transplanted in the fall, when it is not too wet to get on to the marshes, and when we can see the fruit on them, they should not be planted out till the following spring or they may be upheaved by the frost of

winter and all our labor be for nought. The plants chosen must be kept during the winter in trenches where they will be as wet as possible.

The ways of planting them out are various and interesting. The old fashion was to transplant the sod. This moved weeds with plants and brought out our enemies along with our friends. The cranberry plant has such a wonderful vitality that, if cut to pieces in a strawcutter and harrowed into well-prepared land, the little bits will take root and become separate plants like those Infusoria which, when cut in two, form two separate and distinct, and yet complete, animals.

There are two ways of planting which can be recommended, and both should be pursued early in the spring when the ground is very wet. Each will require ten (10) barrels of cuttings for one acre. One is to make furrows with a plough one or one and a half feet apart, to lay the plants lengthwise (for a curious reason) with their ends reaching up towards the north-east, in the furrows, and cover with the hoe. The other good way of planting is to mark out the ground in lines, lay the plants along these lines and press them in with a forked stick and the foot.

The preparation suggested for the ground in which we plant cranberries is as follows: Take wet muck land and drain it enough to plough and harrow it well so as to kill out all weeds. Then cover it two inches deep with sand, if you have any handy, to keep the fruit clean and to keep the weeds from starting again. Or else, to use an expression coined in the West, "scalp" your land, *i. e.*, take off the turf and sod and cart it away for manure. The land in which the cranberry flourishes is alluvial black, and wet muck is the soil on which the best patches known in Canada are grown. "Diluvial" land, clay, loam, land with drift (*i. e.* scattered stones or boulders) in its formation, land whose tendency is to stick together and not fall apart after a handful of it has been squeezed in the hand; none of these are suited for cranberries.

But what we maintain is that the land where cranberries actually grow wild, will produce them much more plentifully and profitably with hoeing, weeding, planting, and, in short, with as much cultivation as possible. And this cultivation meets with an unexpected and great reward. It is only wanted for a few years till the plants totally occupy the land. Then they are a fairly permanent investment. And the cranberry, drawing all its nour-

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ishment from air and water, wants no top-dressing. It is injured by that manure which is so much needed for everything else.

What we need in Canada is not only for a few capitalists to try the growth of the cranberry on a large scale, as a profitable investment, but for

EVERY FARMER

to see if the fruit will not grow on some wet spot on his own farm. This will cost him little or nought. It will be an interesting experiment, and may result in a truly golden harvest.

The fruit is grown, as has been said, with most astonishing profit at St. Brigide. Thirty acres of cranberry marsh, near the River David, yielded a gross income of \$375 last year, \$330 the year before, and \$3,250, or thereabouts, four years ago; or, a gross income of \$130 per acre for an average of three years. There are indeed cranberry patches scattered over all the Province. Wherever there is black swampy muck land there they may be expected to flourish, and how many square miles have we not of this in our country.

There is one beguilement to guard against in planting them. How natural is it to select lush, hale, green and luxuriant vines to plant from! Beware of them. They are barren. They are fair to the eye but produce not the cranberry good for food. It is the greenish-brown, wiry, stunted vine, with thin and fine spears and runners, that we want. Different varieties of this might be tried the first year or two, and the best of these finally selected to propagate from *in extenso*.

When we in Canada have grown enough of this delicious berry, (choicest and most deeply blushing bride for the Thanksgiving turkey!) for our own ecstatic use, we shall have an ample market in England for our purpose, for an American Company, whose efforts cannot be too highly praised, has taken steps to spread there the knowledge of the excellent properties of the fruit, and of the different ways of preparing it for table. Before long we hope we shall at any rate cease to be sending to our cousins across the line, oats (which it takes so much trouble to cultivate) for forty cents a bushel, while we are paying them \$3 and \$4 a bushel for this little fruit which covers the ground so thick at times with its large berries that they can be raked off the vines! Every motive of profit and patriotism would suggest to every land-owner among

us who has wet black muck on his farm to see if he cannot incarnadine some portion of his inheritance with

“ This red rain which makes the harvest grow.”

The information embodied above is derived from visits made to the farmers in New Jersey cranberry country and to St. Brigide and other places in Canada and to the following books:—“ The Cranberry, Its Cultivation, by Mark S. Bassett, 1870,”—“ Cranberry Culture,” by B. Eastwood, published by Orange, Judd & Co., 1855,—“ Cranberry Culture,” by Joseph J. White, Orange, Judd & Co., 1870.—The last mentioned book is the best on the subject. We would also express ourselves indebted to the report of the New Jersey State Agricultural Society for 1874, and of the New Jersey State Board of Agriculture for the same year. We would also refer intending cranberry cultivators to “ Rural Affairs ” for 1875, issued at the office of the *Country Gentleman*, as well as to the Reports of the Horticultural Societies of Wisconsin and Minnesota, which last may be seen in the library of the Montreal Horticultural Society.

HINTS ON THE CULTURE OF HOUSE PLANTS, FOR BEGINNERS.

BY R. IMRIE.

No invariable rules can be laid down for the cultivation of plants. The few hints I offer will, however, I believe, lead to success. The special need of plant life, in order to their healthy and vigorous development, is daily attention. I will offer a few general directions—the rest must be left to the judgment of each grower.

The following is my experience in the cultivation and growing of useful and ornamental flowering plants, for greenhouse and window culture, during a few years past in Montreal.

I would recommend the following varieties as the best, as far as regards ease of cultivation and abundance of flowers, as well as being less subject to the attacks of insects, viz:

ZONALE GERANIUMS.

Cuttings of these may be put in from the first of February till the end of March. When well rooted they may be potted into four inch pots, with a compost, consisting of equal parts of well-

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rotted sods, or turf, leaf mould and coarse sand, as soon as the pots are filled with roots, the plants should be removed into 6 inch pots, and the shoots should be pinched back, *i.e.*, pinch off the bud at the end of the leading shoots, and all the flower buds as soon as they appear. By attending to these directions, the plants when removed into the house in fall will be prepared to give abundance of flower. The bloom should be picked off until about three weeks before taking the plants into the house. The plants should have plenty of water during the growing season, and should be protected from the strong sun and wind.

FUSCHIAS.

Fuschias are to be cultivated in the same way and in the same compost as geraniums, always taking care, however, not to break off or injure the central leading shoot, as a great deal of the beauty of the plant depends upon the plant being trained in pyramidal form.

The fuschia is somewhat subject to the attacks of *red spider*; it should be grown as much as possible in the shade, and should be kept rather moist, in order to obviate the attacks of that insect. This treatment is specially necessary during the heat of summer. Coolness and moisture are at the same time favorable to the free growth of the plant and unfavorable to the propagation of this troublesome insect.

CHRYSANTHEMUMS.

I would strongly recommend the cultivation of this fine plant to all lovers of flowers, as one of the most useful and free-flowering, and especially as it flowers at a time when few other plants are in bloom. It is, besides, of the easiest culture. It may be grown and cultivated in the same way as the geranium, with this exception, that the plants should be potted into seven-inch pots at the last shift, and they should not be pinched back later than the end of August. They should remain outside as long as the weather will permit, and should have plenty of water, and as much light as possible without being exposed to strong sun.

CHINESE PRIMROSE.

The seeds of this beautiful and early-flowering plant should be sown early in March in pots, in a rich light compost with a good proportion of bright coarse sand; this should be well watered before sowing the seeds in it. The seeds should be lightly covered

with fine earth, and the pots placed in a hot bed with light bottom heat, and shaded from the sun for a few weeks, or until the plants are in rough leaf; they should then be pricked out into pots or boxes, about two inches apart, and kept close to the glass, though shaded from the sun, till they are fit to pot in four-inch pots, and after they are potted till they are established, when they may be removed to a cold frame where they must receive all the light and air possible. As soon as the pots are full of roots, the plants will require to be removed into six-inch pots which will be large enough for them to flower in. During the summer they must receive all the light and air possible, without being exposed to strong sun or wind or heavy rain; they should also be carefully and regularly watered.

The soil prepared for geraniums will suit the Chinese Primrose.

Vigorous plants may be grown and abundant bloom secured by following the above directions.

There are several other useful plants that I would recommend to amateurs, which are as easily grown as those mentioned above, namely: Eupatorium, Stevia, Heliotrope, Salvia Carnation, Begonia. All of these flower in winter, if cuttings are made and propagated in spring and care be taken to keep the plants in health and vigor during the summer.

CYCLAMEN PERSICUM.

This plant is of easy culture. The roots may be readily procured from any respectable seedsman, or the plants may be raised from seed sown at the same time and in the same manner as the Chinese Primrose. If the grower prefers growing the plants from bulbs, they should be planted in early autumn—August or September—in five or six inch pots, in the same sort of soil as the geranium or other plants already mentioned. The pots should be well drained, and placed in a cold frame. They should be watered sparingly and shaded till they begin to grow, when they may be placed in the window where they are to grow.

HYACINTH, TULIP AND CROCUS.

In the cultivation of these the grower should be careful, first, to select good strong bulbs, as their flowering depends in great measure upon their size and soundness. Well-pulverised loam with a fair proportion of sand will make a good soil for them. They may be potted from September till November, and should be

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immediately put into a cool dark cellar until the bulbs start about an inch, when they may be brought into the light for flowering.

THE ROSE

most suitable for window culture is the *Tea* or *Monthly Rose*, of which there is a great number of varieties. These bloom freely and continuously and may be easily kept with the plants already mentioned. Do not use too large pots—in re-potting, one size larger than those the plants have been grown in. The pot provided must of course be large enough for the plant and give room for root-extension. The larger and stronger the plants the quicker they will start into bloom. It is very difficult to get a small plant to thrive in a large pot. A rose will not bloom until the pot is filled with roots, therefore small pots facilitate early bloom. If the pots have been in use previously they should be thoroughly washed before being used again. If new, they should be soaked for some time before being used. Have good rich soil, mellow and friable,—that made from decomposed sods is best. If manure is used it should be old and thoroughly rotted.

To pot, see that your pots have plenty of drainage made of broken pots or other such material. The plant should be placed but little deeper in the pot than it was previously. As the earth is filled in it should be pressed firmly down with the hand. The pot should not be filled quite full, a space of from a quarter to half an inch in depth is needed for water. Give little water at first till the plants begin to grow. Too much is at all times sure to do harm.

I have found the following list of roses of easy culture and abundant bloomers, viz.: Bone Silene, Bella, Beauty of Greenmount, Devoniensis, Hermosa, Homer, Isabella Sprunt, Leveson Gower, Madame Bavay, Madame de Vatry, Queen of France, Safrano, Clio, Gloire de Dijon, Solfaterre, Bouquet de Flore.

ROBERT IMRIE.

BULB CULTURE.

HON. E. H. SPRING-RICE.

In Europe, where the spring is a regularly-defined season of the year, the cultivation of bulbs naturally receives more attention than in Canada, where summer often commences at the expiration of the long period of winter. There Floral shows, consisting mainly

of flowering bulbs, are everywhere an institution, and encouragement is extended for the cultivation of these most beautiful ornaments of the garden. Prizes are offered as inducements, and specimens produced of beauty far exceeding any to be seen in this country, are shewn in most villages. With us, where for half the year nature is wrapt in the cerements of winter, it would seem most desirable that attention should be devoted to such plants as can be cultivated to advantage in the house. Experience teaches us that, as a general rule, it is not possible to bring to perfection, unless in a greenhouse, such plants as geraniums, fuschias, &c.,—they require a combination of circumstances and an amount of care that few are able or willing to give. Bulbs, on the other hand, can, with moderate care, be brought to a high degree of beauty, if not to perfection. It is, therefore, peculiarly a suitable subject for instruction to offer a few suggestions as to the mode of cultivation, the difficulties, and the best means of ensuring success. The writer does not claim for himself any originality; as an amateur he does not possess the experience of a scientific and practical gardener, but, on the other hand, his remarks may present this advantage to his readers, that they embody the result of his own experience and the lessons taught by failures and experiments. An enthusiastic lover of flowers, he has had to contend with the same difficulties which discourage many and induce them to regard the culture of bulbs in rooms as likely to be attended with no satisfactory results. He has perused with interest and instruction the many treatises on the subject, and has derived many valuable hints from the remarks which accompany the catalogues issued by those engaged in the business of importing bulbs; and readers must not expect to find in this paper any very novel ideas, rather a combination of the experience of others with his own, which he trusts may be of interest, and may serve to lead many to give their attention to these most charming plants, and to persuade our Horticultural Society to hold out, by an exhibition of spring flowers, an inducement to all professional gardeners and amateurs to vie with each other which can produce the finest specimen in greenhouse, window or garden.

The principal bulbous roots which are used for house culture are, first, the Hyacinth; second, the Polyanthus Narcissus. But many others may be cultivated with success in rooms, and, in fact, more to advantage than in a greenhouse, where they become a prey to green fly, rendering fumigation a real necessity.

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In Hyacinths the modes of growing are various, the most common being in glasses with water and pots. Whilst, to procure early blooming, and on account of the beautiful effect of the roots in the water, some prefer the former, the florist will choose the latter, as finer heads of bloom are obtained and they last much longer than in glasses, besides which, one is able to support the flower stem better. Hyacinth glasses are of various shapes—the writer prefers the old-fashioned tall glasses to the low French form. The glasses which combine the bulb at the foot with the tall stem are the most desirable. The best water is pure rain-water, if it can be procured. The glasses should be filled to about one-eighth of an inch of the top of the stem, taking care to leave no water in the part which is intended to support your bulb as this might produce mildew or develop the germs which sometimes hang about the lower part of the root where not perfectly harvested. I have found a small quantity of charcoal dust of very great advantage, both for keeping the water fresh and for supplying nourishment to the roots. An objection to the use of charcoal dust, namely, that it discolors the water, and thereby the beauty of the roots be lost, may be obviated by placing the dust, with some small weight to sink it, in a small muslin bag. When selecting roots for your glasses, be careful that the root-crown is not larger than the opening from the bulb of the glass to the stem. Press slightly with the finger around the stem-crown of the bulb, and if you feel any depression reject such bulbs as having their capacity for flowering exhausted or impaired by previous flowering. Examine the root-crown carefully, to make sure that it has not already germinated, as in that case the roots are extremely liable to injury, and, once injured, have no power of reproduction. See that there is no trace of mildew, and dust slightly with flowers of sulphur in case you see any mould. Place your bulbs in the glasses, being careful that the root-crown is immediately over the opening for the roots and that the water does not come nearer to the bulbs than the eighth of an inch, then remove into a cool place, but not exposed to frost, for about six weeks; then, if you find the glasses are well filled with roots, take them into the light, removing them, as you see them advancing to bloom, to the place where they will best enjoy the rays of the sun. One has to be careful to change the water when necessary, not only on account of the offensive smell, but because the excrementary deposits of most plants are poisonous to itself. The writer has used guano to advan-

tage in the water, but it is not pleasing to the eye. Phosphate of ammonia is most valuable, as it is inodorous and does not in any way discolor the water, whilst it greatly enhances the brilliancy of the blooms. Sprinkling in the time of flowering with a broom whisk has an excellent effect. Polyanthus Narcissus are such greedy feeders that they are not so well adapted for glasses as are Hyacinths.

For pot culture, there is a particular shape known as "hyacinth pots." For drainage, moss is preferable to potsherds as commonly in use. The soil should be rich, but with fully one-third river sand; the pots should be two-thirds filled before putting in the bulbs, but not pressed down, as that presents a hard surface to the roots—shaking is preferable to pressing; place the root firmly in the centre of the pot and fill to the crown of the bulb, then press the earth *around* the bulb, but do not press the bulb itself, as one is apt in doing so to injure the germs of the roots, especially if in any degree developed. One must, however, see that the root is firmly fixed in the soil, as when the roots germinate they have frequently strength to raise the bulbs above the surface of the ground, when it is difficult, almost impossible, to avoid injuring them. Water freely, and place in a cool dark place for six or eight weeks. Then bring to the light and heat (though not too much of that). It will often happen, spite of every precaution, that the roots are so strong as to raise the bulb out of the soil. In this case the only remedy is to raise the soil to the bulb, not to attempt to restore it to its proper position by pressure, which would infallibly destroy the roots, which are extremely brittle. The best plan is to pulverize thoroughly some soil and place it on the surface and water freely, continuing the operation till you find the interstices filled. Polyanthus Narcissus grow finely in pots, also Crocus, Tulips and Scillas, especially the Peruvian. All the *Lilium Lancifolium* flower magnificently in pots in a room. I have some fern vases filled with Crocus and Scilla and Roman and Parisian Hyacinths, and these are great ornaments.

Twice the frost took possession of all my plants. I found the leaves transparent with frost, and the spikes of bloom stiff. I took a pail of water, cold, but not to freezing, and put in it two table-spoonsful of spirits of camphor, and with a broom whisk sprinkled them freely, when the color returned and the plants recovered nearly their former beauty. I feel confident that the sprinkling in the same manner, but with a weaker solution, plants in rooms

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lighted with gas would destroy the ill effects of the gas, and enable any person to grow plants without fear, for an eminent jeweller informed a friend of mine that the tarnishing of silver in his establishment was avoided by placing gum camphor in the cases. However, it must be borne in mind that nothing can compensate for the use of burners which imperfectly consume the gas, and which consequently suffer what is prejudicial not only to vegetable but to animal life to escape into the atmosphere of our rooms. I have often thought that health officers ought to pay as much attention to exhalations from gas pipes as from sewers.

If anything I have said in this short paper has any weight in inducing others to cultivate a task so elevating and delightful as that of flowers, and in particular that class of which I have spoken, I shall be glad, for I believe the more beauty surrounds our home life the better are we fitted for a higher home.

WINTER MARKET GARDENING

AND THE

GROWTH OF FLOWERS AT CHRISTMAS.

In the neighborhood of every town there is always a population, which, from being suburban, may be considered as forming a connecting-link between the rich man with his orchids and ferns and the poor man with his hay and potatoes,—it is, therefore, for the instruction of this latter very numerous class I now write, and, as my information is gained in the far north and in the coldest city of this continent, Quebec, it will be interesting to know what can be done, and what is doing.

For the Christmas and New Year's markets of this year, I packed up, for the city of New York, brussels sprouts; for Boston, brussels sprouts and mushrooms; for Ottawa, mixed salads, chicory, lettuce, celery, parsley and rhubarb; for Montreal, the same; and for Quebec, a general assortment of all our goods, including fresh pork, new-laid eggs, cream cheeses, and fresh cream, besides filling orders for flowers for church decorations, balls, funerals, etc., etc.

From the above it will appear cold does not necessarily put an end to the growth and cultivation of flowers and vegetables. As a

rule it does, but there are always some varieties of plants which will submit to the treatment of the Horticulturist.

We will now commence with the head of our list, and describe the way in which each plant is treated, and the price required to make the cultivation profitable.

Brussels sprouts are sown in February, pitted out about the first of April, so that they may get checked and hardened with the frost, and then transplanted at the end of May into the field; the crop ripens about the first of November. When well frozen, it is stacked or corded and afterwards picked for market, this can be done in December, the sprouts are sold in New York and Boston for two (\$2) dollars a bushel; in Canada, sprouts do not sell well, the Canadians prefer cheap and coarse food; they, however, think sprouts excellent at one (\$1) dollar per bushel.

Mushrooms sell in Boston for one (\$1) dollar per pound; in Canada from eighty (80 cts.) cents to one (\$1) dollar; but we have not been able to grow them profitably at these prices; we attribute this, however, to bad management and our want of success in the cultivation. There is no reason why they should not be grown.

Mixed salads are composed of lettuce, chicory, dandelion, mustard, cress and celery—these are sold at 25c. for a match-box full, and shipped in that state, to protect the vegetables from cold, and to make the salad portable; chicory for 15c. a pound; lettuce \$1 per dozen heads (we use the Boston market); celery 60c. a dozen heads. Our celery is the New York dwarf; we pit in October, cover up with boards and straw, and keep it cold enough to get the frost rather than the damp on the leaves. When vegetables damp off they are attacked with a fungus which a very low temperature destroys, say 35 degrees Fahrenheit, consequently the best safety against damp is cold. Some try the dry process as a preservation to celery, but that destroys the vitality of the plant. When our celery is removed from the pit, we put it in a damp cellar, each plant upright, so that it may grow; it is then ready for market. I have 10,000 heads pitted this year, and very little has suffered from frost, though the cold has been 30 degrees below zero (Fahrenheit). Chicory is sown in the spring, the roots dug and pitted in the autumn; we then remove it as it is wanted to the forcing-houses, and grow it in the dark under the benches—we sometimes grow it in the cellars; the same for dandelion.

Rhubarb is grown for three years in the fields; it is dug in the autumn and cellared or placed under benches as required. It can

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easily be forced in three weeks. It ought to be well frozen before it is brought into the cellar. We dig the roots, leave them on the ground covered with straw, and go to the pile as we want roots. The same roots we use in the spring for planting a new crop, the price is from 10c. to 15c. per pound.

Parsley we sow in spring, get up good roots, and force in winter. Parsley wants light and a temperature of about 50 degrees (Fahrenheit) with plenty of air. It is sold at the same price as mixed salads, and marketed in match-boxes at 25c. the box. Our celery and rhubarb we put up for market in dry paper, each root in a separate wrapper,—this preserves and makes them look clean.

We consider all these vegetables can be grown profitably at the prices mentioned, and, though the public taste in Canada has not yet formed itself for the use of spring vegetables at Christmas, yet the markets are opening, because many persons, especially invalids, find by the use of living vegetables they enjoy better health, besides fresh green vegetables look well in winter. Pork is sold at 10c. the pound; fresh eggs, (thirteen) for 40c.; cream cheeses, 50c. the pound; and fresh cream, 50c. per quart.

It is our ambition to produce all our goods of the best quality. The difficulty is with the producers and the sellers, the workmen and the hucksters. Men who are engaged by the day think more of their pay than their business, and very few take enough interest to do more than what they are obliged to, besides gardeners, as a rule, are a very disagreeable class of men; they rarely agree amongst themselves, and would sooner let a whole houseful of plants die than not have their own way. From my experience it takes an ordinary working-gardener about as many months to learn as it ought to take an educated man weeks. The whole business is one of observation and good judgment and having the work done at the proper time. A good doctor would probably make a good gardener, but a man who looks at a plant and begins to talk about his *bon Dieu* and the defective build of his houses may succeed in growing one or two plants, but will fail as a general manager or a nurseryman. It is to this want of talent for the growth of plants in winter we have hitherto found their scarcity. A better system is coming to us from the educated Horticulturists of Boston, who now sell flowers under our noses. I therefore recommend persons to follow up the Boston system of winter culture, and, from my own experience, there are no impediments in Canada which the enterprise of a Boston man could not over-

come: we have capitalists and men of taste in Canada, but we have much to learn about gardening. In Montreal, Boston flowers, grown by merchants, are sold in large quantities; why should the Montreal merchants allow this? Surely a well-managed conservatory or garden is as creditable as a well-conducted office and, in bad times, quite as profitable.

With respect to hucksters, they are a very unsatisfactory set of people to deal with. We give them credit for one month, and, if they do not pay up, they get nothing more except for cash. It is better, however, to sell to fashionable grocers, who keep large establishments, and who have clerks and proper financial assistance to keep the accounts correct. A first-class huckster in New York and Boston, or a fashionable grocer in Canada, is a gentlemanly person to know. In dealing with this class of men, all the produce is sold to firms equal to the ordinary mercantile establishments of the country; they make money and they fail, but they do not cheat, and they are pleasant persons to correspond with, and traders who appreciate a good article.

The accounts of my farm are kept by my family, so we always know what is going on; besides it furnishes a good training for ladies, who may have to manage homes of their own, and who ought always to have some useful occupation.

In conclusion, a glass-house in winter is a necessity in our climate; it keeps up our connection with the living vegetable world, and, if the establishment is conducted on strict commercial principles, it is aiming in the right direction, viz., that of enabling mankind to live a more elevated life and to enjoy (so-called) delicacies in the dead season, which have hitherto been only the privilege of the rich. I, however, recommend a beginner to start on the smallest scale possible, depend upon himself, and only enlarge the buildings when he has learnt the business, and to beware of assistants who have not been brought up to have their work sold, otherwise he will spend money freely, and find out

François from Paris,
John from England,
Paddy from Ireland, and
Andrew from Scotland

had better have remained in their own country, so far as he is concerned.

WM. RHODES.

COLONEL RHODES' FRUIT FARM,
QUEBEC, January 1, 1877.

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REPORT

OF THE

FRUIT GROWERS' ASSOCIATION OF ABBOTTSFORD.

N. COTTON FISK, *President*;CHARLES GIBB, *Corresponding-Secretary*.

The orchards of Abbotsford are upon the westerly, southerly and easterly slopes of Yamaska Mountain, the second trap Mountain east of St. Hilaire, and forty miles east of Montreal. Being somewhat elevated above the level plain that surrounds them, they are exposed to the severest winds of winter. They are, however, exempt from the late and early frosts, and those chilly summer nights, which are found, in low-lying lands, to be so detrimental to the growth of the apple tree, and the proper development of its fruit. Our soil is gravelly and porous. The subsoil also is porous. Much of our best orchard land is rough and stony, and not fit for cultivation.

The first seedling orchard of Abbotsford was planted by a man named Joel Frizzle, the same who built the first cabin on the spot where Montpelier, Vt., now stands. This orchard began to bear at least as much as 65 years ago, *i.e.*, in 1812, or earlier.

The first grafted trees brought here were three in number, and were brought from the Spalding Nursery on Shefford Mountain by the late Col. O'Dwyer in 1810 or 1812 or thereabouts. A Late Strawberry, a Blue Pearmain and a Flat Graft, the last-named being probably a local name for a fruit which once proved very profitable. The Grafts from the Spalding Nursery came from New England.

Grafting was commenced about 1823 by the late Samuel Jackman, who came here in 1819. Budding began to be practised in August, 1846, the art of budding being learnt from an illustrated article in the People's Magazine of July 1st, 1846, published in Montreal.

The Fameuse, Pomme Grise and Bourassa were imported from Montreal by the late Rev. Joseph Abbott, in 1826 or 1827.

The first regular commercial nursery was established in 1857 by Mr. N. Cotton Fisk. Since then both nurseries and orchards have been rapidly increasing. We now number at least 17,000 trees in the orchards on our mountain slopes.

The following eight (8) varieties have proved the most valuable with us :

1. **THE FAMEUSE** is our leading apple, both for profit and for home use. Its weak point is a tendency to spot; caused, we believe, by cold, wet and windy weather in June.

2. **THE DUCHESS OF OLDENBURG** well claims the next place; for its beauty, its hardiness, and its early and never-failing productiveness, both for market and kitchen, it is highly prized.

3. **ALEXANDER** yields well, sells well, and bears transportation to fairly distant markets.

4. **THE LATE STRAWBERRY** dies young. It bears, however, so young, so heavily and so regularly, that it is greatly valued both for market and home use.

5. **THE ST. LAWRENCE** for many fine qualities is highly esteemed for home use. Until last winter it was thought to be nearly if not as hardy as the Fameuse; but in 1875 the St. Lawrence grew late; in the fall it held its leaves, and seemed unprepared for winter; cutting winds from the N. and W. ensued, these were keenly felt, and resulted in a winter-killing, followed by symptoms of blight. Many trees had to be severely amputated; many, which had been planted some 15 years, died. Young trees, and trees in the nursery, did not suffer.

6. **THE RED ASTRACHAN** is a valuable tree, yielding a valuable, high-priced fruit. It is sometimes deficient in vigor and sometimes in its yield; still we must have it, but, in the main, for home use.

7 and 8. **WHITE WINTER CALVILLE** AND **CANADA BALDWIN** are fully described in the report "On Seedling and other Apples."

Having stated what has done best, we come to the next important question—What shall we experiment upon to fill up the blanks in our fruit lists? We are now careful to test only such trees as promise some special point of merit. These are numerous. Fourteen of them, at least, are valuable or promising in the north-west. We will enumerate the most promising of these in the order in which they ripen.

1. **TETOFSKY**,—extra early, extremely hardy, fruit good for home use.

2. **PEACH (OF MONTREAL)**,—a late summer fruit, at once hardy and a good bearer, fit for a near market or home use.

3. **WEALTHY** ity. It is a prove of the

4. **PEWAWAU** promise that bearer of lar

5. **BEN D.** young, and i sin friends le In yield, col tree of South develop its fl

6. **WALBRIDGE** planted, for tree.

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3. **WEALTHY**,—a handsome, mid-winter fruit, of excellent quality. It is scarcely less hardy than *Duchess*, and may, therefore, prove of the utmost value to this country.

4. **PEWAUKEE** is fairly hardy when young. Wisconsin accounts promise that it will be equally hardy when old. It is a large bearer of large red apples of good quality, which keep till April.

5. **BEN DAVIS** is more promising than the last-named when young, and is doing well in *Huntingdon County*, yet our Wisconsin friends lead us to expect less of it as a lasting orchard tree. In yield, color, and keeping qualities it is admirable; but it is a tree of Southern origin, and so has not time in our short season to develop its flavor.

6. **WALBRIDGE**, for yield, hardiness and general profitableness, is planted, for a late keeper, in the north-west, more than any other tree.

The six varieties above were described fully in the *Montreal Fruit Report* for last year, and we hope they will be experimented with.

CRABS.

Our best crabs, in order of preference, are the **TRANSCENDENT**, the **MONTREAL WAXEN** and the **MONTREAL BEAUTY**.

Of the *Hyslop* we regret having had no experience. In beauty, the main thing wanted in the market for a crab apple, these should satisfy us.

There is, however, a large portion of the Province of Quebec where crabs can be grown and apples cannot. This is far larger in extent than the areas where apples grow well. These tracts are inhabited mostly by people too poor to buy apples, and who must do without them, unless they grow them themselves. It is then most important to have crabs or hybrids of all seasons and of varied flavor; crabs free from astringency (while retaining the thin skin and brisk sprightliness of the Siberian family); crabs for table as well as for kitchen use. We cannot yet name a list of such trees, so much wanted. We would urge a trial of the *Early Strawberry* and the *Orange Crabs* of *Minnesota*, which are described in last year's *Fruit Report*, as bearing edible fruit, and being hardy trees. We are ourselves, however, experimenting on

twenty-six new varieties chiefly from Minnesota and Wisconsin. Nineteen of these have been four years under trial. Some of them have been planted on our roadsides for the benefit of the passer-by. Part of them (like the Early Strawberry) ripen with the very earliest apples. Others keep till Spring.

We hope, therefore, before long to be able to give some positive information.

PEARS.

About pears we have little definite information to give. *Eighteen* varieties have been on trial in orchard for four years. Many have failed; yet CLAPP'S FAVORITE, FLEMISH BEAUTY, and perhaps NAPOLEON, standing so exposed as to be in full view of the spires of fifteen villages, seem at least as hardy as our average apple. But we grow them slowly, and they are, therefore, fully matured when winter comes.

PLUMS.

Once upon a time, red, white and blue plums of fair quality, grown from suckers, bore bountiful crops without culture or care. Within the last twenty years, however, plums have been so uncertain in bearing, and, when they did bear, the fruit has been so often spoiled by the curculio, or destroyed by a fungus, that the plum tree begins to be generally looked upon as a failure. On the plains, however, at the foot of our mountain, the crop gives fair satisfaction. Our exposure, too, is too bleak for the young trees of the LOMBARD, and for other varieties, (about fifteen in number) which we have tried, whose birth or descent is foreign. Even the hardy North-westerns, the WINNEBAGO and MINER have suffered severely, though the slower growth of riper years would, with this wild type of tree, prove, in all probability, more hardy.

Our best native plums must be looked up, as it is from these, and their crosses with the finer and more tender foreign sorts, that we must expect the plums of the future.

This field of experiment we must leave to others; for the slopes of Yamaska mountain cannot, on the whole, be looked upon as a home for the plum.

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CHERRIES.

The **LATE KENTISH**, or what appear to be seedlings of it, are the only varieties really tested here. They have proved hardy, and bear good crops nearly every other year.

GRAPES.

SWEET WATER has been grown for many years among us. It suffers indeed from thrip, but it does not mildew much, and bears well, when proper attention is paid to it. **CONCORD** has been grown successfully, but only where it is well sheltered. We have also several of the best kinds under trial, but our gardens need more complete shelter to do them justice.

CURRANTS AND GOOSEBERRIES.

Currants do well here as elsewhere. Of gooseberries, the only kind we can recommend is the **HOUGHTON**, which, for yield, hardiness, quality, and freedom from mildew, excels all others in value, and, though its fruit be small, it should be grown everywhere.

Both the "currant worm" and the "currant measuring worm" are very troublesome, and require persevering applications of hellebore.

The late **J. H. Springle**, of Montreal, has found it effectual to plant Southernwood or "Old-man," between the currant bushes. Its odor is so offensive to the moths that they deposit no eggs on bushes adjacent to it. We would like to hear of this being more generally tried.

RASPBERRIES.

It is strange that the **BLACK CAP RASPBERRY** has been so generally overlooked. The plants are hardy, and thoroughly adapted to our northern climate. The yield from this raspberry is simply immense, being three times that of any red berry we know of, except the Philadelphia. It has the great recommendation of being exposed to no very troublesome insect pests. In home use,

they are valuable for the table, and as being the richest small fruit we have for canning. Market men may well have their attention attracted by the yield of this fruit, its good shipping qualities, and the high price fetched by the few that have been sent to Montreal.

The DAVIDSON, THORNLESS, DOOLITTLE, and MAMMOTH CLUSTER, all of them varieties of the Black Cap, have been thoroughly tested here, and we must heartily recommend them. We have named them in the order of their ripening. The Mammoth Cluster is the least hardy, yet, perhaps, the one most prized by us. As a fruit for a careless cultivator the Black Caps have positively no equal. Even the Houghton Gooseberry, which rivals them in this respect, needs careful attention when the worm appears. The Black Cap is a blessing to all the Northern and Middle States, where it is grown largely as a fruit for the million. How negligent we are of the advantage of cultivating it may be judged from the fact that there are no plants of it for sale in this Province.

As to the RED RASPBERRY, our experiments have been with the better kinds of American origin, but have been attended with little success. HERSTINE has proved tender; Brandywine, unproductive; and PHILADELPHIA, on our dry gravelly soil, lacked strength to mature its immense crops, and others proved equally unsuccessful. Our best is a large berry of the Antwerp type, name unknown. This has given thorough satisfaction. Next to it we would name the "CLARK."

Of WHITE RASPBERRIES, BRINCKLE'S ORANGE has, on our dry gravelly soil, proved perfectly hardy, and its fruit is unsurpassed. ORANGE KING, a seedling grown by Charles Arnold, of Paris, Ont., is even superior to Brinckle's Orange in flavor, and is more prolific, but it is too soft, even for home use, unless picked stalks and all. Brinckle's Orange is quite hardy with us, and we altogether prefer it. GOLDEN THORNLESS tips like a Black Cap. It is much inferior to it, whether cooked or raw, but it is hardy and exceedingly productive, and carries to market like a currant, and, therefore, claims the attention of market-men.

BLACKBERRIES.

Our KITTATINNY, DORCHESTER, LAWTON, and EARLY WILSON, as well as our CLARET, CRYSTAL WHITE, and some others, we have

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ploughed out, as failures. They grow too late, and get constantly winter-killed, even when covered with snow drifts. SABLE QUEEN, WESTERN TRIUMPH, and some others, are proving decidedly hardier, but we cannot yet say much about them.

STRAWBERRIES.

The WILSON is grown more than any other, and so far, with the best results.

CRANBERRIES.

We believe this fruit to be second only to the apple in regard to the importance of cultivating it in this country. A large part of our population, settled upon our sandy and mucky plains, a people, who in dietetics are, if we may so speak, "like sailors at sea without their lime juice," the vegetable acid so needed must come largely from the cranberry and the crab. As to the success of our own experimental patches, we will report when they come into bearing.

CONCLUSION.

In conclusion, we would point out to other fruit-growing districts the advantage of *local societies* like our own. We find that we can accomplish, as an association, what we could never do by individual effort. To experiment, men must associate, and each must faithfully do his share, the advantage of the results accruing, *entire*, to all.

Our Horticultural Library is small, but teaches us the habits of noxious insects, and how to destroy them, and gives us the full profits of the costly experience of others, that of our enterprising fruit cultivators in the North Western States being especially valuable. The reports of the Horticultural Societies of these States were sent in the spirit of true horticultural friendship, but nominally, they came in exchange for a report published by us two years ago, and entitled "A FRUIT LIST FOR THE PROVINCE OF QUEBEC." This was the *first* fruit list published in this Province. It was based upon the replies to 290 circulars, containing a series

of questions issued by us, and showed what fruits were doing best in each portion of the province.

Our First Horticultural Exhibition was held in September, 1876. The prizes were not large, but the general success exceeded our most sanguine expectations. There were no less than one hundred and eighty-nine plates of apples on our table, a number which often exceeds our city exhibit. But its use we gage by the keen spirit of emulation, which it has introduced. Would that there was in Quebec a society, provincial in usefulness, if not in charter, which could offer prizes to county or local collections, and thereby bring their producers into healthy competition.

Let then our fruit-growers organize associations, let them reap the benefits themselves, and scatter these benefits abroad, for it is only by such a course of action, that we can have, in this severe climate, fruit, good and cheap, and within the reach of all.

FRUIT—NOTES FROM CHATEAUGUAY COUNTY, BY ROBERT JACK,
CHATEAUGUAY BASIN.

Almost in sight of where I write is an old orchard which was planted by Le Père Bruyère, then curé of this parish, more than eighty years ago, the fruit of which was exhibited upon the tables of the Horticultural Society last fall, by its present proprietor, Mr. Wright, and has through all this period been a source of profit to the owners. In this orchard were two trees of Fameuse which were aged trees when I first saw them, more than forty years ago; the rest being seedlings of fine size and quality. No doubt, if the records of the time could be found, much information might be obtained regarding it. As there were few market facilities, the fruit was made into cider, and disposed of in that form at the press,—steam and ferry boats being unknown, and no demand for apples in those days.

It is only within the last twenty years that the cultivation of fruit for market purposes has made any progress, but it is apparently acquiring impetus, as numerous orchards have been planted during the past few years, and preparations are going on for a more extended fruit planting during the coming season. At present I should estimate the quantity of apples shipped from Chateaugay Basin, annually, as 2,500 barrels, which are chiefly

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sold in Montreal. And here I may state that a prejudice in favor of the Fameuse grown on the Island of Montreal, with which we had to contend in past years, is fast dying out, and the quality of the fruit from the south shore is justly appreciated. One great drawback to the profit of fruit culture in this locality is the high rate of freight, nearly a cent a mile being charged by the Steamboat company, from this port, for every barrel shipped. Much of this county is suited for fruit culture, but probably the best section is the extreme eastern, situated on Lake St. Louis, where the soil is a gravelly loam underlaid by limestone. Here the apple is apparently indigenous to the soil, as good wildlings abound everywhere, and native grapes festoon the trees on all the roadsides.

The varieties I have found most profitable for cultivation are in the order named: Fameuse, Golden Ball, Alexander, St. Lawrence and Red Astrachan. The St. Lawrence, although fourth with me, ranks second in some parts of the county. Several sorts of early apples, among which are Peach and Astrachan, with various crab-apples, prove remunerative with careful marketing. Of thirty sorts planted in my orchard, I only count the half dozen above mentioned as a good paying investment. In regard to cultivation, the orchard is kept in grass, and receives a sprinkling of plaster before the snow melts in early spring. In June and August, the mowing machine is run over the ground, and the grass allowed to remain a mulch for the trees. To this method I attribute the superior size and quality of the fruit during the past dry season. Just before the season of blooming it is my custom to wash the trunk and branches of each tree with a preparation of soft soap and sulphur, with sufficient lime to make it adhere. This is done to destroy the larva of insects. The tent caterpillar, which threatened to become troublesome, has been kept in check by a searching for the eggs in winter, when they are easily seen on the terminal shoots and taken off.

It is to be hoped that the labors of the Horticultural Society will be successful in introducing to this community improved sorts of cherry and plum, suitable to the climate, as these have not been grown in this country with any satisfaction. Several kinds of grapes are cultivated, and more attention has lately been paid to this fruit. The Concord, which yields and ripens well, is the only paying grape we find, and best withstood the severity of the winter of 1875-76, when all tender varieties were killed in

this neighborhood. Nearly all the lesser fruits are, to some extent, cultivated in this section. My own experiments in strawberries, currants and gooseberries having been fairly profitable, I may at some future time lay them before your readers.

M. B. SOUTHWICK'S REPORT.

MONT ST. HILAIRE, Dec. 11, 1876.

HENRY S. EVANS, Esq., Montreal.

DEAR SIR,—In reply to yours of 2nd inst., in reference to the extent of orchards in this Parish: I think there are about 20,000 apple trees in bearing, more or less, within the parish of St. Hilaire, and situated principally at the south, south-west and west sides of the mountain and near or at its base. There are some orchards at the north and east side also. The greatest part of the grafted trees are Fameuse, which are preferred to all others for yield and profit.

When I came here in 1822, there were several orchards in bearing then but a few years; also a few of longer standing, but only natural fruit. Of the first mentioned orchards, one only was grafted fruit, principally Fameuse, but the following varieties were interspersed with them, viz., Bourassa, Pomme Grise, Calville Blanche d'Été, Râle, and some others, all good fruit, but not as profitable as Fameuse; very few are now raised. The first orchard of grafted fruit was established here by a Mr. Finlay of Lachine. At the present time only a small part of the seedling orchards remain, and no one thinks of planting other than grafted fruit trees, mostly Fameuse. Some choice seedlings, and some choice grafted and known to be hardy foreign apples, are being introduced the few years past. Plums and cherries are raised for family use by few people only. Our soil is gravelly with sandy loam and sandy, and as we ascend the mountain the land becomes stony and rocky, but, when well cultivated, is fertile.

I am, yours respectfully,

M. B. SOUTHWICK.

MR. EVANS,
Secretary

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DAVID WESTOVER'S REPORT.

FRELIGHSBURG, 9th Dec., 1876.

MR. EVANS,

Secretary-Treasurer.

DEAR SIR,—In order to comply with your request I have taken a careful look at trees in my own orchard and some of my neighbors. I find that a south-westerly aspect is preferred, being almost free from sun-scald. Eastern and south-eastern slopes are more or less troubled with cracking of the bark or sun-scald, which is attributed to the effects of warm days in March and April. The best soils, in fact nearly the only soils adapted to apple culture here, are: 1st, stony loams; 2nd, light gravels; 3rd, limestone ledges. Upon any of these soils, well drained, trees will thrive with very ordinary cultivation, although if one really wishes to succeed in growing an orchard, even on the smallest scale, there are two points which I consider of paramount and vital importance, viz., thorough under-drainage and cultivation.

The oldest orchards here were seedlings, but very few of these are now in bearing condition. The earliest grafted trees were brought here more chiefly from Rochester, N.Y. The only varieties of these, that have lived to bear, worth mentioning, are the Golden Russett and Talman Sweet.

About twenty-five years ago my father disposed of a small nursery of his own growing, the varieties in which were Fameuse, St. Lawrence, Russett, Blue Pearmain, Baldwin, Talman Sweet, Rhode Island Greening, Spitzenberg, Maiden's Blush, Red Astrachan, Pomme Grise, Northern Sweet, Summer Strawberry and the Siberian Crab. His orchards have received more attention than most in this vicinity, and he considers it quite as paying as any other part of his farm. His aspects are east and south-east, and many of his trees are badly affected with the sun-scald. My own orchard of about three hundred trees, planted nine years ago, on a west and north-western aspect, is almost free of this.

With plums, cherries and grapes I have had but little experience. In a small nursery I have the Lombard, Peach, and McLoughlin plums, the Early Richmond and May Duke cherries, but they have not borne yet, excepting the Lombard and Peach plum. I am very doubtful of their being sufficiently hardy.

In my garden I have the Clinton, Concord, Iona and Adirondac grapes. The three first have borne and ripened with me. The Adirondac I find a slow grower, and tender; my first vines died, though slightly covered as well as the others. In currants, the Cherry, White Dutch, Black Naples, or Ogden, make a good selection. On another sheet I have made a few selections, such as my experience would commend.

Believe me, yours very truly,

DAVID WESTOVER.

Best five varieties for profit or general orchard planting: Fameuse, St. Lawrence, Red Astrachan, Golden Russett, Talman Sweet. The Duchess of Oldenburg and Tetofsky are quite promising though less tested. Next best are: Blue Pearmain, Alexander and Northern Spy. The Pomme Grise, Bourassa, Baldwin and Northern Sweet succeed only under very favored conditions; while Early Harvest, Maiden's Blush, Spitzenberg and King of Tompkins County are too tender.

Best plum, Lombard; best cherry, May Duke; grapes, Clinton and Concord; currants, Cherry, White Dutch and Black Naples.

REV. W. M. SEABORN'S REPORT.

RAWDON, Dec. 12, 1876.

DEAR MR. EVANS,

You can use what may seem of interest to your Committee, and reject the irrelevant.

I planted the following apple and crab trees in 1870:

The Duchess of Oldenburg, dwarf, Peach-apple, Alexander, White and Red Astrachan, the Red and Yellow Siberian, Montreal Waxen and Beauty, and Elliott's Beautiful, with the following results: The Duchess came into bearing in a year or two, and has borne well ever since, and every year shows, not only from this first planting but also from younger trees since planted, that this is the best apple for this latitude. The Peach-apple has done well, and is still flourishing, but has borne but little; and my experience with plants, in a more exposed situation, shows it is not as hardy as the Duchess, although there is a tree of it in the Township of some twenty years' growth, planted by one Mr. Burbridge, which is still thrifty; but it is well sheltered, especially

from the south. The tricot planted sustaining a from it. The two and then ter, and the better.

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In 1873 I t sky, Urquhart Russett, Plum Of Tetofsky I failed, although I have since gave me no pr the following Beauty, Hyslo der than the o prove the best not, is one of t the fruit is so half a dozen tr last year a pl years since.

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from the south-west. This is the only grafted tree in this district planted previous to 1870. My Alexander is still living, just sustaining a stunted existence. I have had but one or two apples from it. The White Astrachan struggled through a winter or two and then yielded. The Reds were frozen down the first winter, and the many plants I have tried of the same have been no better.

Our great dependence, therefore, is the crab. My Red Siberian, small, is inferior; the yellow, large, grows splendidly and bears prodigiously, and the fruit good for jam and jelly. The Waxen grows well and bears very freely. The Montreal Beauty was younger, and, being slow of growth, has taken more time to come up to bearing, but of late has done well, and shown itself, in all plants, hardier than the Waxen, freer from sun-scald, proving that it is one of the best for the climate, especially as it grows upright and stiff, thus being less liable to be broken down by snow drifts. Elliott's Beautiful is too tender.

In 1873 I tried the following: Pinnacle, Sops of Wine, Tetofsky, Urquhart's Best, Ben Davis, Bailey's Sweet, Bourassa, English Russett, Plumb's Cider, Walbridge, St. Lawrence, Fameuse, etc. Of Tetofsky I can speak with no certainty, but the others all failed, although Plumb's Cider was the hardiest, except Tetofsky. I have since tried Tetofsky again, but under circumstances that gave me no proper chance to judge. Since that time I have tried the following crabs: Gibb's Winter, Stickney Sweet, Golden Beauty, Hyslop, Transcendent, etc. The last is rather more tender than the others, but the rest are perfectly hardy and may yet prove the best for this part. The Transcendent, however, I doubt not, is one of the best, if not the best of all, if slightly sheltered, the fruit is so beautiful and the tree so vigorous in growth, some half a dozen trees on the farm of Mr. James Melrose yielding this last year a plentiful crop, although only planted two or three years since.

I find in cultivating apples in this latitude the following must be borne in mind: 1st. The trees when young are tenderer than when old, the bark being less able to endure the sudden and extreme changes, and especially the first winter after transplanting, the roots have not sufficient hold of the ground to enable them to resist the extreme cold. They, therefore, require protection. 2nd. That trees suffer more from the sudden changes from heat to cold, or cold to heat, than from the cold only,

and thus they need the shelter from the sun more than from cold; and accordingly a south-east or south-west shelter is the best. 3rd. Care must be taken not to plant them where there will be deep snow drifts, which will break off the branches, and perhaps crush down the trees, or the trees must be pruned high. 4th. The greatest care should be taken in the nursery not to prune at all, but rub off the buds so as to leave no large wounds by pruning.

I conclude that the Duchess, Peach-apple and, perhaps, the Tetofsky, with nearly all the crabs, will do well in even this high latitude if cared and sheltered, especially when young. I wish we could obtain crosses between Duchess and a hardy winter apple, say Gibb's Winter or Hyslop.

Yours,
W. M. SEABORN.

SYDNEY FISHER'S REPORT.

ALVA FARM,
KNOWLTON, P.Q., Dec., 1876.

HENRY EVANS, ESQ.

DEAR SIR,—In answer to your letter informing me of the intended publication of the Report of the Montreal Horticultural Society, and expressing a desire for some information on the state and results of the fruit growing in the neighboring counties, I have much pleasure in saying that I shall be very glad if anything I have been able to collect will be of service to you, though I confess it seems rather useless to send in such a meagre report as mine must be, since there is really very little fruit growing in this County.

I must merely premise that what I send you is not the result of my own experience or even observation, but information obtained from those whom I know to be the best fruit growers in my neighborhood; I wish, therefore, here to make acknowledgments, especially to Mr. H. J. Foster and Messrs. Ed. Hunt, Thos. Wheeler and C. C. Shufelt, among others who have afforded me great assistance and information.

To commence with the early fruit culture of the neighborhood, we find that the first settlers generally planted out orchards which grew well and bore fairly; but what the varieties were, or whether grafted fruit even, it is now impossible to find out. Of these, how-

ever, there are of some importance.

The winter crabs, a few years after their introduction, and

For some years ago I have heartened that the trees which are poor crabs which are a success on the part of the ment to their

However, about the time they began to set out the information the wealthier part of the stock sorts

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From what I know there is no fruit which have orchards in relations with the satisfaction of the miles away, putting into the ought not only to produce every year which are recorded afterwards refer of mention.

ever, there are so very few remaining that it is not of very much importance.

The winter of 1855-56 killed out nearly all these trees, and a few years after (1862-63) another fatal winter completed the destruction, and left us with scarcely any fruit trees at all.

For some years succeeding, the farmers were so thoroughly disheartened that they had not energy enough to set out new orchards, while those few who had, bought from the travelling pedlars trees which either did not grow at all, or turned out to be only poor crabs when they had come to bearing; and the want of success on the part of the more enterprising was no great encouragement to their neighbors.

However, about twelve years ago some of the local nurserymen began to set out really good trees, and these are those about which the information has been given, while at the same time some of the wealthier people sent to well-known nurseries and introduced the stock sorts which are everywhere tried.

As yet, however, there are only some two or three orchards of over a hundred trees in the County of Brome, and very few of fifty bearing trees. Still every year more young trees are set out, and better care taken, both in the original choice of the variety and condition of the tree and of the situation, soil and preparation of the orchard, and in the after-care of both tree and soil, so that very soon there will be a good many nice young orchards of from fifty to a hundred trees in the County; trees, too, nearly all of which have been raised within easy driving distance of where they stand, whose roots have received no injury to speak of in their transplanting, and whose setters out are responsible and well known to the owners.

From what has been said it is scarcely necessary to add that there is no fruit sold to any extent; in fact very few of those who have orchards are able to supply their neighbors, friends and relations with what they use, so that we still have the unenviable satisfaction of eating fruit raised from one hundred to one thousand miles away, paying freight and commission thereon, as well as putting into the pockets of northern and western farmers what ought not only to remain in our own, but there to increase and produce every year its ten-fold or hundred-fold. Of those varieties which are recommended, let us first take the well-known ones, and afterwards refer to the several seedlings which are deserving of mention.

Almost universally the Red Astrachan and Duchess of Oldenburg have been found successful, and are very much thought of; ripening well in August, bearing well, and growing a thrifty, sound tree.

The St. Lawrence, Fameuse and Winter Strawberry, known here as Lawrence, are praised to a like extent, and considered in every way to have borne satisfactory tests.

The Pomme Grise has done fairly, but does not bear well.

The Golden Russett has, so far, succeeded well, but there are no specimens that have borne for any length of time.

The Rhode Island Greening failed entirely, through not being able to stand the climate.

The French Reinette has not done well, and the fruit does not keep well.

The Emperor Alexander has been successful so far, but not long in bearing. So far, productive and hardy, though requiring shelter from winds to prevent fruit and branches being broken off.

The Hardy apple, highly commended as perfectly hardy, thrifty and great bearer. Apple: a medium sized, pale yellow, smooth, sound and splendid keeping fruit; not first quality for eating, but a very good cooking apple.

Another, the Irish Peach, so called, a fall apple, pleasant eating, but not a good keeper, yellowish-green fruit. This came from Derby Line in Vermont, said to be a native there. A seedling tree in the garden of Mr. J. England of Knowlton bears exactly the same fruit and a little earlier. Mr. Hunt has set out grafts from this latter England tree. This brings us to the seedling trees, grafts from which have been very successful.

The *Corey* apple tree is in the Township of Dunham, now quite an old tree. It is a large smooth apple, partly red and partly greenish in color, very nice eating, of a pleasant acid flavor, and keeps well through early winter. The tree is hardy, a good grower, and bears well. The grafts are bearing in various orchards round the neighborhood, as may also be said of the two following sorts.

The *Blunt* apple tree is in Bolton Township. Its grafts are hardy trees and good bearers, while the fruit is pleasant eating, keeping well through the winter and spring till June. It is very large, up to twelve or thirteen inches circumference, red striped and somewhat ribbed.

The *Tibbetts* Greening tree is in Brome Township. Its grafts,

too, are hardy, though only kept

There is a small fruits, with the common blue plums and barely live.

Mr. Foster, grapes, and many others Rogers Hybrid are given the return of fruit them down in better than spring rains. Also they must

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too, are hardy and bear well, while the fruit is pleasant eating though only keeping through the Fall.

There is absolutely nothing to tell in regard to cherries or small fruits, while there are only very few plums grown outside the common Canadian red plum, though Mr. Foster gets a few blue plums and some red damsons occasionally from trees which barely live.

Mr. Foster, too, is the only one who has had any success with grapes, and here only three kinds have been successful though many others have been tried. The Adirondac, Delaware and Rogers Hybrid No. 15 are perfectly to be counted on with proper care given them. They will ripen every year and bear a good return of fruit. However, great care must be taken in laying them down in the winter, covering them with dried leaves (much better than straw or brush), earth and saddle boards to keep the spring rains from washing the other covering away too early. Also they must not be taken off very early in spring.

I remain, Sir,

Yours very truly,

SYDNEY FISHER.

HORTICULTURAL EDUCATION.

By J. W. DAWSON, LL.D.,

PRINCIPAL OF MCGILL UNIVERSITY.

The connection of education with the industrial arts is often much misunderstood, and in nothing more than in the case of agriculture and horticulture. Considered merely as arts, neither of these can be profitably taught in the school. Their manipulations and practical processes must be learned in the field and garden and under the guidance of skilful practical men. But these manipulations and processes do not constitute the whole of the arts of agriculture and of horticulture. On the contrary, these arts are connected with a vast range of scientific facts and principles relating to the constitution of plants, the composition of soils and manures and the diseases and enemies of crops. These facts and principles bearing on farming and gardening may be taught in ordinary schools; and it is only by learning them that the farmer or gardener can have an intelligent comprehension of the nature of the processes he follows or of the probable effects of experiments he may wish to try, and can profit by the teaching

of books, and bring to bear on his art the experience of workers in other countries. Such preliminary education indeed furnishes the only means to promote improvement, to elevate the arts of life from mere mechanical drudgery to the rank of important professions, and to give intelligence and mental energy to those who conduct such arts. Thus while it is true that mere school education cannot teach how to cultivate the soil without practice, it is equally true that without training in scientific principles the art of cultivating the soil cannot attain to its full perfection or productiveness.

No arts have in our time derived greater benefits from science than those of the farmer and gardener. The chemical composition of plants and their minute structures have been studied by the chemist and microscopist. All the conditions of their growth and the sources of their food have been investigated. Soils have been analyzed, and the causes of their fertility or barrenness have been ascertained, as well as the reasons why they become run out, and the best means of restoring their fertility. The nature, advantages and best modifications of the rotation of crops have been worked out. All the enemies and parasites, whether vegetable or animal, of our cultivated crops have been studied with reference to the best means of avoiding or destroying them. The young farmer or gardener who has been thoroughly instructed in these results of science is prepared to avail himself of all the newest and best improvements in his art, and to overcome its most dangerous enemies and hindrances. In addition to this, he has received a large amount of general culture, fitting him to think intelligently on all subjects, and causing him to take a higher interest in his profession.

No practical folly can be greater on the part of any people than to allow the future cultivators of the soil to grow up without education, and without some appreciation of the modes in which education may be applied to the production of food from the earth. The communication of such instruction is not so difficult as may be supposed. Good and cheap text-books exist. There are teachers who have been trained at our normal schools in vegetable physiology, chemistry and scientific agriculture. The senior pupils in any good school should be prepared to master all that is required. It is not necessary that the teacher shall be a practical farmer or gardener, any more than that a teacher of writing or arithmetic should be a practical merchant or banker. The scientific princi

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ples stand on their own foundation, and can be taught independently; though, of course, additional interest can be given to them by a teacher who understands the art as well. Let a competent teacher be engaged, and furnished with a little cheap apparatus and a few text-books, and given to understand that some credit at least will accrue from success, and a class may be established which may give a great and permanent stimulus to the culture of the soil and to rural wealth and progress throughout a whole district.

This subject is one which merits the attention of those who superintend the education of this country. It would be a profitable enterprise to send a competent lecturer on agricultural chemistry to teach classes in the different districts; or to give aid in apparatus and books to competent teachers, and money rewards to those who could send up pupils to pass examinations in the subject. In this way our young people might be trained to improve and beautify our country, and a new era would speedily dawn on the practice of the greatest and noblest of all the arts, on which ultimately all depend for subsistence.

I do not know that I can say anything better in furtherance of this great object than what I have already said in the introduction to my little book—"First Lessons in Scientific Agriculture,"* and from this I shall therefore take the liberty to quote a few sentences.

"In our own country there can be no question that much has to be learned on this subject. The history of many, if not of most Canadian farms, is that of deterioration by exhaustive cropping—a process which, if not checked by agricultural improvement, leads to failure of crops, to poverty, to discontent, and to emigration of the farming population to other countries. Every one feels that to effect a change in this, the mind of the farmer must be reached in order that his practice may be improved. But that this may be effectually done, the rudiments of agricultural science must be taught to youth; and the question for the educator is—How, and to what extent, can this be done?

"We must in this carefully avoid encouraging delusive hopes, or professing to do that which we cannot satisfactorily accomplish. We cannot, in the ordinary schools, train practical chemists or practical farmers. Practical chemistry is a profession to be studied by itself, and requires a long and careful apprenticeship for its successful pursuit. The practical labor of the farmer can be learned only on a farm. The teacher must propose to himself the more humble task of instilling into the minds of the young the

* Lovell's Series of School Books.

rudiments of the science of farming, and thereby preparing them better to understand its practical processes.—Let us inquire what he may do in this way :

“ 1. He may teach of the *Soil* ; of its derivation from the rocks of the earth ; of its wonderful and complex composition ; of its action on manures, in retaining them within it, and parting with them to the roots of plants of the causes of its fertility and barrenness ; of its impoverishment by cropping ; of its improvement by tillage, by draining, and by the application of various substances to it. He may enter into the reasons of all these, and their bearing on the practical work of the farmer, on his successes and on his failures ; and may show how the latter might often be avoided by a proper understanding of the causes which lead to them.

“ 2. He may teach of the *Plant* ; of the elements of which it is composed ; of the sources, in the earth, the air, and manures, whence these are derived ; of the kinds and proportions of food required by different plants, and the best means of supplying them ; of the wonderful structure of the vegetable fabric, and the manner in which it forms, from the materials on which it subsists, the various products which it affords. On these subjects the discoveries of chemistry and physiology enable us to speak with much confidence as to the requirements of each crop, and its relations to the soil, to the air, and to manures, as to the uses of rotation of crops, and of special manures, and as to the causes of deficient produce, with many other important points, which, but for such knowledge, would be involved in doubt and darkness.

“ 3. He may teach of *Manures* ; a subject hardly less interesting than the previous topics, and quite as useful. Here we have to consider the decay of dead vegetable and animal matter, and its resolution into food for plants ; the losses to which the richer organic manures are liable ; the nature and uses of mineral manures, with their various effects, whether directly as food for plants, or indirectly through the chemical changes which they induce in the soil. No subject has in our day more engaged the attention of chemists, and in none have more important discoveries been made.

“ 4. He may teach of the several *Cultivated Crops* in detail, noticing their history, their modes of culture, their preferences in relation to soil, treatment, and manure ; their produce—its uses to man and animals—and their enemies and diseases. He may, in like manner, proceed to apply the principles learned under these heads to the various modes of tillage, manuring and rotation, and to the treatment and feeding of domestic animals. In this more practical department, the amount of instruction need be limited only by the knowledge of the teacher and the time at his command.

“ All these topics lie at the very threshold of agricultural knowledge and practice. They may be pursued to any extent, and the highest culture and mental powers may be applied to them ; but their elements may be learned by young persons at school, and a foundation may be laid on which they may build the highest and most successful prosecution of the most useful of all arts.

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"The advantages of such a course to the young mind are many and great. It leads to the consideration of all these processes by which the great Husbandman above produces out of the earth food for every living thing, as well as to those humble imitations of them by which man seeks to effect similar results on a smaller scale. In this point of view, as a means of enlarging the mind, and enabling it to reason on natural causes, the subject well deserves the study even of those who have no direct connection with practical farming. It is, in short, an important branch of learning in natural science.

"Such a course will, further, enable the young farmer to read with advantage the best works on his art, and to judge for himself as to the application of their statements to any particular case. Book farming is little respected by many good farmers, and, to some extent, deservedly so. Few agricultural books, and still fewer articles in agricultural periodicals, are really reliable. They too often state facts or experiments without appreciation of the conditions on which success or failure depended. They thus give, as truths generally applicable, special facts which are of limited value or perhaps apply to exceptional cases only. They in this way mislead the simple practical man who trusts to them. Even good agricultural works require a certain amount of knowledge in those who read them. The plainest statements may be misapprehended by a reader not acquainted with the precise meaning of the terms in which they are expressed. The most carefully guarded explanations may be misunderstood and misapplied by similarly unlearned readers. It thus happens that for want of scientific precision in those who write or those who read, the book farmer often incurs the loss and disgrace of costly failures, which most unjustly bring scientific farming into disrepute, being caused, not by the errors of science, but simply by the want of it. The intelligent young farmer should have enough of scientific culture to enable him on the one hand to distinguish the half truths so often presented from a complete statement of the facts and principles bearing on any particular case, and on the other to appreciate and understand the best scientific works on his profession.

"The knowledge even of the elements of agricultural education will also be sufficient to enable the farmer to decide as to the application of artificial manures, and to avoid the losses caused by error and fraud in the use or manufacture of such materials. It will enable him to know the composition and properties of the soils with which he has to do, and to avail himself of the services of the practical chemist in their preservation and improvement. It will teach him to appreciate the requirements of the different crops and domesticated animals, the special uses of their varieties, and the diseases to which they are liable. It will give him enlarged views on agriculture as practised in various countries and under different circumstances, as susceptible of a vast variety of methods more or less valuable, and as intimately connected with natural laws. It will thus not only add to the productive value of his labor, but will make him love his art, and realize its true position as no mere mechanical drudgery, but a scientific and even learned profession."

All of the above applies to horticulture as well as to agriculture. In the former art, however, the element of beauty comes in as well as that of utility, and the special requirements of orchard culture and its special enemies would invite attention, as well as points bearing on the more careful and precise methods applicable on the limited scale of the garden, while there are also a few special principles applicable to the culture of exotic plants under glass; but all these might easily be noticed in connection with the more generally required teaching of the science of agriculture.

Lastly, one other special point remains to be noticed in connection with horticulture. It is an art for women as well as men. Our girls should be taught something of the culture of plants, both for use and ornament. On the one hand they should know what is necessary for the culture of all useful culinary vegetables suited to our climate, and, on the other, should have such a knowledge of flowers and ornamental plants as would induce them to take an intelligent interest in these as connected with the beauty of their homes.

METEOROLOGICAL.

RAIN AND SNOW FALL DURING 1876.

C. H. McLEOD, BA., AP., SC., MCGILL COLLEGE OBSERVATORY.

Month.	Inches of rain.	No. of days rain.	Inches of Snow.	No. of days snow.	Inches of rain and snow melted.	No. of days on which rain or snow fell.	No. of days on which rain or snow fell.
Jan.	1.87	7	27.4	16	4.61	3	20
Feb.	1.12	4	27.5	15	3.87	3	16
March	0.74	6	45.6	17	5.30	3	19
April	1.03	10	12.0	7	2.23	4	13
May	3.45	21	0.3	1	3.45	1	21
June	3.21	15	.....	.....	3.21	.....	15
July	4.33	17	.....	.....	4.33	.....	17
Aug.	1.98	9	.....	.....	1.98	.....	9
Sept.	5.51	16	.....	.....	5.51	.....	16
Oct.	2.64	17	1.0	2	2.74	2	17
Nov.	1.76	12	0.7	5	1.83	1	16
Dec. ....	.....	.....	23.6	19	2.50	.....	19

Total rainfall during the year was 27.64 inches.
 Total snowfall during the year was 133.1 inches.
 Total rain and melted snow was 41.59 inches.
 Total number of days on which rain fell, 133.
 Total number of days on which snow fell, 82.
 Total number of days on which rain or snow fell, 198.
 Total number of days on which rain and snow fell, 17.

METEOROLOGICAL ABSTRACT FOR THE YEAR 1876.

MONTHLY RESULTS DERIVED FROM TRI-HOURLY OBSERVATIONS TAKEN AT MCGILL COLLEGE OBSERVATORY.—
HEIGHT ABOVE SEA LEVEL 187 FEET.

Month.	THERMOMETER.			BAROMETER.			† Mean pres- sure of vapor.	‡ Mean relative humidi- ty.	WIND.		Sky clouded per cent.	Rain and snow melted.	Month.
	Mean.	Max.	Min.	Range.	Mean.	\$ Max.			\$ Min.	Range.				General Direction.	Mean velo- city in mis per hour.
Jan.....	17.73	54.0	6.5	60.5	30.0186	30.763	29.144	1.619	78.4	W	14.5	4.61	Jan.
Feb.....	14.58	41.2	-16.4	56.6	30.0062	30.989	28.766	2.223	77.5	W	15.6	3.87	Feb.
March.....	24.56	52.0	3.5	56.6	29.9611	30.468	29.190	1.278	76.9	W	15.5	5.30	March
April.....	38.41	56.2	17.0	38.2	29.9207	30.888	29.343	1.045	68.0	W N W	10.6	2.23	April
May.....	50.79	80.5	30.8	49.7	29.9755	30.488	29.562	0.876	69.8	W N W	10.2	3.48	May
June.....	67.29	86.0	48.0	37.0	29.9002	30.199	29.458	0.741	72.8	S S W	10.1	3.21	June
July.....	70.71	87.6	49.9	37.7	29.9005	30.188	29.490	0.698	72.6	W S W	9.1	4.33	July
August.....	76.09	92.2	48.4	43.8	30.0117	30.289	29.658	0.686	68.7	W S W	7.0	1.98	Aug.
Sept.....	55.96	81.7	40.5	41.2	29.9224	30.426	29.453	0.973	81.2	N	9.0	5.51	Sept.
Oct.....	42.58	67.8	24.7	43.1	29.8537	30.287	29.348	0.989	79.1	S W	14.6	2.74	Oct.
Nov.....	34.15	54.0	7.7	46.3	29.9632	30.400	29.378	1.027	83.4	N W	10.8	1.83	Nov.
Dec.....	12.71	30.8	-21.8	59.8	29.8407	30.708	29.982	1.721	81.9	W	15.1	2.50	Dec.
Mean.....	41.63	65.76	18.31	47.46	29.9396	.....	.....	1.1480	75.86	.....	11.84	3.466	Mean

* Barometer readings reduced to sea level and to temperature of 32° Fahrenheit. † Pressure of vapor in inches of mercury. ‡ Humidity relative saturation 100. § Observed.
Greatest heat was 92.2, on the 6th of August; greatest cold, -21.8, on the 17th of January; giving a range of temperature for the year of 114.0 degrees. Greatest range of the thermometer in one month was 60.5, in January; greatest range of barometer was 2.223 in February; highest barometer reading was 39.989 on the 5th of February; lowest was 28.766 on the 15th of February; range for year, 9.223 inches. Least relative humidity was 29, on the 27th of April. Rain fell on 133 days. Snow fell on 82 days. Rain and snow fell on 17 days. Total fall of rain, 27.64 inches. Total fall of snow, 138.1 inches. Total precipitation in inches water 41.6.
Greatest mileage of wind during year, in one hour, was 51 on February 2nd, when the velocity in gusts was 60 m. per hour.

ATORY.

No. of days on which rain or snow fell.

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CONCLUSION.

IN placing the foregoing Report on Fruit, and the several valuable Essays on various subjects connected with Horticulture, in the hands of the members of this Society as well as the general public, it is gratifying to note how fully the work pointed out in the *finis* of the former report as requiring to be done has been carried out. It must not be thought, however, that none remains to be done, the work is yet in its infancy. A large amount of valuable information has been obtained, but it will require years of close watchfulness and examination, before it can be decided which of the many fine seedling apples that have been brought to light are really desirable for cultivation. If the work is followed up, many other fine varieties will doubtless be discovered. This Society has this year shown itself competent to fill the same place in this Province that the Ontario Fruit Growers' Association does in the Province of Ontario. An interest in the work has now been awakened. The Council of Agriculture see the value of the work in which the Society has been engaged, and are disposed to give all the aid in their power. In fact it is proposed to have at least portions of the Report published in French for circulation. It is intended to have the Act relating to Agricultural and Horticultural Societies amended this year, and it is highly advisable that in the new Act, provision should be made to enable this Society to receive proper aid and support to carry out a work of such general importance to the country. In closing, the Society beg to tender their best thanks to the members and others who contributed fruit and aided the Society in many ways, also to the general public for the liberal support accorded them the past year. Finally to the members of the Fruit Committee for the valuable time and the pains displayed in performing their work. To those gentlemen who have contributed the different articles published in the report the Society beg to express their best acknowledgments, and venture to hope that their experience will be useful to all engaged in fruit growing in the Province of Quebec.

HENRY S. EVANS,
Secretary and Treasurer.
 Montreal, March 26, 1877.

WM. EVANS,
Vice-President.