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TWELFTH ANNUAL REPORT
 OF THE
 MONTREAL
 HORTICULTURAL SOCIETY

AND
 Fruit-Growers' Association of the Province of Quebec.



1886-87.

MONTREAL:
 PRINTED BY THE "HERALD" PRINTING COMPANY.
 1887.

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MONTREAL HORTICULTURAL SOCIETY

AND

FRUIT GROWERS' ASSOCIATION OF THE PROVINCE OF QUEBEC.

ANNUAL MEETING.

The Annual Meeting was held in the Rooms of the Natural History Society, Montreal, on the evening of December 3rd, 1886, Mr. R. W. Shepherd, Jr., Vice President, in the Chair.

There were present Messrs. G. Cheney, S. S. Bain, Jas. Torrance, J. Fraser Torrance, Charles Gibb, R. Harvie, Wm. Evans, J. Doylé, Prof. Penhallow, James McKenna, R. Brodie, James Morgan Jr., A. Joyce, W. B. Davidson, A. C. Wilshire, W. Wilshire, A. Armour, W. Bell, C. Campbell, J. Eddy, J. Betrix, J. Dunbar, F. C. Emberson, J. Walsh, G. Trussell, T. W. Burdon, W. O'Hara, J. Stanford, P. Hally, D. R. McCord, W. Ross, J. McGregor, B. Gunning, James Bray, W. Evans, Jr., James Johnson, J. M. Fisk, G. H. Chandler, J. McGuire, S. Ward, G. Buddo, B. Graves, E. J. Maxwell, Sec. Treas., and others.

The minutes of the last annual meeting were read and confirmed.

The chairman opened his address by referring to the death of the late secretary, Mr. H. S. Evans, whose demise last spring had been so sudden and unexpected. They greatly missed his familiar, cheery face and hearty enthusiasm. It was largely owing to Mr. Evans' efforts that the Society had risen from insignificance to a proud position in the horticultural world. The Society has reason to feel proud of its work, and this was justified when they saw the *Country Gentleman* of Albany give them two columns of a review of their last report, and the Society unmeasured praise. He concluded by stating that Mr. Maxwell had filled the position of secretary at the earnest solicitation of the directors, and he hoped he would be prevailed upon to retain that position, which he filled so well.

The Secretary then read the following report for the year ending November 30th, 1886.

SECRETARY'S REPORT.

One year has elapsed since you were called together in this room for the annual meeting. On that occasion, our late lamented secretary and treasurer, Mr. Henry S. Evans, presented you with a very full and interesting account of the year's proceedings.

Since then you all know how he was so suddenly cut down, in his career of usefulness. His genial manner, and remarkable aptitude for business, facilitated the working of the Horticultural Society in all its interests. It was largely due to his

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business tact and influence that this Association has attained such success, and the members feel that they have lost a friend and helper that they can never replace.

Shortly after his death, the Board of Directors met to appoint a new Secretary and Treasurer, and at their particular request I was persuaded to take the position pro tem. We were fortunate in securing Mr. James Johnson as assistant secretary. His services have been specially valuable, as he had assisted the late secretary for many years with the clerical work of the Society, and at the exhibitions. As Mr. Johnson is in the employ of Mr. Wm. Evans, the Directors are under many obligations to him for permitting the Society to avail itself of Mr. Johnson's services.

The first event of the year was the opening of the conservatories for the benefit of members of the Society. Through the kindness and liberality of the proprietors, eight of the best conservatories in the city were thrown open on many occasions, and highly appreciated by numerous visitors.

The next important events of the season were the public meetings held afternoon and evening on the 11th of February for discussions on fruit topics. These meetings were largely attended by prominent fruit growers of sister societies and by members of this Society who take an active interest in orchard culture. The discussions and essays were very interesting, and the interchange of ideas and experience of great value. A full account of these meetings is embodied in last year's report, which will repay perusal.

The second winter meeting was held in the Belmont Hall, on the 11th of March, when the topic discussed was the cultivation of flowers. An address by the President on the varieties of flowers that can be cultivated in the dwelling house, was full of valuable and practical information. Papers on florists' flowers were read by several members, and afterwards there was a discussion on the different methods of growing house plants, altogether furnishing an evening's entertainment of considerable profit and amusement. This meeting was also well attended, and a full record of the proceedings is embodied in the report.

Our Annual Exhibition was held in the Victoria Skating Rink on the 14th, 15th, 16th and 17th of September, and passed off very successfully. The exhibits of fruit, flowers, vegetables and plants were exceedingly fine, the attendance was above the average, and the financial results were very satisfactory. Prizes to the amount of eleven hundred dollars were paid, and were evidently satisfactorily distributed, as not one protest was entered.

During the evenings of the Exhibition several meetings were held, the first being to consider the desirability of separating the office of Secretary and Treasurer, as several months' notice had to be given before the change could be effected; this matter will come up before you this evening. The second meeting was given to the consideration of fruits, and was attended by a great number of the noted pomologists of this Province. An interesting discussion was held on the most suitable and profitable varieties of apples and small fruits, and on the best modes of packing and transporting to foreign markets.

An adjournment of this meeting was held at noon of the following day, 16th September, when it was resolved to make a collection of choice fruit to send to the Colonial Exhibition then being held in London. Prof. Saunders, of London, Ont.,

who was charged with the present. by the fruit. ber that th glass jars wit stated "tha also gave his convenient m out in the s fruit taken f and also from condition an transferred great praise.

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who was charged with the collecting of fruit exhibits by the Dominion Government, was present at this meeting, and gave a flattering account of the fine display made by the fruit sent last fall by this Society to the Colonial Exhibition. You will remember that this collection of apples, pears, &c., was preserved in hermetically sealed glass jars with the aid of paraffine and a solution of salicylic acid. Prof. Saunders stated "that it was a great feature of the exhibition and was much admired." He also gave his experience in regard to transporting fruit in cold storage, and the most convenient mode of packing, and his suggestions were afterwards successfully carried out in the shipments that were made by this Society and others. The collections of fruit taken from our exhibition tables, and contributed by several of your members, and also from several collections in the Townships, were landed in England in perfect condition and exhibited at the Colonial Exhibition until its close, and afterwards transferred to the Royal Horticultural Society's Rooms. This collection received great praise.

As projected at our last annual meeting, a Chrysanthemum show was held on the 11th, 12th and 13th of last month, in this room. The result was highly gratifying. The plants exhibited were a credit to all concerned; the immense amount of bloom, the diversity of form and color, and the size of the plants were a surprise and delight to all who attended the exhibition. Unfortunately the weather was wet, cold and stormy during the three days of the show, which prevented many from seeing this interesting exhibition. However, sufficient was done to awaken the enthusiasm of the gardeners and amateurs, and next year we may look forward to a show far exceeding this our first attempt.

The membership this year, owing to the loss of your late Secretary and also the disappointment at not having an exhibition last year, has been less than we would wish, only 597 yearly members are on the roll. We trust, however, that the efforts made this year in the way of fruit and flower meetings and public exhibitions, will meet with a favorable appreciation and result in a largely increased membership during the coming year.

A gratifying feature last year was the presenting of special prizes by several gentlemen, which practice we hope to see largely extended. These special prizes are highly appreciated by competitors, and create an enthusiasm far exceeding that occasioned by the ordinary prizes offered.

The accounts of the Society have been audited and found correct, showing a balance of \$273.73 cash on hand at the end of this year, and \$106.30, being subscriptions already paid for next year, making a total of \$380.03 deposited in the Merchants Bank of Canada. Mr. J. M. M. Duff, the well known accountant, has generously performed this service for the last four years. Mr. Thomas Burdon kindly acted as assistant auditor.

E. J. MAXWELL,

Secretary-Treasurer.

Financial Statement of the Montreal Horticultural Society and Fruit Growers' Association of the Province of Quebec, for the Year Ending 30th November, 1886.

RECEIPTS.

Cash on hand 1st December, 1885.....		\$ 655 37
Members' subscriptions, 591 at \$2.00.....	\$1182 00	
“ “ 13 at \$1.00.....	13 00	1195 00
Provincial Government grant.....		1000 00
Exhibitions.....		436 00
Dividends Bank Stock.....		66 00
Donations for Special Prizes.....		75 00
Reports sold.....		1 50
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		\$3428 87

EXPENDITURE.

Postage.....	\$ 35 29
Sundry Accounts.....	453 82
Cartage.....	25 95
Insurance.....	15 12
Advertising and Printing.....	284 24
Express.....	18 40
Salaries and Commissions.....	536 52
Rent.....	240 70
Library Account, Rent, &c.....	62 42
Stationery.....	26 98
Refreshments.....	41 95
Prizes.....	1229 75
Music.....	125 00
Electric Light.....	59 00
Balance cash on hand deposited in Merchants Bank of Canada.....	273 73
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	\$3428 87

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

Professor Penhallow, in reply to a request for information about the Botanic Garden Association stated, "They were making efforts to carry out the work they had in view, and were sanguine they would soon obtain the lease of the grounds they had applied for. The work of preparing the ground had been carried on as far as it was possible under the existing circumstances. They had a large quantity of material on hand, but in the meantime were at a standstill; many large offerings of plants, &c., had to be refused owing to the delay of the city authorities in granting a lease of the premises."

It was then moved by Mr. G. Cheney, seconded by Mr. James Morgan, Jr., and unanimously carried

That the Montreal Horticultural Society and Fruit Growers' Association of the Province of Quebec, at this, its Annual Meeting, desires to re-affirm the conviction of the importance of the establishment of a Botanic Garden in the City of Montreal, and its regret that more progress has not been made; and would respectfully

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pray the City of Montreal and its Park Commissioners to endeavor by all means in their power to effect the speedy establishment of the Botanic Gardens in Mount Royal Park.

Messrs. A. Joyce and James Johnson having been appointed scrutineers, the election of Directors was next proceeded with.

The scrutineers reported as the result of the ballot, the following gentlemen elected:

Directors—Messrs. G. Cheney, R. W. Shepherd, Jr., Prof. Penhallow, William Evans, James McKenna, Charles Gibb, John Doyle, E. J. Maxwell, W. Wilshire.

The Chairman stated that the next business was to appoint two members of this Society to replace the two retiring members on the Directorate of the Montreal Botanic Garden Association.

On motion of Mr. James Morgan, Jr., seconded by Mr. B. Gunning, it was unanimously resolved that the Rev. Canon Norman and the Hon. Louis Beaubien, the two retiring members, be re-elected. The following committees were then elected:

Report—Prof. Penhallow, D. R. McCord, James Morgan, Jr., Charles Gibb, G. H. Chandler.

Library—Charles Gibb, G. H. Chandler, Jas. Morgan, Jr., E. J. Maxwell, James Johnson.

Mr. Charles Gibb suggested the propriety of presenting prizes for essays on plants, &c., and offered a prize of ten dollars for the best essay on "Orchids" or such other plant as the Society should decide upon.

Petitions were read from the Horticultural Societies of the counties of Shefford, Brome and Missisquoi, and from the Fruit Growers' Association of Abbotsford, requesting the Montreal Horticultural Society and Fruit Growers' Association of the Province of Quebec to hold its winter meeting for the discussion of fruits at Granby, P. Q., in January next, in co-operation with these Societies.

It was moved by Mr. S. S. Bain, seconded by Mr. B. Gunning and unanimously agreed to, that the invitation of the local Societies be accepted.

The question of the advisability of dividing the office of Secretary and Treasurer was then discussed, when it was moved by Prof. Penhallow, seconded by Mr. Wm. Evans and unanimously resolved, that by-law number three (3) be amended to read as follows: That the Directors shall have power to unite the office of Secretary and Treasurer in the same person, or to separate them at their discretion.

The meeting having been protracted until a late hour, it was decided that the new Board of Directors meet on the 8th inst., in the library room, Fraser Institute, for the purpose of electing a president and other officers, and that Mr. E. J. Maxwell be Sec'y-Treas. pro tem. The meeting then adjourned.

OBITUARY.

HENRY STEPHENS EVANS.

Henry Stephens Evans was born at Cote St. Paul, Montreal, on the 29th of October, 1842. His father, William Evans, was deeply interested in all matters relating to agriculture and horticulture, and for many years held the office of Secretary to the Council of Agriculture. From him the son doubtless derived that natural love for and keen interest in horticulture, which led him to become so actively associated with the Montreal Horticultural Society.

Receiving his education at the Montreal High School, Mr. Evans began life in the dry goods business. When the gold fever broke out in 1861, however, he was led by it to the Pacific Coast, where he spent five years among the mines of British Columbia and California. Returning to Montreal in 1866, he entered business with his brother, William Evans, with whom he was associated until the day of his death. In the seed business he found a congenial field for the cultivation of those tastes which were so characteristic of him. In 1873 he was elected Secretary and Treasurer of the Montreal Agricultural and Horticultural Society, a society which at that time published no report of its proceedings, which held no exhibition, and which had a very narrow sphere of usefulness. In 1877, the Provincial Act relating to Horticultural Societies was amended in such a way as to give the Society assured government aid, and also a new name, which henceforth became the Montreal Horticultural Society and Fruit Growers' Association of the Province of Quebec. This change seemed to infuse new life into what had already become an active and enterprising society. Under the guidance of Mr. Evans as Secretary, annual reports of proceedings were issued and annual exhibitions were held; indeed the entire working power of the Association was brought to such a high state of efficient usefulness, that the Society has now come to occupy a most prominent position, and its reports are widely sought after. Recognition of the important services thus rendered to the cause of horticulture by Mr. Evans, was appropriately granted him, in his annual election to the office of Secretary and Treasurer, a position which he held, and the very arduous duties of which he performed with marked ability and success, up to the date of his death. By his tact and unflinching courtesy, he did much to harmonize diversity of interests and opinion, and maintain a feeling of good fellowship among those with whom the duties of his office brought him in contact.

Mr. Evans on more than one occasion emphasized the necessity of having a Botanic Garden in Montreal, and when in 1884, active measures were instituted in this direction, he was one of the most zealous of all those who were chiefly instrumental in promoting the scheme. Upon the organization of a corporate association, he was elected to the office of Secretary and Treasurer, which he acceptably filled until his death.

During the thirteen years of his active connection with horticultural work, he exerted an important influence upon progressive horticulture in more than one direction, and his name must ever be prominently connected with the horticultural development of this Province. By his death, the societies with which he was connected, and the community at large, have suffered a severe loss.

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WINTER FRUIT MEETING.

The annual meeting for the discussion of Fruits, was held at Granby, P. Q., on the 18th of January, 1887. Dr T. Sterry Hunt, President, occupied the chair.

• OPENING ADDRESS BY THE PRESIDENT.

Ladies and Gentlemen,

It gives me much pleasure to find myself here in my capacity as President of the Montreal Horticultural Society, and also of the Fruit Growers' Association of the Province of Quebec. A little explanation is needed in regard to the double title of the Society; it was in the first place a local Society—the Horticultural Society of Montreal—intended to encourage the cultivation of flowers and vegetables and devoted especially to garden culture. Little by little we grew ambitious, we wished a larger field of work, and the Provincial Government seeing us so well disposed were willing to make us a Provincial Society and incorporated us as The Fruit Growers' Association of the Province of Quebec, a title which in no way conflicts with the title of the old Society, but enables it to exert a very beneficial influence in bringing together and securing the co-operation of the Fruit Growers of every part of the Province of Quebec.

As to the work of our Society in Montreal, I should like to tell you something, and the more so, as our Society does not belong to Montreal alone, but to all in the Province of Quebec who are interested in the cultivation of fruits. We have a library of about 900 volumes; this library is open at all times. Some of the books are to be loaned out, others to be consulted. We have many Horticultural periodicals published on this Continent and in Great Britain. We hold our general exhibition in the month of September, and invite competition from the whole Province. Last year we organized a chrysanthemum exhibition in the late Autumn, and we shall next year have yet another exhibition about the beginning of July for early fruit like strawberries, and for roses, and we hope in time to emulate the Associations in Boston and New York which have monthly exhibitions of fruits and plants from the open air, or the greenhouse. In our last annual report which is now published at the expense of the Provincial Government, we have contributions of great interest from fruit growers of various parts of the country, and I am proud to say that their co-operation has given our Annual Report such a reputation that it is applied for all over the world. We had demands not only from libraries in the United States, but from similar associations in Great Britain, Germany, Austria, and far-away Russia. But why do I say "far-away," for after all we are bound to Russia by close ties, the more so as our honored member, Mr. Charles Gibb, who is with us, having visited that country twice, has placed himself in intimate relations with St. Petersburg and Moscow, and has studied the fruits of Russia more thoroughly, perhaps than any other man on this Continent. He has brought a lot of rare plants from Russia, and has cultivated them in his garden at Abbotsford, and in a few years we will reap the fruit of his labors.

We expected on this occasion to have with us the Vice-President of the Society, Prof. Penhallow, an accomplished Botanist, formerly of Cambridge, Mass., who spent four years in Japan and acquired a critical knowledge of the fruits and flowers of the far eastern part of the Eastern World, a matter of much importance to us, inasmuch as the climatic conditions of Japan and Eastern Asia are reproduced in Eastern North America. During a number of years in the United States he had experience of experimental farms in New York. He proposed to be with us to-day and offer us the result of his studies upon the "spot" which affected some of our finest apples last year, but foreseeing the possible inclemency of the weather, he has entrusted his paper to me, and it will be read to you this afternoon or this evening. I will mention another thing which shows the importance of our Society in connection with the fruit growing interest, not only of the Province of Quebec, but the whole Dominion of Canada; it is the successful attempt to make known the fruits of Canada to the British Public during the late Colonial Exhibition in London. We sent selections of our fruits, large and small, in large jars with preserving liquid from the previous year and exhibited in excellent condition in London during last Summer; but a better thing presented itself, and that through the efficient aid of Professor Saunders of London, Ontario, though I am bound to say our Society took the initiative; for already in the month of March I addressed strong statements to the Department of Agriculture at Ottawa, and begged them to be prepared to exhibit our fresh fruits. It was carried out at the time of our Annual Exhibition in Montreal. Before the opening of the Exhibition our Board of Directors appointed Committees to go to the different County Exhibitions mostly held that week. The result was that the finest and most beautiful apples and pears we could get were brought to Montreal, skilfully packed, placed in cold storage in two vessels sailing from the port of Montreal within a week of one another, reached London and Liverpool in good condition, and were forwarded not only to the Colonial Exhibition, but also to the Exhibition of the Royal Horticultural Society of Great Britain about the middle of October, and most of you have seen in the papers with what delighted surprise the people of England looked upon our apples, pears, grapes and flowers. It was universally stated they never saw such fruit, thanks to this admirable system of cold storage. We gave them some idea of the fruit growing capacity of the Dominion, and the people of England will learn to look to this country for supplies of fruit in the future. Already a good export trade has been going on for many years, but this experiment shows that our autumn and summer fruits may be carried over; and not only apples, pears and grapes, but even melons, and we boast of the melons in the valley of the St. Lawrence as unsurpassed in the world. Mr. S. C. Stevenson who was present at the Exhibition in London, promised to be with us to-night and give us an address on that subject, but the state of the weather is such that we can scarcely hope to see him to night. In conclusion I wish to impress upon all present that it is for their interest to become members of our Horticultural Society of Montreal. We include people not only of the City of Montreal, but all outsiders, and for the nominal fee of one dollar, they are entitled to receive our report and all other privileges of the Society, and I only hope we shall have a large addition of members from this and the other Counties.

We shall now be glad to hear discussion on Russian varieties or other known varieties which are already here on our tables.

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DISCUSSION.

MR. C. GIBB, Abbotsford.—What is the origin, and where does that apple come from, which is grown under the name of Shaker Pippin, a sample of which we have?

MR. THOMAS CRAIG, Granby.—This apple came from Derby, Vt., from Mr. Price.

MR. GIBB.—It is my impression that this apple was propagated by Mr. Middleton, gardener to Mr. Wm. Lunn, in Montreal, at least forty years ago and that this same apple has been grown in the County of Huntingdon by Rev. Canon Fulton, and others. Mr. G. B. Edwards of Covey Hill, Huntingdon County, does not know it, but it was grown by Mr. Fulton and others in the County of Huntingdon, and they state it has been known there as Winter St. Lawrence; they brought it into competition in Montreal, and we told them it was not known to the Montreal Horticultural Society as "Winter St. Lawrence," they said they did not care about that, it was "their" Winter St. Lawrence, but no award ought to be given to it under that name. Mr. Hugh McColl of St. Joseph du Lac, Two Mountains County, is looking up this matter.

MR. WM. MCNEIL, Granby.—I should say Mr. has had that same apple for 25 years and I think he got it from the States. He called it the Baldwin, but it is the same variety of apple Mr. Gibb holds as a sample, and it is certainly an excellent apple—a very good keeper—the best I know of.

MR. R. BRODIE, Coteau St. Pierre, Montreal.—My uncle, Mr. Brodie of Chateauguay, gave me some of these apples; he had them quite a number of years in Chateauguay, and as Chateauguay is near to Huntingdon, probably the same nurseryman may have spread them.

MR. R. W. SHEPHERD, JR., Montreal.—I would suggest that for the present that apple should be called the Shaker Pippin, so that it may not conflict with the well known Winter St. Lawrence which is recognized by the Society. This apple cannot compare with the latter in quality. The Winter St. Lawrence known by the Society, is I think one of the best of its season, viz; from the 15th November until probably Christmas. I do not think we have anything which surpasses it in flavor, not even Fameuse.

MR. J. W. BEALL, Montreal.—Under what name was the apple propagated by Mr. Middleton?

MR. GIBB.—I cannot say.

A MEMBER.—What about the Scott's Winter?

MR. SHEPHERD.—I suppose my trees are ten years of age. So far they have been very satisfactory; the trees are very hardy. The specimens exhibited here are rather above the average. I do not think I ever saw them as large, usually it is below that, and I think the size is the chief objection; its quality is very good; it is a little acid but it tones down about the middle of January, and gets to be of very good quality. It keeps until spring without any difficulty.

MR. GIBB.—I would like to endorse what Mr. Shepherd says about the Scott's Winter; its keeping qualities and color are good, it is a little under size, and is a good acid cooking apple but I have nothing better of its kind.

MR. BRODIE.—I would ask the grower of these Canada Baldwins how he accounts for their being so highly colored.

MR. HORNER, Granby.—I could not give any reason for it, they are redder this year than any year before. I did not know what variety it was. I thought it was a Fameuse until Mr. Gibb told me it was a Canada Baldwin.

MR. J. M. FISK, Abbotsford.—I think it is a Canada Baldwin. Mr. Horner told me it grew near a building used as a pig pen, and it got that color from the extra sunlight reflected from the building.

MR. BRODIE.—Have you ever seen Fameuse like that?

MR. FISK.—Yes.

CHAIRMAN.—Both the sun and the soil have an effect on the color of fruits. I remember where apples were grown on the slope of a mountain in fine gravelly soil like Abbotsford—a thousand trees were planted on that soil and a thousand others precisely the same on a blue clay soil perhaps ten acres away, and it was marvellous to see the difference in color and flavor in the apples grown on the different soils; you could tell the difference with your eyes closed, just from the taste.

REV. MR. LONGHURST, Granby.—I think one cause of this high color is disease. I bought a barrel of apples last fall; they were highly colored, but diseased inside.

MR. BRODIE.—The apples seem to be over-ripe as though forced; in my experience trees subject to disease give small fruit, and these are exceptionally large.

REV. MR. LONGHURST.—The apples I got were good sized apples.

MR. SHEPHERD.—I would like to ask the grower of those specimens the age of the tree?

MR. HORNER.—14 years.

MR. SHEPHERD.—Is it healthy?

MR. HORNER.—It seems to be.

MR. SHEPHERD.—Is all the fruit like these specimens?

MR. HORNER.—Yes.

MR. BRODIE.—The gentleman says he has used a quantity of soot around the tree; are there fertilizing qualities in soot?

CHAIRMAN.—In wood soot there is a little potash and that is a fertilizer. That throws a little light on the subject and some of our friends may get good Baldwins next year. I have heard it said by grape cultivators that by applying special fertilizers about the roots of the vines, they get great improvement in the size of the fruit.

MR. SHEPHERD.—I think we may account for the remarkably high color of these specimens by the fact that the trees are growing in rich soil.

MR. GIBB.—As to the Kellog Russet, I received it from A. G. Tuttle, Baraboo, Wis. It is a seedling of his neighborhood. The fruit seems to be about the same as the Golden Russet, if they are together you cannot tell them apart. There is a difference in the tree; the tree is a little hardier and more upright. I have had better success in growing the Kellog than the Golden Russet; at the same time I think the Kellog may not be as good a keeper. I have kept it in smaller quantities, and I cannot be sure.

MR. BRODIE.—Do they bear as well as the Golden Russet?

MR. GIBB.—If anything earlier and better.

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CHAIRMAN.—Has the Golden Russet the same keeping qualities as the Pomme-Grise ?

MR. BRODIE.—In my experience they keep far better. I can keep the Golden Russet until the month of June, whilst the Pomme-Grise must be used before the month of March.

MR. FISK.—My experience of the Golden Russet is the same as Mr. Brodie's ; it is a much better keeper than the Pomme-Grise.

REV. MR. LONGHURST.—I would like to ask whether there is anything in the striking difference exhibited between three or four plates of a dark color and heavy leather-like skin, and another plate which stands a little distance away in which the skin is brighter ; whether it is unusual to see that great difference, both being denominated as Golden Russets, and to what it is due.

MR. FISK.—I think, to a great extent, it depends on how they are kept. Golden Russets, in order to keep properly, must be kept in air-tight barrels headed or covered and kept at a low temperature ; if exposed to the air, they will wilt. As to the difference in color, I do not know what explanation to give.

REV. MR. LONGHURST.—I do not mean as to the texture of the skin. I did not cut one or the other ; I mean one is rough, and the others are quite smooth.

REV. WM. ENGLISH, Granby.—Does not the same tree produce both kinds ? I have a tree of Golden Russets ; some were quite bright and others were dull this year.

MR. BRODIE.—I have some Golden Russets in a dark sandy loam, and I have some of the same variety on a gravelly soil—rather poorer soil—and the color of the apples is quite different ; on the gravelly soil they are quite bright, resembling Mr. Fisk's, but not so large in size, on the sandy loam they are quite dark in color. These specimens which I exhibit are off the latter. I notice the same difference in the color of Fameuse in a gravel soil and dark sandy loam.

REV. MR. ENGLISH.—I presume the soil has a great deal of influence on the color and taste of the apples. The little garden I have is principally composed of gravelly soil, and the apples grown on it have always been good, but some were light colored, others were very dark. I have noticed this in the Canada Baldwins ; on the same tree I have some of dark color and others were lighter. You can scarcely account for it by the soil. I have only one tree which bore both kinds of fruit, dark and light and of equally good flavor.

MR. FISK.—A gentleman told me he had great experience with American Baldwins, and he said there was a great difference according to where they were grown ; some were of very fine quality while others were inferior. I think the soil has great influence over the same variety.

CHAIRMAN.—I think the soil makes a great deal of difference in the quality of the fruit and its keeping powers. The Rhode Island Greening is grown in the New England States, but I believe scarcely grown in the Province of Quebec ; it is a fair keeping apple, in Connecticut keeping to January and February. Last year I was in Utah, and there, in the month of November, saw the Rhode Island Greening ; its juiciness and peculiar flavor were in the highest perfection ; here they would not have been fit to eat for several months longer ; grown in a soil 5,000 feet above the sea, and in a milder climate, it had, without changing its flavor and color or general aspect, become a much earlier apple than it was in the East. I heard also the remark

made, I think by some gentleman yesterday in coming out, that certain apples this last season had ripened much later than they had generally done, connecting it apparently with conditions of climate.

REV. E. L. WATSON, Dunham.—I would observe that not only the soil, but the sunlight has a very great influence as to color and flavor. I attribute largely the difference in color, and even in flavor of the same apple on the same tree, to the amount of sun, or to some portions of the fruit obtaining less sun: do you not think, Sir, the sun has a great effect?

CHAIRMAN.—That is very certain, in fruit as well as in flowers. In roses and geraniums in a greenhouse where the sunlight is feeble, the color of the flowers is less brilliant; it is less well developed.

MR. BRODIE.—How do you account for the fact, that in the beginning of the month of October, Fameuse will color more than during the whole of September?

CHAIRMAN.—They come to that point where they are ready to be colored. It is the cool frosty days that make the girls' cheeks rosy. I heard a discussion with regard to an apple called the Fallawater. Has anyone any remarks to offer upon it?

MR. GIBB.—It is noted in the Middle States as a very heavy bearer of large, good fruit. Mr. Bailey, of Plattsburg, N. Y., grew this variety and thought a great deal of it; and no doubt it became scattered about in his neighborhood, and from there it would naturally find its way to Huntingdon. Mr. Edwards, however, tells us his came from Washington. Speaking of colored fruits, I was in New Orleans about two years ago and the highest colored fruits that were exhibited there were from Colorado, where the ground is irrigated, where there is no rain.

MR. SHEPHERD.—Was there an exhibit from Ontario or Maine?

MR. GIBB.—There was from Ontario.

MR. SHEPHERD.—Was there from Maine or Vermont?

MR. GIBB.—No, but the Prairie States were well represented, and there were a few highly colored apples from the South. But take the run of other apples there was no such color as that of the Colorado fruit, and it was attributed to continued sunshine without cloud or rain, only dew.

CHAIRMAN.—In those lands the sky is entirely cloudless, while in northern latitudes we have cloudy and hazy days, therefore it is certain they would get more hours of sunlight—more solar force, and that is why the apples grown in England are for the most part inferior in color to those grown in Canada; and one of the most striking things at the Colonial Exhibition was the brilliancy of the color of our Canadian apples, which would probably have been outdone had they been brought in competition with those apples of Colorado.

MR. SHEPHERD.—I think Mr. Gibb will bear me out, when I say that at the Centennial Exhibition in Philadelphia in 1876, where they had a table of fruit from every State in the Union and from Ontario, Quebec and Nova Scotia, it was particularly noticeable that the fruit from the Northern States and from Canada, and particularly from Quebec, was the most highly colored.

CHAIRMAN.—That comes to precisely what I have been saying. I remember examining onions grown in Norway. I had them cut open in my presence and I

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wished to get away from them as soon as possible; the aroma was so powerful it brought the tears, whereas the onions of Utah are peculiarly mild. Celery on our soil is an extremely delicate vegetable, and in Utah is still more delicate; in Norway it is so strong and pungent that nothing can make it fit to eat for the table except in soup, it can be taken there.

There is a small apple which I have tasted here, and which I am told is a seedling of the Fameuse, it is of excellent flavor and I would like to hear the history of it.

MR. BRODIE.—It was in the midst of a Fameuse orchard; the fruit is the same shape; it was grown on the west side of the Montreal mountain, near Mount Royal Vale, where it was exposed to a North-west wind. The proprietor says it is equal to the Fameuse in bearing and it does not spot. The Fameuses around it were worthless.

CHAIRMAN.—Can anyone inform me what further has been done with regard to seedlings from the Fameuse; has anyone made a careful examination to see what new varieties can be got?

MR. BRODIE.—It is worth taking up, and I would suggest to the Board of Directors to offer good premiums for seedlings to encourage people to get some new good winter varieties; the premiums of late have been so small that it has not been worth while. It would encourage people to grow apples from seed and also to look up seedlings around the neighborhood.

MR. SHEPHERD.—I have prepared a paper on the subject of our seedling apples. Before reading it, I would say that on the Lower Lachine road, there is an orchard of about 1,000 trees, from seed planted by Mr. J. H. Newman, 30 years ago, principally seeds of Fameuse and St. Lawrence, and some of the best apples; he has, I understand, nearly 1,000 different varieties of apples in that orchard. Many of the seedlings are very fine and were exhibited in 1883 at the Exhibition. I shall refer to that Exhibition in this paper.

OUR SEEDLING APPLES.

It has often occurred to my mind that, while this fashionable craze (for I may call it such) after Russian apples is very commendable and interesting to fruit growers, we ought to devote greater attention to the search after hardy seedling varieties which, no doubt, abound in many sections of the Province. We have several valuable and very hardy varieties of summer and fall apples among the newer Russians, varieties which it will pay us to cultivate because of their hardiness of tree and fair handsome fruit, but so far the great "desideratum" a late keeping apple of high quality and fine appearance, has not yet been brought out from Russia. We want a tree as hardy as Duchess, that will bear apples as good as the American Baldwin. The offering of prizes for the best seedling, to be exhibited at this convention, is a step in the right direction.

It is in this old Province of Quebec and in the French Counties, among the old seedling orchards, that we may expect to find hardy varieties of trees, sixty or eighty years of age, survivals of the fittest. The French Canadian farmer (until recent years) always grew his orchard trees from seed, and only since the general introduction of railways throughout the country, followed by the advent of the enterprising nursery agent (talking French) who has pushed himself everywhere, has the "habitant" begun to plant out grafted trees.

In 1883 the Society, through the exertions of the Rev. R. Hamilton, collected a large and valuable assortment of seedlings, which were exhibited at the Exhibition that year. Mr. Hamilton says in his report: "There is an immense number of seedlings in the neighborhood of Beauharnois and Chateauguay, occasionally several hundred on a farm." It was, truly, a memorable collection of apples. "If all the old sorts of apples—wrote Mr. Hamilton—were by accident lost, they might be replaced by better sorts from among these seedlings." There were

several apples of fine appearance and high quality among them, and a few reputed to be late keepers. One of the judges on fruit at that Exhibition afterwards wrote to our esteemed late secretary, Mr. H. S. Evans, as follows: "I think it would be well, after selecting say six or eight "of the most promising varieties, to distribute scions to interested and careful fruit growers "throughout the Province, keeping a list of their names and getting reports from them from year "to year, until they have had a fair trial."

The work was only half done. It would seem as if the Society had lost a valuable opportunity in not following up the question and getting fuller and more accurate information as to the hardiness of the parent trees of these promising winter apples. A partial test of the keeping qualities of these seedlings was made, but as the cellar in which the fruit was stored was flooded during the winter, the test was quite insufficient and unsatisfactory. I would suggest that another collection of winter seedlings be got together and exhibited next winter, and a careful and accurate test be made of the keeping qualities of the promising varieties, as well as a thorough examination of the condition of the trees from which the fruit was taken, in the hopes of great results being realized by the discovery of "the apple" of the future. What a benefit in this direction a provincial experimental station would be, for the cultivation and dissemination of promising new seedlings. Let us live in hopes of its being realized some day.

CHAIRMAN.—I see Mr. Shepherd gives a side hit at our Russian varieties, and I believe Mr. Gibb, who is a partisan of Russian fruit, will not let that pass. I want to know what he has got to say with regard to his favorite Russians?

MR. GIBB.—Mr. Shepherd has said he wants a tree as hardy as the Duchess, bearing fruit as good as the Baldwin. Suppose we take the seedlings of the Fameuse, they have a medium degree of hardiness; we cannot expect to jump from that hardiness of tree to the hardier tree of the Russian apple. If we are to have the apple Mr. Shepherd has just spoken of, we need the Russian apple as the female parent, and the Fameuse as the male parent; let us get the best stock we can. Get the fruits of northern climates and cross them with our Fameuse, and we will then be able to return to Russia what we got from her, a number of hardy good varieties. I will read a few notes on

THE BEST VARIETIES OF THE RUSSIAN APPLE.

I shall speak only of those varieties which have fruited on this side of the Atlantic, and will group them into families so as to be clear and save time.

Of the Early Transparents (Skvosnoi nali) the two best seem to be *Yellow Transparent* and *Charlottenthaler*. They are very much alike and have borne three good crops with me. They are young and heavy bearers, fruit of good size and in fair eating order as early as the 26th July, and yet they are not quickly perishable fruits. As they are decidedly superior to any fruit imported at that date, we may expect them to be planted in large quantity.

Arabka. That imported by Ellwanger & Barry, of Rochester, is a fine large deep pink apple, handsome, but acid without sweetness. Season, late fall or perhaps early winter. *Herren* (or Lord's apple) is a "Government Russian," that is, one of the 252 varieties imported by the U. S. Department of Agriculture in 1870, and is also a true *Arabka*.

Anis. The *Red Anis* and *Yellow Anis* I have seen in the West disappoint me. Either they are not the better varieties of Anis, or else the heat of the Western States, lat. 42° to lat. 45° is so much greater than that on the Volga from lat. 51° to lat. 56° that the texture is coarser and maturity earlier. *Skrischapel* (cross apple) is an Anis, and so is *Russian Green*. *Getman's Bean* is of Anis type, but larger and of fine quality and a promising fruit.

The *Aport* or *Alexander* family has several members of strong family type, others so named bear no family likeness. The *Grand Duke Constantine* of Ellwanger & Barry, is very like *Alexander* but not so large. It is firmer, sweeter, and a better eating apple. It has borne three crops with me, and I find it a young and abundant bearer. *Riabinovka*, a "Government Russian" fruited by Dr. Hoskins of Newport, Vt., is just like *Alexander*. *Barloff* is a sweet *Alexander*.

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Another family closely allied to this is that of which *Turnipy Juicy*, *Vasilis Largest*, *Green Streaked*, and *Hibernal* are members; all large showy fall cooking apples, not of fine quality at all but, like Alexander, they would be saleable for kitchen use. *Hibernal* is a remarkably strong grower and a very hardy tree, the others are about as hardy as Alexander. *Zolotareff* might be added to this list though smaller in size. In Wisconsin in September, 1885, I saw some specimens of a remarkably large oblong deeply colored apple named *Ukraine*. I believe this to be the same as *Green Streaked*, the poorest in quality but the most attractive in size and color, but not at all like the *Ukraine* we saw in Russia.

The *Borovinka* is the family of which the *Duchess* is a member. The *Duchess* has come to us under many names. *Arabian* and *Glass Green* (of the Department catalogue) seem alike and are the very image of *Duchess*, but are said to be two or three weeks later in ripening. I have also tasted apples which looked like *Duchess* but which were better in quality. *Summer Lowland* is an instance, and is a very nice table apple.

The following kinds I cannot group together: *Raspberry* (*Malinovka*), a bright red little apple of fine quality, which ripens with *Duchess*; very attractive in appearance and better in quality than any apple we have at that season.

Bielborodovka, of Ellwanger & Barry, a medium sized flat apple, mostly red, very nice and exactly like Dr. Regel's colored plate of it.

Titovka, a large handsome cooking apple, of good promise as a market fruit.

Zuzzoff, a bright red little apple of fine quality, but tree not as hardy as Russian apples usually are.

Golden White, a good sized apple, yellow, with a good deal of red, very even in size and unusually constant and heavy bearer. It promises to be a commercial apple of great value. Mr. Brodie has it. *Sweet Russet* would seem to be the same.

Antonovka seems true to name both in the Department list and wherever else imported from, and I think the *Karabovka* No. 1 of Ellwanger & Barry is also it. You may remember that this is the king apple of the Russian Steppes.

German Calville, a large deeply ridged white apple, like the *Calville blanche d'hiver* of France, and a fruit of fine quality.

Leschanka (*Lieby*), a large, coarse, yellowish early winter apple, is coming into favor in Minnesota on account of the extra hardness of the tree.

Longfield in the Western States is proving a good bearer, and fruit not to say smaller than *Fameuse*, and bright and attractive in color. I had about a dozen specimens last year. The fruit is of good quality, I might say of fine quality, but its light though attractive color and its delicate texture are against it as a shipping apple, and it does not seem to me to be a keeper. *Good Peasant* at Ames, Iowa, seems just like it. *Ricpka Malenka*, though small, is said to be a hardy late keeper, that is its character in Russia.

Ostrokov's Glass, a very hardy and vigorous tree, bearing a fair sized green apple that is said to keep well. Specimens fruited by me last year did not seem to be late keepers.

Pipka Ostrokonetchnaya, received by the Iowa College from Moscow, is the latest keeper of all the Russian varieties which Prof. Budd has fruited.

Of sweet apples, *Heidorn's Streaked* is a good sized fruit of fine quality. *Beautiful Arcad*, a medium sized red apple with pure white flesh. *Barloff* I mentioned as a Sweet Alexander, and *Prolific Sweeting* is a medium sized yellow apple of fair quality, ripe in early September, and perhaps valuable on account of its heavy bearing.

The Russian apple is "the" apple for cold northern climates. All the kinds I have named are worth trying. The fruit of all I have seen and tasted. Some of them I have fruited, the others I have seen in the orchard of A. G. Tuttle, Baraboo, Wis., or at A. W. Sias's, at Rochester, Minn., or at Ellwanger & Barry's, or at the State Agricultural College at Ames, Iowa. I have, however, trees of all of them (except *Prolific Sweeting*). Some are small, some are of bearing age. In some cases I have the same variety from different sources to prove their identity or otherwise. It will therefore be not very long before my trees will show their value or otherwise in our own soil and climate.

MR. SHEPHERD.—I have not heard Mr. Gibb mention the Switzer. I consider it a valuable acquisition to our list. It has very much the flavor of Fameuse; it is a most beautiful apple. Its season is October.

CHAIRMAN.—We are greatly indebted to Mr. Gibb for his highly instructive paper, which will act as an antidote to Mr. Shepherd's.

MR. SHEPHERD.—Mr. Chairman I wish to correct you on that point. I have a very high opinion of the quality of the summer varieties of Russian apples. I do not think Mr. Gibb has mentioned a winter variety as hardy as the Duchess, and as good as the American Baldwin.

MR. GIBB.—I saw an apple exhibited at Sherbrooke called the Nodhead; does any gentleman know anything about it?

MR. BEALL.—Is it not also known as Jewett's Fine Red, a native of New Hampshire?

MR. BRODIE.—I procured the Golden White about seven years ago, from Mr. Jas. Dougall, of Windsor, Ont. He sent them as a new variety he had received from the Department at Washington. They bore at the age of five years, and they have given large crops every year since then. The apple in quality is better than the Alexander; it does not keep any longer than the Alexander; it is a heavier bearer and quite as hardy as the Duchess, and promises to be an acquisition to our fall fruit for market. I may mention the name on the label was wrong. I exhibited it at our exhibition, and Dr. Hoskins had an apple identically the same, called the Golden White, and I took it for granted he had the proper name for it and I have called it the Golden White ever since.

A MEMBER.—I will ask for information on the new variety of winter apple grown at Abbotsford, called Dominion Winter. It is a seedling and is beginning to bear very well. I will ask the President of the Abbotsford Association to give some information about it.

MR. FISK.—Mr. Wm. Marshall, a neighbor of ours, has prepared some notes on it; I have no experience in growing it.

MR. GIBB.—Mr. Brodie has asked us about the Grandmother apple. I have only referred to apples already known to have fruited on this side of the Atlantic. In the opinion of Mr. Fisher of the Botanic Garden at Voronesh, it combines many useful qualities and is second only to Antonovka.

MR. FISK.—I would ask Mr. Gibb if he considers the Switzer better than the Yellow Transparent?

MR. GIBB.—In my paper I omitted to mention Switzer. The Yellow Transparent is an apple I think very much of. It is not an acid apple; it has no weak points about it and it has this special merit that it is not quickly perishable; it is of good fair even size. The tree is hardy and a good bearer, and the fruit ripens at a time when other apples are not ripe. It has been in good eating order with me, not exactly ripe, but good to eat as early as 26th July. On the other hand the Switzer has what is called "Reinette flavor," and it is an apple of finer quality.

MR. SHEPHERD.—I agree with Mr. Gibb. I have fruited both. I exhibited both at the Abbotsford Exhibition. The Yellow Transparent is a very fair apple, but the Switzer, as far as quality is concerned, is much better—much more like Fameuse than any Russian I have ever tasted.

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MR. W. R. HONEY, Abbotsford.—Information was asked about the Dominion Winter apple; it is grown in the neighborhood of my place. I have rented a place for several years in which some of these trees have been set out; the trees are very hardy, the apples are smooth, of good and even size and splendid keepers. I have known them to keep until June and later. The tree has had no care whatever; the orchard has been rather neglected if anything and it bears every year. Of all the seedlings I am acquainted with down there, I do not know of a better apple to be propagated than that; it looks as well in the spring as in the fall. The tree must be fifty or sixty years old and is now doing well.

CHAIRMAN.—The Wealthy is suggested for discussion.

MR. SHEPHERD.—I think I was the first to fruit the Wealthy in Quebec, at least I was the first to exhibit it at the Montreal Horticultural Exhibition. It resembles the Fameuse a little; it is a juicy apple, more juicy than the Fameuse, a little more acid, and of very fine flavor—a peculiar flavor. It is more of the Spitzenburgh than the Fameuse. I can tell one circumstance which makes me think it is a good apple. My children and wife and any ladies stopping at my place in the autumn always choose a Wealthy; they have twenty or thirty varieties to choose from, but they always choose that. Children know very well when an apple is good, and when they are at liberty to choose from several, and always eat one variety, you may rest assured they know what they are about.

MR. HONEY.—As far as the Wealthy tree is concerned, I find it is not as hardy as the Duchess. I have quite a few,—planted about the same time as Mr. Shepherd's. I have perhaps twenty of them. This year I lost two from being heavily loaded, and on others one or two of the branches have broken off. That is one objection I have, and another objection is that the stem is rather long and like the crab, so that it does not hold the fruit well. I have not been able to keep them as well as the Fameuse, but I do not think I had one spotted one in my orchard. This year they were not so well colored as usual, but they were free from spots, good size and good cookers. Of course if you take the Fameuse and sort them to get them as clean as the Wealthy, the Fameuse will sell better, but there is more money in the Wealthy.

CHAIRMAN.—Is there any difference in the keeping qualities?

MR. HONEY.—Not with me; I have found them to keep about the same.

MR. SHEPHERD.—With regard to the keeping qualities of the Wealthy, if you allow it to get ripe on the tree it will not keep as well as the Fameuse. With regard to the saleability of the Wealthy, last year my experience with Fameuse was that 90 per cent. were so bad I could hardly sell them, whereas I do not believe there was five per cent. of the Wealthy rejected. I have sold the Wealthy to be shipped to England the last two or three years. Last year I sold ten cases packed in the Cochrane case—like an egg box—each case will hold about a bushel. I sold them for \$3.50 a case (case included), in Montreal for export to England. The buyer secured them in the month of June. I told him he would have to pay me a good price, because only the very best of them are put in cases; so that when you consider it is picking the best of your crop, and considering the carefulness

with which they have to be handled, and the carefulness with which the cases have to be handled, it was not so high; still they paid me very well.

MR. HONEY.—Of course that is for export; what I had reference to was the Montreal market. I know if you pick out the Fameuse and size them they will bring a high price.

SEEDLING APPLES.

At this point the Judges of Seedling apples announced that they had awarded the first prize to Abel Brousseau, Abbotsford, the second to Rev. James Pyke, Hudson, and the third to George Mitchell, Abbotsford.

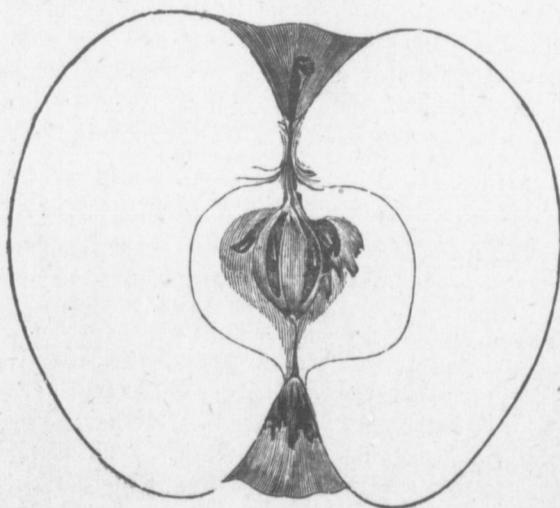
MR. FISK.—In making these awards we have judged from the appearance and quality of the fruit we have examined, but I would further suggest that a committee be appointed to visit these trees, and that a report be sent to the Montreal Society as to the age of the trees and as to what is their condition to-day. These points are very necessary if it is intended to propagate them.

REV. MR. LONGHURST.—Might I not suggest that the keeping qualities be particularly noticed?

MR. FISK.—Yes, I think these samples awarded prizes should be placed in the hands of the Shefford Society and put in the same storage and kept.

FIRST PRIZE SEEDLING "EDITH."

MR. BROUSSEAU.—The tree originated from selected seed sown by the late Thomas G. T. of Abbotsford about forty years ago; it is still in a healthy condition, a strong upright grower about fifteen inches in diameter of trunk. It bears annually a fair crop of apples of large size, and of good quality for cooking or dessert; season, early winter to mid-winter; color, when fully ripe, russety yellow with stripes and splashes of dark red; flesh, very firm, yellow and aromatic.



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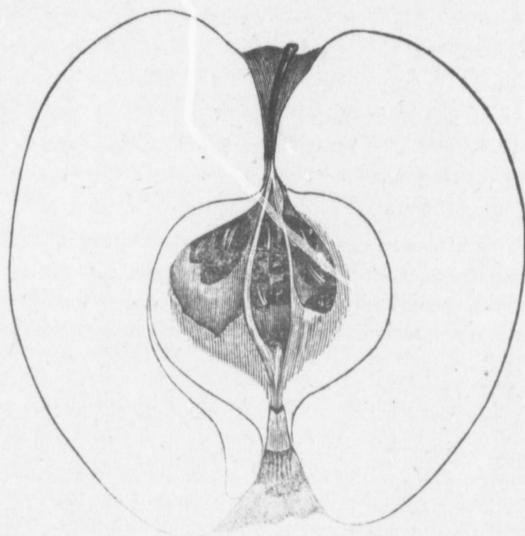
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SECOND PRIZE SEEDLING "ST. JAMES."

MR. SHEPHERD.—It has been named the St. James by the Rev. Jas. Pyke, on whose farm at Hudson, Vaudreuil County, on the Ottawa River, the original tree is growing.



ST. JAMES.

Mr. Pyke says the tree is undoubtedly very old and was on the place when his father purchased it some fifty years ago. He has been there forty-five years and has always known it as a full grown tree. The tree he says is very prolific—fruit keeps well, and is good for kitchen, table and market.

I visited the tree on 29th of last December. It is undoubtedly a seedling, and is growing in a large seedling orchard, which was planted by the late Cornelius Cook long ago (probably seventy-five years ago). Mr. Cook was a large manufacturer of cider in those days. It is said he gathered annually about 1500 bushels of apples. He disposed of his fruit and cider to the Indians of Oka and Hudson Bay Company officials at their important trading post "Lac des deux Montagnes," or what is now known as Oka.

Several of the original trees in this orchard are yet living. The St. James seems to be the healthiest of them and bears the finest fruit.

The tree appears to be as hardy as an oak—where the old branches have been cut or broken off, it has sent out thrifty young shoots. The tree shows no evidence of careful culture or pruning. The trunk is quite free from disease and is, I should say, about twenty-two inches in diameter. There is a striking absence of blight or blackness in the bark of the trunk, which many other trees in the orchard are not free from.

About fifteen feet from the original tree and growing alongside a fence is a younger one of the same variety—it is probably about twenty years of age—a sprout no doubt sent up from the roots of the parent tree which were cut when digging the hole for the fence post, and which proves the older one to be a seedling.

The form of the tree is somewhat spreading, resembling the fall St. Lawrence. It is growing in sandy, loamy soil, rather poor. The orchard has a northern exposure—not much protected—on the side of the hill known as Mount Victoria. The fruit is medium to large, oblong, slightly ribbed and irregular; skin yellowish, almost altogether covered with dark and light shades of crimson streaks—sometimes slightly russeted. Stalk short and rather slender, cavity medium, calyx closed and basin rather small and uneven. Flesh yellowish, fine and very tender, moderately juicy, mild sub-acid, somewhat spicy and peculiar—a high flavor—quality may be put down as *very good*. It is a handsome fruit, resembling the Winter St. Lawrence type of apple, but less symmetrical and more ribbed. Mr. Pyke tells me the tree has never been propagated.

THIRD PRIZE SEEDLING "HELEN."

MR. GEORGE MITCHELL, Abbotsford.—The third prize apple is grown on a farm owned by the late Mrs. William Bradford, at Abbotsford. It is a good bearer, bears every other year heavily; the fruit keeps well until June or July, last year they kept till July, although somewhat shrivelled at that time. The apple is sweet, not a first-class cooker, although it is a splendid baker and splendid for roasting. The tree is thrifty, grows tall and spreads. It is a very high colored apple, in fact the appearance of the apple in a basket almost equals the finest Fameuse.

The meeting adjourned until 7 o'clock p. m.

At 7.15 p. m., the chairman called the meeting to order.

CHAIRMAN.—This afternoon we finished the greater part of the discussion relating to apples, seedlings, Russians, etc. As I told you there remains a paper from Professor Penhallow, and, I think, another short paper which is in the hands of our Secretary. If you will have patience with me a few minutes, I will give you this paper of Professor Penhallow.

THE SPOT DISEASE OF THE FAMEUSE.

By D. P. Penhallow.

Within a few years, the attention of fruit growers has, more forcibly than ever, been directed to a consideration of those diseases which not only affect the product of their orchards, but in some cases even threaten to completely destroy the value of their trees. Such a disaster would produce a serious effect in two directions. The first effect is to render a most attractive field of labor no longer a source of profitable livelihood, while the constantly enhancing value of the fruit, as that of good quality becomes more scarce, constantly tends toward placing one of the most beneficial and inviting of foods within the class of luxuries which can be enjoyed by the comparatively few. The general tendency at the present time toward the greater consumption of fruit; the cheapening of such articles of diet until they are well within the means of all classes of people, who gradually come to look upon them as necessities rather than luxuries; and the fact that the increasing demand is so great as to render fruit culture a profitable industry in spite of low prices, are among the most encouraging signs of the day. People have already become so accustomed to the every day use of fruits that were a luxury fifteen years ago, that any disaster which threatens to curtail these enjoyments would doubtless cause a feeling of great annoyance. The history of the peach industry in New Jersey and Delaware well illustrates what I have said.

While in some cases, and in particular localities, the difficulty may appear to be a growing one, this does not hold true in all cases of orchard disease, since some of the maladies known to us have been of long standing and apparently as powerful in their operations, and as destructive in their effects one hundred years ago, as they are to-day. The present, however, is a period of exceptionally keen inquiry and sharp observation. Our average fruit grower of to-day makes note of many facts which his father or grandfather would have ignored. A more critical knowledge, combined with sharp competition in the market, make the horticulturist keenly alive to all that in any way is likely to affect his interests. Thus we see that, what in some instances may pass for an increase in the operation of any given disease, may after all be only the result of better and more systematic observation. Be this as it may, however, the serious fact confronts us that there are diseases now ravaging our orchards which demand prompt and vigorous measures, if many of our choice varieties are to be saved to those districts where they have been grown profitably up to the present time.

Of all the diseases now known, that which claims our special attention this evening is the so-called "Spot Disease" of the Fameuse Apple. Within the last two years, this disease has assumed such proportions in the vicinity of Montreal, as to render it a serious question if the Fameuse will not become wholly worthless as a market fruit. To such an extent have the

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orchards been afflicted, that I have yet to learn of one that was wholly exempt. In most cases entire orchards have been so completely involved as to render the fruit wholly unmarketable, or marketable only at a very low figure. In three instances, orchards were comparatively exempt. These were situated on the Sherbrooke Street line running north and south, and were largely protected from the force of the prevailing winds.

At the time of the last harvest, Fameuse apples of prime quality, commanded five dollars per barrel, while those which were only a little spotted, could be had at two dollars and less according to the degree of injury. One or two estimates will assist us in forming an idea of the loss incurred from this cause. The orchard of Mr. R. W. Shepherd of Como, has a bearing capacity of one hundred barrels. Owing to the spot, however, which affected the entire orchard, the apples were sold for one dollar and fifty cents per barrel. Thus representing an extreme possible loss of three hundred and fifty dollars; or, if we deduct a reasonable percentage for seconds and thirds and also allow for unusual prices as determined by scarcity, there would even then remain a margin of loss of a most serious nature.

Mr. C. Gibb informs me that in his orchard, which was more completely exposed to the prevailing winds, and in which the spot was more pronounced than in any other in his vicinity, the effect was so great that his apples brought an average of only 25 cents per bushel, or 62 cents per barrel. If free from spot, the same apples would have sold for 75 cents per bushel, or in an average year, for more than 50 cents. Out of 15 barrels he had:—

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The effect of the disease in diminishing the size of the fruit is most marked. Mr. Gibb states that the diseased apples were to the normal apples, as to size, in the ratio of 1:2 or 1:3, and since the direct loss in price is at least 50 per cent., the actual loss involved in this orchard is represented by the ratio of 1:4 or 1:6.

The disease is by no means a recent one, nor is it confined to this side of the Atlantic. The most recent contribution to our knowledge of this subject was published by Prof. Wm. Trelease in 1883,¹ in which the active cause of the disorder is illustrated.

As indicative of the wide prevalence of this disorder, Prof. Trelease mentions the following varieties which have suffered in Wisconsin and vicinity:—Fameuse, Walbridge, Late Strawberry, Haas, Northern Spy, Winesap, Roman Stem, Sweet Pear, Rawles Janet, Fall Stripe, McMahon's White, Ben Davis, Tallman Sweet, Pewaukee, Tetofsky, Plumb's Cider, Duchess, Alexander, Golden Russet, Wealthy, Red Astrachan, Sops of Wine, Utter, Bethlehemite, Fall Orange, St. Lawrence, Cole's Quince, Lowell, Baldwin, Early Harvest, Rhode Island Greening; in all, thirty-one varieties. These, however, are not all subject to the disorder in equal degree, the Fameuse being considered the most susceptible—as with us—while it is a noticeable fact that the Russains are, on the whole, comparatively exempt. This fact is shown by statistics to the effect that in one locality, the different varieties were subject to the disease in the following proportions:—

Fameuse and Walbridge, 99 per cent.; Haas, 40 per cent.; Plumb's Cider, 20 per cent.; Pewaukee, 10 per cent.; Tetofsky, 5 to 10 per cent.; Duchess, somewhat less than 5 per cent. |

The disease appears in the form of rounded black spots, which develop on the surface of the fruit. The spots are often less than $\frac{1}{2}$ of an inch in diameter, increasing to $\frac{3}{4}$ or one-half inch. Where they increase much in size, or more particularly when they become more numerous, they often become confluent and thus form one large spot, which may cover the greater part of the apple. The spots are of a dull black with a whitish border, caused by the dead and ruptured epidermis in which the parasite grows. As the disease progresses, the scab often cracks and exposes a brown layer of cork, which forms beneath as a healing tissue, in an evident effort of Nature to throw off the parasite.

¹ First Annual Report Wisconsin Experiment Station.

The spots are directly caused by the growth of a fungus known technically as *Fusicladium dendriticum* Wall., which thus becomes the active agent in producing the disease as we generally see it. The observations of Prof. Trelease show that the fungus does not penetrate the flesh very deeply; it appears rather to be confined to the superficial layers in the immediate vicinity of the epidermis, to which tissue it is, with few exceptions, confined. That it indirectly affects the other parts of the structure is apparent in the bitterness of the parts lying just below the scab, and possibly also in the reduced size of the fruit, though this may have its origin in other causes. Wherever it operates, it sooner or later determines the center from which decay rapidly extends into the surrounding structure, as may readily be seen by an inspection of apples at this season.

Leaf blight, due to the action of the same fungus upon leaves and young branches, often accompanies the scab on the fruit.

While a recognition of this disease is not difficult, so far as the parasite immediately concerned as an active agent is involved, it is not equally easy to suggest efficient methods of treatment. The principal methods suggested involve first, judicious pruning. This is to be regarded as a wise measure in any disease where a parasite is largely involved, since it not only removes, to a certain extent, the active agent, but it removes also structure which is in process of decay, and thus offers a constant menace to the sounder parts. In the second place, local applications of fungicides are made, under the impression that their destruction of the parasite must thus remove the disease. This is true, however, in a very limited sense only, since if the fungus establishes its hold only through the operation of previous causes and conditions, the removal of the parasite cannot effect any permanent measure of relief; this can be accomplished only by attacking those conditions which are the *primary* cause.

For the purpose indicated, sulphur, kerosene emulsion and caustic potash have all been tried, but so far as we are aware, no lasting benefit has resulted, the remedy is but a temporary one at best, and if the agent employed like alkali, be of a very destructive nature, it will not only kill the parasite but be liable to exercise such an injurious effect upon the tree as to farther invite the growth of fungoid parasites with attendant decay. While we by no means wholly condemn the use of antiseptic washes—but would rather encourage their judicious use—we would at the same time feel disposed to look to the nutrition of the plant as offering a possible channel through which disease is invited to enter the system, and at any rate, as a direction in which an important influence may be exerted in lessening the operation of disease. Experiments in other fruits, based upon these grounds have already led to results of such great economic importance, as to make this a hopeful direction for further inquiry.

The question naturally arises in this connection, is the disease contagious? This is a query which cannot be readily answered, since there are at present no facts which prove that it is or is not contagious, beyond our general knowledge relative to the ready dispersion of its spores and the possibility of their development whenever suitable conditions of growth are encountered. The spores of the fungus are about 10 x 20 micro-mm in diameter, and since from their very diminutive size they are easily suspended for long intervals of time, in the air, they find a ready vehicle in the wind, for distribution over long distances, gradually to settle down and grow with characteristically destructive energy, whenever they find suitable conditions of warmth, moisture, and the plants specially adapted to their requirements.

It is also a well known fact, as characterizing the growth of all fungi, that unusual conditions of heat and moisture are specially favorable to their development; hence it is frequently observed that diseases of this character are frequently prevalent during muggy weather, especially if this follow a period of low temperature and slow growth.

From the preceding statement, one fact is conspicuous, viz: that our knowledge of such diseases is altogether too limited, and that we, at the present time—with one or two exceptions—know of no efficient mode of treatment. That such disorders may eventually be brought under control, however, is amply illustrated in the peach industry of New Jersey. The ravages of the yellows, so prevalent and disastrous ten years ago, are now no longer looked upon with the same

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degree of alarm. The orchardists feel that they have the means of controlling its operation within their own hands. The same mode of treatment, however, will not necessarily apply to other diseases, but this one fact is most encouraging and permits us to hope and believe that other diseases will eventually be controlled as well.

There are, however, two facts which it would be well to emphasize at the present time. In all inquiries into disease it is of importance to know to what extent its ravages extend. This can only be done through statistical information from the hands of the fruit grower himself. From numerous efforts in this direction, I have become convinced that only a very small percentage of fruit growers can tell even the produce of their orchards, much less the loss involved from any cause, a state of affairs which in any mercantile pursuit, would bring immediate disaster. From an economic point of view, such statistics are of the greatest value, and I would suggest co-operation of all our local societies with the Montreal Society, for the annual gathering and preparation of statistics bearing upon the produce of orchards.

In the second place, the question of disease affects our orchard interests in so marked a degree that some measures looking to investigation, are imperatively demanded. Results could not be reached in one year, or two years; they must be the outcome of long and patient investigation carried through a series of years, and as the work must be undertaken sometime, the sooner the better. Government should co-operate in so important a matter, but if not, let our societies take it up for themselves.

MR. GIBB.—Do I understand this fungus finds in the skin of the Fameuse a congenial soil, and if the spring weather is favorable, then a congenial climate and it grows and flourishes? We fancy at Abbotsford a cold wet spring is the time we have most of this fungus spot. It begins to appear when the apple is the size of a pea. That paper states it is found in all climates. I have taken up Dr. Regel's Russian Pomology and I find about sixteen in the whole list of colored plates have spots. I find in my orchard some varieties are more liable than others—the Fameuse is most vulnerable.

I have fruited the Shiawasse Beauty two or three years, and it has spotted very badly, whereas it is seldom we find a spot on the Duchess. I have seen one or two on the Yellow Transparent, but the Russets are completely free. I am exposed to south east winds, and I think my Fameuse orchard was more spotted than any other at Abbotsford, and others were spotted in proportion as exposed to that wind. Further north on our road, the Fameuse were less spotted. In Mr. Robert Whitney's orchard, which produced the finest Fameuse this year, we see one tree spotted and another in a similar situation not spotted. Some give high culture and others starve their trees. I think the evil is done over ground and not under ground.

MR. BRODIE.—With reference to the fact that orchards on Sherbrooke Street had no spotted apples and that east winds are apt to propagate the fungus growth, I have noticed from our locality looking over the city, that the smoke lies very low over it, stretching from about the reservoir towards St. Helen's Island, and this smoke must be full of sulphur from burning so much coal, and sulphur kills the fungus growth. Would not that cause the orchards in the city to be free from this fungus growth?

CHAIRMAN.—That might have something to do with it.

MR. SHEPHERD.—Mr. Gibb mentions the Shiawasse Beauty. I am not acquainted with it, but this last summer I was in correspondence with Dr. Hoskins, of Newport, Vermont. We were in correspondence about the spot, and he said:—"I have

banished the Fameuse from my list; I do not propagate them any more. I have given up propagating the Tetofsky, but I have top-grafted a large number of my Tetofsky with the Shiawasse Beauty." He said the Shiawasse was a seedling of the Fameuse, and he recommended me highly to go in for it and abandon the Fameuse, and make the experiment as he had done of top-grafting Tetofsky. With regard to the orchards being exposed to certain winds, I think there is something in that. I have four Fameuse orchards, and the one that was least affected by the spot, although it was badly spotted, was that which was protected on all sides. It had a high fence around two sides, and on the other two sides high hedges. I agree with Mr. Gibb that spotting is atmospheric. I think cultivation has very little to do with it.

REV. MR. WATSON.—The spotting of the Fameuse is a recent thing. From observation in an orchard of seedlings I think it is caused by want of proper cultivation. I had a seedling that gradually became more spotted every year until at last I neglected to gather it at all. Two years ago the children took the ground under it for a garden, and thinned out the boughs to let in more light, and manured the soil and kept it free from weeds. Since then the fruit has been free from spots.

MR. HONEY.—Mr. Gibb has remarked that the apple orchards below his place on our road were much better than his. I thought three years ago the Fameuse was a failure, but mine, Mr. Roach's and Mr. Fisk's were much better last year than for several years previous. I think the Fameuse is not lost yet.

MR. SHEPHERD.—How do you account for it?

MR. HONEY.—I do not know.

MR. BRODIE.—Part of my orchard is in a garden where there has been manure put in at the rate of 75 tons to the acre, and on those trees I had the worst apples I ever saw. Out of 200 barrels of apples I fed 100 barrels to the cattle; I sold 50 barrels for fifty cents a barrel and got the barrels back again; I sold 40 barrels at \$1.75 a barrel, and I had only ten barrels I got \$3.50 for. I got the ten barrels of choice apples along the Lachine road where we had taken off the surface soil with a scraper to fill up holes, and the soil must have been pretty poor.

CHAIRMAN.—There is a conflict of authority with regard to the question.

MR. FISK.—On this question of spotting we have had some experience for a number of years, and although it has been bad for the last few years, yet I hope we will see the time when the Fameuse will come up again. The last two years it has been very bad, but some seasons were worse than others. I think it is due to atmospheric influence more than the soil.

MR. BRODIE.—With reference to those orchards along the Lachine road, there is a great deal of dust along there, and it is suggested that it may have been the dust that prevents the apples spotting. It is limestone dust.

MR. SHEPHERD.—At the last meeting of the Directors of the Horticultural Society, at the suggestion of Professor Penhallow, a resolution was passed to send circulars to the different local societies throughout the Province, asking them to collect statistics on this same subject for next year.

MR. W. W. DUNLOP, Montreal.—I have a communication from Mr. P. E. Bucke, of Ottawa, which I will read.

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SOME USEFUL AND HARDY FRUITS, SUITABLE TO THE COLDER SECTIONS OF CANADA.

By P. E. Bucke, Ottawa.

It has given me much pleasure to receive an invitation to attend your meeting and to be assured by you, that my exertions to promote and extend fruit growing on the border line between the provinces of Quebec and Ontario, for eighteen years past, have been appreciated by your distinguished Society. It has been well said "that Fruit is one of the noblest gifts to man." It has been my pleasure as Director and Vice-President of the Fruit Growers' Association of Ontario, to introduce and distribute both new fruits and information respecting their care and culture, ever since I have resided in the "cold north."

At the request of your Corresponding Secretary Mr. W. W. Dunlop, "to give some notes on the new apple McLean," I have concluded to extend my paper a little beyond that apple, and trust to receive your pardon for so doing. I may say, however, the McLean is not exactly a new fruit in the ordinary acceptation of that term, it having originated many years ago with a man of that name, on a farm near Lyn, a town not far removed from Brockville on the Grand Trunk Railway.

Many years ago, the people of this district finding the trees imported from the States and Europe not sufficiently hardy for the climate, or because in those remote times, young trees were difficult to obtain, conceived the idea of raising seedlings. Three of the apples thus procured, are now in cultivation, and perhaps more, for aught I know. The three I refer to are the Brockville Beauty, the McLean, and the Baxter. The latter is a beautiful large winter fruit, a sample of which I have much pleasure in exhibiting at this meeting.

The sample presented, was grown three miles from the City of Ottawa, and is an ordinary specimen, not having been selected for exhibition purposes. The tree of the Baxter is thoroughly hardy, as far as the winter snow and spring sunshine are concerned, but I regret to say, it is somewhat subject to the mysterious effects of blight. The fruit from its size, is sometimes known as the "Pound" apple, but about its native place it is called Baxter, after the man with whom it originated.

You will notice it has rather a closed calyx, in a deep, though not large, sunken basin, the color is a uniformly deepish red ground spotted with yellow specks, stem very deep set, short and slender, the apple is slightly russeted in the stem cavity. The specimen furnished, though small, is characteristic of the general appearance of the fruit, which is a fair cooker, its size makes it specially valuable for boiled or baked apple dumplings.

The McLean apple grows upon a tree with upright limbs which are covered with a smooth, clean bark. The tree is perfectly hardy in this climate, not a twig has so far been injured by either blight or frost; the fruit is of a yellow color with slight russet specks, it is a little above the medium size, as large as a good sized Spitzenburg but a little longer in shape, it has an open calyx, not deeply sunk, its season is October and early November. The flesh, which is juicy and melting, so much resembles the flavor of the pear, that if eaten with the eyes shut, it would be difficult to detect the difference. The fruit when ripe, would be too soft to ship for market, but this defect might be obviated if it was forwarded before it was fully ripe, and afterwards brought to perfection on shelves in a suitable temperature. It is certainly a very delicate and delicious fruit, and where autumn pears cannot be grown, would from the hardiness of the tree, prove an acquisition, especially for the amateur.

The Brockville Beauty is so well known, that I need not give any description of it here.

The only really new fruit that has come under my notice is a white, or rather green grape, which has originated in a garden on the banks of the Ottawa. From its Arctic home I have given it the name of the "Northern Light." This grape will, undoubtedly, give a great impetus to the cultivation of the vine in those parts of Canada, or the States, where the first frosts occur from the middle to the end of September. The past season was one very deficient in ripening weather, the latter part of August and nearly all September was cold and wet, the rainfall was nearly continuous and when no moisture was actually falling, heavy clouds obscured the sun. Yet with all these difficulties to contend with, the Northern Light was dead ripe before the first frost made of our vineyards a howling wilderness.

The berry is of good size, bunches well set and compact, the leaf is thick and leathery and has every qualification for resisting mildew. I do not like to say too much of this wonderful vine, and yet feel I cannot say enough. I purpose having it on view at all the principal exhibitions next autumn, and will leave it to the various judges to pass upon its merits, convinced they will give it a place and a rank among the first, if not ahead of all in cultivation. It will certainly ripen with Moore's Early if not with the Champion, whilst in color, size and quality of fruit, it is second to none.

With a view to secure hardier plants and early ripening varieties, a cultivator of the vine here (Ottawa) has set out five hundred seedlings with a view to getting something more desirable for this locality. It would be well if others would devote a little time and labor in this wide field of usefulness. In apples we want hardy trees yielding late keeping fruits, in grapes, berries that will ripen with the wild ones in August. If all would strive to secure these ends some one would succeed.

CHAIRMAN.—You have listened to this very instructive and sensible paper, and I think we are under very great obligations to Mr. Bucke, who has done so much for fruit culture. Are there any remarks on this communication?

MR. SHEPHERD.—I would like to endorse what Mr. Bucke has said in regard to the Brockville Beauty. He says it is so well known that it is not necessary to say anything about it, but I do not think it is well known in this district. I have fruited it for the last ten years, and I think a great deal of it; it is very handsome, ripens in September, which is after Duchess—between Duchess and Fall St. Lawrence. It is an excellent table apple and good cooking apple. Its appearance is very handsome, and the tree is quite hardy.

With reference to the

BEST FIVE VARIETIES OF APPLES FOR PROFIT,

the following opinions were expressed:—

MR. R. BRODIE, Coteau St. Pierre, Montreal.—1, Duchess; 2, Alexander; 3, Peach of Montreal; 4, Fameuse; 5, St. Lawrence.

MR. A. W. CRAIG, Allen's Corners.—1, Ben Davis; 2, Golden Russet; 3, Alexander; 4, Fameuse; 5, Duchess.

MR. JOHN M. FISK, Abbotsford.—1, Duchess; 2, Yellow Transparent; 3, Fameuse; 4, Wealthy; 5, Alexander.

MR. C. GIBB, Abbotsford.—1, Duchess; 2, Alexander; 3, Wealthy; 4, Yellow Transparent. I have named Yellow Transparent fourth in my list because my experience with it has been short. The Charlottenthaler will probably be of equal value. For fifth I should be inclined to name Johnston, a seedling, a fall fruit of good size and color and of fair quality. The old tree is a model of fruitfulness and tenacity of life, but on young trees I have had some blight. Another variety on a par with this is Haas.

MR. G. E. ROACH, Abbotsford.—1, St. Lawrence; 2, Fameuse; 3, Duchess; 4, Wealthy; 5, Winter St. Lawrence.

MR. R. W. SHEPHERD, JR., Como.—1, Duchess; 2, Wealthy; 3, Fameuse; 4, Canada Baldwin; 5, Winter St. Lawrence.

MR. W. R. HONEY, Abbotsford.—1, Duchess; 2, Fameuse; 3, Alexander; 4, Wealthy; 5, Tetofsky.

The follow
varieties of

VARIETIES

St. Lawrence.
Late Strawberry
Fameuse.....
Newberry Sweet
Golden Sweet.
Wealthy.....
Duchess.....
Ben Davis.....
Tetofsky.....
Alexander.....
Blue Pearmain

MR. SHEPHERD

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The following tabulated statement by Mr. Geo. E. Roach, Abbotsford, of the best varieties of apples, was also submitted.

VARIETIES.	SIZE.	COLOUR.	SEASON.	QUALITY.	Hardness.	Productive-ness.	Dessert.	Cooking.	Local Mart.	Montreal Mart.
St. Lawrence.....	Large.....	Red Stripe...	Aug. & Sept.	V. Good..	5	5	5	4	5	3
Late Strawberry.....	Medium.....	" " ...	Sept. & Oct.	Fair.....	1	5	3	5	5	1
Fameuse.....	Medium.....	Red.....	Oct. to Jan.....	V. Good..	4	5	5	3	5	4
Newberry Sweet.....	Large.....	Red Stripe...	August.....	Good....	2	5	5	0	5	0
Golden Sweet.....	Medium.....	Yellow.....	Dec. to Feb.....	Good....	5	5	5	2	4	0
Wealthy.....	Large.....	Red Stripe...	November.....	Fair.....	5	5	3	4	5	4
Duchess.....	Large.....	" " ...	September.....	Fair.....	5	5	1	5	4	4
Ben Davis.....	Medium.....	Striped.....	May to July.....	Poor....	5	4	0	2	3	3
Tetofsky.....	Medium.....	Yellow and striped	August.....	Fair.....	5	5	4	4	4	3
Alexander.....	Large.....	Red.....	"	Poor....	4	5	1	4	3	2
Blue Pearmain.....	Large.....	Dark Red....	Dec. to March...	Good....	3	2	4	2	3	3

MR. SHEPHERD.—As regards the Yellow Transparent, I do not think we are right in placing an apple as one of the best varieties until it is on the market, and although you may have great expectations of the Yellow Transparent, and I have no doubt of its being one of the best, yet I do not think you can put it on the list; I might as well put Brockville Beauty down, but I have never thrown it on the market.

The following paper by Mr. W. M. Pattison of Clarenceville, was then read :

GRAPE CULTURE.

In the few moments that can reasonably be allotted to a subject that would require hours to do justice to, the fact forcibly presents itself that our guide must be *multum in parvo*, and many points in grape culture must be briefly passed over.

While some of our small fruits do best in rather moist ground, the vine will not thrive for any length of time in soil which retains water about the roots, so that the first precaution before entering into grape culture is to look to proper drainage. It is quite as necessary to give the roots their natural element and food as to treat the growth in accordance with principles which favor fruitfulness. A common mistake made by many is in setting out vines where trees shade and rob them of the elements in the air necessary to their existence, or planting them so near together that they will in time be smothered by an excess of their foliage. These mistakes are the source of much failure and discouragement, vines in time, will give better results at from 12 to 20 feet apart than nearer; on trellises 10 feet from each other. It does not follow that at first a loss of space should occur, for vines of the standard varieties are comparatively cheap and one can set out 2 or more varieties at 6 or 8 feet apart and in after years, as they crowd each other, every other one can be dug up; though we are naturally loath to do this after a vine has borne well for some years, but results from those which remain will in a short time compensate for this.

While at this stage of the subject we may as well pass to training and some of the systems which have advocates where vines can remain unprotected on the trellis during winter. Many in our country have with a small number of vines, tried a system, revived and strongly advocated of late years, by the writings of A. S. Fuller of N. J., U. S., with several modifications. The system is popularly known as his, but it has been adopted and mostly abandoned in Europe,

I may perhaps say for over half a century. This system of trellis is constructed with posts and horizontal bars at top and base, a foot from ground, and strips or wire extending at proper distances connecting these bars. This may for a time answer with a few vines but involves much cost and labour and is open to serious objections in a few years. A system is now advocated South, in sections where vines can remain exposed in winter on the trellis. The Kniffin trellis is constructed of posts and 2 horizontal wires, the lower about 3 feet, the upper 6 feet from the ground, the main cane is secured to each of these wires and horizontal arms are trained right and left to them, all unnecessary buds on main cane are brushed off as they appear. In 6 or 8 years from planting, the vine as we say "is established" or covers the space allotted, the new wood is spurred in each year to 1 or 2 buds in fall, allowing 5 or 6 spurs on each arm. The advocates of this system claim that its adoption has in a great measure exempted the foliage from mildew, but the objection to it in this climate is that the main cane becomes so rigid in a few years, that it cannot be laid down for winter protection without danger of breaking. A new system advocated by Mr. A. J. Caywood, an eminent fruit grower and propagator on the Hudson, is a trellis built in shape of a letter T, with horizontal wires extending from each post (cross-beams might answer us better here). There are a number of methods of training in the grape sections of Europe, but there, as well as in California, (which is soon to be the greatest country in the world for grape culture,) the primitive and cheap system of training on poles predominates.

For northern cultivation I have as yet found no better method of training than what the term *fan shape* will convey an idea of and which will be described later on.

Before entering on treatment of newly planted vines one fundamental principle of growth (that the tendency of sap, and consequently vigor, is to the extremity of the cane) shall be held in mind. If we expect success in cultivation of the vine a start from the first must be made on this basis. On the first few years treatment of the young vine depends its future shape and usefulness, neglect presents in a few years long bare canes fruitful only near their terminals. The prevailing error with most people is fear of pruning; if a 2 year old vine is set out as generally obtained from nursery, pruned for allowance for accidents to buds, and all are allowed to grow, the strongest when well started should be kept and the other brushed off, and the cane, late in summer, should be nipped at the end to develop strong buds at base for next season's use. In the fall, after leaves are shed, the wood is cut down to 2 buds. The following season the same rule as to pruning is observed on the 2 canes as during the 1st year. Year by year an extra cane may be allowed to grow till you have 4 main canes, each having a second tier of canes. The nipping process is all important to restrain rampant growth at the proper time as judgment dictates, keeping the vine well open and preserving a *fan like* appearance. After a few years if a cane has become barren for some distance from the crown of the vine it can be sawed off and replaced by a new shoot from near the ground, or a sprout out of the ground can be utilized. In after years this often requires to be done to renew the vine and keep it within prescribed limits. In the early years of the vine, bearing needs to be *carefully restricted* or the fruit obtained will be poor and at a sacrifice of future vigor; it is generally better not to allow any fruit to grow till after the 4th season. A common fault with most growers is in allowing useless laterals to grow on the main canes, the result of which gives a mass of leaves to retard perfect ripening of wood and often inducing mildew.

A vine is much less cane after the 6th year. Vigilance and careful study are necessary early in the season, then you can forecast what the final result will be if you leave all the sprouts to grow into canes, choking each other. The fruit spurs must be attended to early, removing the poorest clusters and those conflicting with each other, all excess of fruit beyond the capacity of vine to properly mature, nipping the fruit branch 2 or more buds beyond the last bunch of grapes, according to the health of foliage and its liability to be weakened by insects or natural causes. All laterals afterwards forced out by this nipping shall be similarly restricted, that the energy of the vine may be preserved for the fruit and wood needed for another year's crop. In fall, when leaves are shed, the vine can be pruned to best advantage. In this climate this pruning requires the most careful study and attention of all duties in grape culture, as on its proper exercise the following season's crop depends. In a large number of vines we have to prune the season's wood to two buds

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The lines possible, of lig each vine. O ground (so as the first. La material I hav size and cut in cane tied in; twisted cord o frost has pass liable to be bro the earth, the the busiest se clusters, cuttin insects the wo it, these bris the tender va lighted torch a small propo time is a tar holding it clos the tar and the stated) will so

as a rule, the weakest is either brushed off or used for wood for future bearing, the fruit appearing on this is removed. This is the time to remedy any neglect or oversight and cut away all weak canes that show a lack of vitality from any cause and destroy the symmetry of the vine. In most varieties all spurs which bore grapes this year should be cut close to cane (they can be distinguished by their soft green appearance.) The vine should not be left till the future results of the pruning are carefully studied, having in view an equilibrium between permanent canes and spurs, and as near as can be judged, an even distribution of future fruit, desirable to good ripening. There are two questions a grape culturist is often asked, viz., "How are your vines trimmed in the fall?" and "What is to be observed in summer management?" We find it very difficult to satisfy such enquiries—for one reason—no rule can be given of general application to all varieties. You may read all the works published on grape culture and come out bewildered and unsatisfied; the best school is in the vineyard, while these duties are being performed.

A person (whom my sons had supplied with a few vines for some years from their nursery) called at the time we were engaged in fall pruning. The work was well under way, the wood left on the trellis, except such as was suited for cuttings; he could see and get all the information he desired. After spending some time he declared "that all the explanations he had previously obtained only mystified him and that the management of the vine could very slowly and imperfectly be learned from books on the subject."

Fall pruning finished, all cuttings, leaves and litter must be raked up, removed from the vineyard and burned as they contain more or less of the *ova* of the thrips or grape leaf hopper. By careful attention to this very little trouble will arise from their ravages on grape foliage. The vineyard thoroughly cleaned, the ground when in good condition, and not wet and sticky, is run over with the ordinary cultivator, the vines, usually after a rain (when they are most flexible) are laid on the ground and kept down by billets of wood and pieces of boards, ready to cover with the loose earth on the first indication of the ground freezing up for the winter. A few days should intervene between pruning and covering, to allow the green cuts to dry over to prevent the sap exuding in spring. If the soil is of a clayish sticky nature, evergreen boughs are preferable for covering, but manure, litter and corn stalks harbor mice, which often girdle vines. Manure if in a condition to ferment is liable to destroy the buds and injure the vine if left on late in the spring.

The lines of trellis (as before stated) should be 10 feet apart, ranging north and south if possible, of light cedar posts stripped of *all bark*, 9 feet long and 3 feet in the ground, one between each vine. On these, No. 10 or 11 galvanized wire may be strung, the lower wire 2 feet from the ground (so as to allow working under it with a hoe,) 3 upper wires can be evenly distributed above the first. Lath is used to train young vines to the wire, tied securely to it. The best tying material I have found to be discarded rope, obtained from hay pressers, unstranded to a suitable size and cut into pieces of the length required. This is first tightly secured to the wire, then the cane tied in; this obviates the wire cutting the wood. This rope is soft and preferable to hard twisted cord or raphia which is soon cut by wearing on the wire. In spring, after danger from hard frost has passed, the earth or other covering is removed before the buds have become swollen and liable to be broken off. A manure fork I have found best for raising the canes, carefully shaking out the earth, the vine should be tied to the trellis before the buds are liable to injury. In a short time the busiest season comes on, brushing off buds where they are not wanted, later on selecting best clusters, cutting out poor, thinning out overloaded vines and nipping ends of fruit canes. As to insects the worst we have to contend with are the thrips; just as the fruit needs the leaf to mature it, these brisk little tormentors begin their ravages on the leaf with a discriminating exactness for the tender varieties (like Allen's Hybrid). To get square with them the old remedy is to carry lighted torches between the trellises, while the boys beat the vines; the insects are disturbed and a small proportion take to the flame. A recent successful method of destroying them in the day time is a tarred sheet, on a frame 3 feet square, with a strip to carry it by across the back; by holding it close to the vine, in left hand, and disturbing them with a light besom, numbers take to the tar *and they are there*; but careful attention to perfect cleanliness of ground in fall (as I before stated) will soon rid them out. Mildew we have to fear in some seasons, on certain varieties, but

this is generally induced by allowing a dense mass of foliage to exclude the air, and again in vines crowding each other and often too near to trees. The past season was the worst for mildew I have noticed for many years. I have a great objection to using sulphur, though the bellows distributes it evenly some particles fall on the fruit of white and red varieties and disfigure the berries. A Hudson River propagator has applied it, he says, broadcast over the ground and under the vines, relying on the fumes doing the work. This may be worth trying here at the particular time known to induce mildew, viz., after rains followed by excessively hot and humid weather, or sudden change from damp cold weather to hot.

As to fertilization for the grape, experience of late years has taught us the fallacy of the old idea of *excessive and high feeding*, which, while it induced growth was unquestionably at the expense of fruitfulness. A member of the Ohio State Horticultural Society, in a discussion on this subject at a meeting similar to ours, expressed the opinion "that soil which would produce 40 bushels of corn to the acre was rich enough for the grape." I quite concur in his opinion except for a few weak rooted varieties of delicate foliage, like the Delaware, which require a much richer soil. I apply a very light top dressing of *well rotted* cow manure every year after the vines are covered in the fall, in the spring after the vines are uncovered and tied to the trellis this is cultivated under and a light top dressing of wood ashes is spread over the ground, but from sad experience I must caution others to *use ashes very sparingly*.

As to best season for setting out vines I much prefer the fall, as after fall rains the roots come more easily from the ground and in much better order than in spring, the ground in October is usually in suitable order for planting, and after the vine is set out the later fall rains settle the earth firmly around the roots and the vine is ready for a start *long before* the ground is fit to set out vines in the spring. We have perhaps all observed that in the fall, and even in winter, there is a process of enlargement of bud in most trees, shrubs and vines, which is undoubtedly connected with a corresponding activity in the roots; I have found vines (particularly older ones) set in fall to start in spring as soon as others long planted in the vineyard, and they were fully 3 or 4 weeks in advance of similar vines set in spring. But success in fall planting demands more care in covering. I generally set my vines from 8 to 10 inches below surface of the ground and in fall planting cover the surface over and beyond the roots with a good quantity of straw manure, just before winter, drawing earth sufficient to cover buds on crown and protect them from the early fall frosts, later on increasing the covering to a foot or more, placing wide boards or a small box over the dirt on the crown, in spring this requires to be removed as the season advances.

In conclusion Mr. President, I will say that I have endeavoured to give in as few words as the subject will allow, a few hints on grape culture which may be of practical value to those present. Though some may not agree with all said on this subject, I would be glad to hear a discussion on any point, coming here rather to learn and get benefit from the long experience of others who have made grape culture a vocation. It is by comparing notes in this way that we can arrive at the best methods to adopt, and keep abreast of the times in an industry comparatively new to our Province. Our neighbors in the United States have for years past held meetings like the present, in almost every State; their inauguration by this Society last spring bodes, I trust, grand results for the future, and must soon place us in as good a position as our energetic and enterprising fruit culturists of the Great Republic.

CHAIRMAN.—I am sure we are all very grateful to Mr. Pattison for having stated to us in such a lucid manner, his wide experience in the cultivation of the grape. None among us has cultivated it with more success than Mr. Pattison. While thanking him as we do cordially for his paper you will see he invites discussion, you cannot please him more than by taking up the paper now before you for the purpose of discussion.

MR. FISK.—I would like to ask Mr. Pattison which varieties amongst those he has cultivated he considers the best.

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MR. PATTISON.—The best varieties of out-door grapes for general cultivation in this Province so far as satisfactorily tested at Clarenceville, P.Q., are:—

FOR MARKET.		FOR HOME USE.		FOR KEEPING QUALITIES	
Champion,	Black	Worden,	Black	Herbert,	Black
Worden,	"	Herbert,	"	Peabody,	"
Delaware,	Red	Delaware,	Red	Vergennes,	Red
Gaertner,	"	Massasoit,	"	Salem,	"
Duchess,	White	Lady,	White	Duchess,	White
Belinda,	"	Duchess,	"	El Dorado,	"

Massasoit some seasons, in fact generally, sets its berry imperfectly and does not present a marketable appearance in such case. Lady, though an excellent variety, when it reaches market shows carriage from its tender skin.

MR. GIBB.—I find Mr. Pattison has left out the Brighton.

MR. PATTISON.—I must say, my experience with the Brighton is not very satisfactory. I was perhaps one of the first to plant it and I spoke at the meeting of the American Pomological Society in Boston, in 1882, in its favor, but I have never found it a profitable grape to raise, although it is a very fine grape. It does not keep over a week, it deteriorates at once. I would like to hear the opinion of some of the grape-raisers in reference to it, my impression is it requires a poorer soil than I have, because it is a very strong grower, you can hardly restrict it.

CHAIRMAN.—Perhaps Mr. Gibb would give us his choice of varieties.

MR. GIBB.—I have nothing to say about grapes this year. I have grown them for eight years and have been successful, but this year Massasoit, Brighton and even Delaware and a number of others did not ripen with me sufficiently to be eatable. I fruited forty varieties but they were not good. I must say if I had been here I think I would have taken off half the crop and ripened the rest. We have had a season of peculiar lack of ripening weather for both apples and grapes; I had a tree of St. Lawrence in my orchard on which, on the second of October, the apples were not overripe. This season I suffered from mildew and one of the varieties affected was my Brighton, which heretofore had always been very good. It is well in an unfavorable season to watch which are your earliest grapes and note them. This year we sadly missed our usual supply of ripe grapes which we sample on the evening of our exhibition; we usually have forty or fifty varieties, to sample, taste and compare.

CHAIRMAN.—The chair would like to know Mr. Gibb's experience of the Niagara; it is fast becoming a favorite in New York and other places.

MR. GIBB.—I have not fruited Niagara. My favorite white is Duchess.

MR. BRODIE.—I saw some fine Niagaras from Mr. Jack, Chateauguay Basin, in Montreal, in Mr. Clogg's or Hart & Tuckwell's. With reference to the Brighton, I have fruited it for two years past and I have been wondering whether grapes, like strawberries, had imperfect blossoms. The clusters were not compact at all.

MR. PATTISON.—With reference to grapes having imperfect blossoms there is one variety that is very fine, that is the Agawam. Mr. Barry, President of the American Pomological Society, at a meeting in Boston, in 1882, said he had planted a Delaware in with his Agawam and had perfect grapes. On that information which I got I trained my Agawam over Adirondack, which is a perfect grape, and the next

season or two, I was able to show some beautiful and perfect grapes of that variety. I give this hint to grape-growers present, so that if any of them have imperfect grapes they can try the experiment.

MR. BRODIE.—Would not the bees fertilize the grapes enough without having them grow into each other.

MR. PATTISON.—No doubt, and the seeds might be used to propagate other grapes, but it is an open question whether bees do any good to grapes at all.

CHAIRMAN.—I suppose Adirondack has fallen out of the list by this time.

MR. PATTISON.—I saw that Mr. Fisk referred to it at the last meeting in Montreal, at which I was not present and I thought that, perhaps, for some reason he was very successful. I have not found it to have suitable roots; they are too weak; I have to be particular to thin out half the berries or I will not get good fruit at all. I have taken them up all but one.

CHAIRMAN.—As to quality they are second to none.

MR. PATTISON.—They are excellent as to quality.

CHAIRMAN.—I remember when this grape was first brought before the world. Mr. Bell brought it to Montreal thirty years ago, and the Reverend Mr. Villeneuve, of the Seminary, said he had seen no American grape to be at all compared with it. and at his recommendation we gave Mr. Bell a silver medal for his Adirondack grape; that was the first start it got in the world, but it is a weak and feeble grower and that is its one great defect.

MR. SHEPHERD.—I would like to ask Mr. Pattison how many varieties he cultivates.

MR. PATTISON.—I have about 105 at present, part of which I intend to take up. My object is not so much a commercial one as to try to help all parties in the United States, who are successful in hybridizing,—getting anything early and suitable to our climate. My idea is in a very few years to reduce my vineyard to about 20 varieties.

MR. SHEPHERD.—I would like to ask what kind of labels you use.

MR. PATTISON.—I paint the names on the posts.

MR. SHEPHERD.—The reason I ask is, a friend of mine got badly mixed up in that way, a crazy woman passed his way and took off the labels—a great many were new vines and had not fruited and now he does not know exactly what they are.

MR. PATTISON.—My posts are not very large and if I cannot get the name on across, I put it up and down. I paint it on the post on the right side of the vine.

MR. BRODIE.—What would one net an acre by planting grapes; what returns would it bring?

MR. FISK.—I think that is a very important question. Judging from what I have learned from grape culture, it seems to me from a commercial point of view we need not expect to do much in this Province. We cannot compete with the New England States, where the climate is more favorable, and especially with California. I cannot see how we are going into it with the view of making money out of it. I have had very little experience in the culture of grapes; I have only cultivated twenty varieties. I have made out a list: 1st, Delaware; 2nd, Brighton; 3rd, Adirondack;

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4th, Lindley; and 5th, Duchess. With reference to Mr. Pattison's remarks upon Mr. Fisk bringing forward the Adirondack last year—it was my brother—he has been successful with the Adirondack.

CHAIRMAN.—What is the greatest yield one can get to the acre from such a grape as the Lindley, how many hundred weight from an acre from well established vines in a favorable season?

MR. PATTISON.—I would not be in a position to answer that because some of my vines produce forty pounds to the vine, that is old vines ten years old, of others it will take a dozen or two to produce forty pounds. Some varieties that are esteemed highly would not produce more than ten pounds.

CHAIRMAN.—Though the less said about its quality the better, what quantity per acre can be got from the Champion?

MR. PATTISON.—It is the most profitable grape I have for market, and the system I adopt is to thin out the bunches of all the imperfect berries and send fruit to St. Johns. I got them in there before anyone else and have no difficulty in getting ten cents a pound and afterwards when others send they only get five or six cents a pound. If you want to ripen them early thin them out well, then you will ensure larger bunches and earlier ripening.

REV. MR. LONGHURST.—How many pounds per vine of the Champion?

MR. PATTISON.—The best about forty pounds to the vine.

CHAIRMAN.—How many vines to the acre?

MR. PATTISON.—I could not say that. The Champion ought to be given a great deal of space—10 x 12 feet between the vines.

MR. BRODIE.—About the price of grapes in Montreal, a friend of mine from Chateauguay sent down some Agawam and several other varieties and happened to strike a bad market; all he got was about three cents a pound, and he did not try it again. I have seen the best of Brightons bought for eight cents on the Montreal market by the basket.

CHAIRMAN.—Grapes from California are bought at low prices. I bought fine ones at fifteen cents in Montreal brought 3,000 miles and after paying duty.

The following paper was then read by C. Gibb, of Abbotsford, on

CHERRY GROWING.

The culture of this fruit has been too much neglected in this Province.

About 10 years ago, I planted a number of kinds which at that time seemed the best we had; viz., Kentish, Common Canada Morello (from Ontario,) perhaps Early Richmond, a variety with Duke foliage known as Black Eagle, a Morello from Rev. Mr. Fulton of Huntingdon County, also about 10 ungrafted trees from Mr. McDonald of Wellington St., Montreal, of that cherry of English Morello type so long grown at Lachine by Mr. W. J. Newman, also sprouts from several other good unnamed kinds. These varieties in course of time bore moderately but they did not prove young or abundant bearers, and the Black Eagle and the trees from Mr. McDonald were very shy bearers indeed. Two years later I planted English Morello and Montmorency ordinaire; of the former I had but one tree which has been a better bearer than the other kinds previously planted. It ripens a week later than the others and owing to its deep purplish flesh and acid flavor, is the best cherry I have for canning. The Montmorency ordinaire, however, is the one, the finding of which repays all my trouble with the others. It is of large size for a Morello, has light colored flesh, not very acid and is an abundant and it would seem a regular bearer.

In 1882, Prof. Budd and myself were in Northern Germany during the cherry season. We examined the collections at the Pomological schools at Troja, near Prague, at Proskau, near Oppeln, and at Warsaw. We tasted samples and took notes. We visited a good many gardens. We continually bought samples in the shops and markets. As we continued our journey north and east, we found cherry trees still in fruit at Vilna and Riga, and at St. Petersburg we found men going about the streets with large heaped trays and the peasant population regaling themselves. These cherries were grown in Vladimir, east of Moscow, where the winter temperature is 3° lower than in the City of Quebec. Here the chief industry of some of the villages is cherry growing, and cherries have even been shipped from there by the car load. These things I have already noted in the 8th report of this Society. The question arises, however, why we have not our Canadian Vladimirs with their millions of cherry bushes and their drying and canning establishments. This would be a new "hum of the N. P." and would develop more bright eyes and rosy cheeks than factory labor.

This Vladimir is a dwarf Morello and is usually purple fleshed, and it is these purple fleshed Morellos, often known as Griottes, which promise to be so widely useful in such climates as this. Mr. Budd and I soon found that the common varieties of Central and Eastern Europe had not been brought to this country. I have now growing at Abbotsford 35 of these newer kinds, thanks to him and his skill in propagating them. In 1885, I fruited Schatten amarel and Spate Morel, they are both of good size, dark in skin and flesh and at first very acid, and the former austere and astringent. I put nets over them to protect them from the birds and tasted them as they became fully ripe and over ripe. At last they were scarcely sub acid, almost sweet. Several other kinds fruited last summer but I cannot report, for at the time they ripened I was cruising in the Arctic Ocean and watching the midnight sun. Some of these cherry trees have borne their second crop and yet are only 3 feet high, and many have borne on trees 3 and 4 years from the graft. Some are erect in growth, others weeping, and some have foliage like the Dukes. In the trees there is great variation, in the fruit also. (Note my remarks in 11th report, page 30.)

When in St. Petersburg in July of last year I gathered the seeds of the best cherries I found for sale, including some very fine Glaskirsche or pale fleshed Dukes, grown on the south side of the Gulf of Finland. The seeds of these I have planted at Abbotsford.

There is a serious drawback to the cultivation of these cherries, viz., the birds. These cherries begin to color 10 days before they should be picked for any purpose, and some varieties like Schatten amarel are not at their best as dessert fruits until fully 3 weeks after they have turned red. What a chance for the birds and the boys.

In conclusion, I would strongly urge the planting for trial of these dwarf forms of the cherry from North Eastern Europe. From no part of my experimental work do I expect more valuable results.

MR. SHEPHERD.—I think we have great hopes in the dwarf Russian cherry. If we could cultivate that, there would be a means of putting nets over these trees to prevent the birds attacking the fruit. I have about fifty cherry trees that bear every year and yet I have not enough to preserve for my own use—that is the difficulty. Of course we have the black knot, but the great difficulty is that although the trees bear every year, we never get the fruit—it never ripens sufficiently. The birds get it all, but I think if we had the dwarf Russian, there would be no difficulty in spreading nets over these and by that means preserve the fruit.

MR. LONGHURST.—Do the people of Vladimir protect their trees with nets, or how?

MR. GIBB.—I was not in the Vladimir district because the cherry crop was over, but as I understand it they have little towers in every orchard; labor is cheap and I think they have people continually there clattering something or other.

REV. MR. GIBB.—I have a great depth of climate?

MR. GIBB.—I am not quite a Quaker.

CHAIRMAN.

MR. GIBB.

REV. MR. GIBB.

MR. GIBB.—I am ing them.

MR. BROOKS.—I have but latterly the branches, the branches these to chop them.

MR. GIBB.—I have small looking.

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MR. SHEPHERD.—Secretary-Treasurer of birds.

A MEMBER.—I had a glass and found

MR. WATSON.—I thing was waste but do not fruit cherries through

MR. W. M.—I think to keeping birds

REV. MR. WATSON.—Growing dwarf trees here you would have trouble with the great depth of snow. In what part of Russia is the Vladimir district and what is the climate?

MR. GIBB.—It is half way between Moscow and Nijni Novgorod. Moscow has not quite a Quebec climate, something between that and a St. Paul, Minnesota, climate.

CHAIRMAN.—Does it grow like a bush or like a tree?

MR. GIBB.—It depends upon how it is trained.

REV. MR. LONGHURST.—These cherries you speak of are they fairly eatable?

MR. GIBB.—If only fairly eatable, I would not be so strongly in favor of introducing them.

MR. BRODIE.—We used to sell from two to three hundred gallons of cherries, but latterly they have been an uncertain crop. Where the snow settles on the lower branches, they generally blossom, but we never have any blossoms on the upper branches these few years back. The black knot is getting badly into them, so I have to chop them down wholesale.

MR. GAREAU.—I have read in a book written in France that in that country small looking glasses are tied to the branches and they frighten the birds away.

CHAIRMAN.—That is a very simple expedient.

MR. GAREAU.—It seems to me that covering the fruit would hinder it ripening.

CHAIRMAN.—That is not the experience. I think if little silver globes were used they would be better than mirrors.

MR. SHEPHERD.—I have tried several plans. My brother who lives in New York told me that on his way up he noticed over the orchards white cords stretched from one side to the other over the trees; he enquired what they meant and was told they were meant to frighten the birds away—the birds imagined it was a kind of trap. I invested in cord by the wholesale and I stretched it all around those cherries which were growing around the edge of one of my orchards. My men watched the effect as closely as possible, and so did I when I was there, but it was not very satisfactory. I had a little better success by tying lobster tins or tomato tins to the branches and the tinkling used to scare them away, but the sparrows and some of the other birds got quite accustomed to that—they are cheeky enough for anything.

MR. BRODIE.—If I am not out of order, I would ask if there is any law to prohibit the exterminating of these sparrows.

MR. SHEPHERD.—I think the laws are entirely local. I have the honor of being Secretary-Treasurer of our municipality, and we have a law preventing the destruction of birds.

A MEMBER.—Just now, a gentleman referred to looking glasses. A few years ago, I had a garden with four cherry trees in it, and I made use of pieces of looking-glass and found it very beneficial. I saved my entire crop.

MR. WATSON.—When we had cherries to save in this district, the common thing was waste scrap tin, the trouble is now we have no cherries to save; they blossom but do not fruit. It is only about fifteen years since there was quite a sufficiency of cherries throughout this district.

MR. WM. GILL, Abbotsford.—I would just mention, Mr. Chairman, with regard to keeping birds away from gardens, that I read in an Austrian paper that they tie

cats with long strings to watch the sparrows. They say it is beneficial and the cats enjoy the sport very much after a little time.

With respect to the spots on the Fameuse, though it may be out of order, it is my opinion that it is entirely beyond human control. I have noticed the last three or four seasons that the weather has been very cold, windy and wet during spring, and that when the apples are about as big as marbles the spots were to be seen. I think when we have a spring of ordinary dryness and temperature the Fameuse will be itself again.

PLUMS.

CHAIRMAN.—Last year I heard Mr. A. Dupuis of l'Islet speak of the success with regard to plums in the District of Quebec. I believe the crop is not so successful here as further to the north and east, although sometimes very good. The Rev. Canon Ellegood had a marvellous display at our exhibition in Montreal; we gave him three prizes for them, and afterwards he was good enough to send a quantity to London in cold storage. They reached there in fine condition and excited remarkable interest at the Royal Horticultural Exhibition. I wish something might be done to resuscitate plum culture, and that we might have the success which is said to attend them in the District of Quebec.

MR. BRODIE.—This is the first year for quite a number of years I have had a crop. I sprayed my trees with Paris green when the blossoms were falling, and I had quite a large crop of Yellow Egg plums and several other varieties I do not know the names of.

MR. SHEPHERD.—Last fall Mr. William Evans asked me to visit his nursery, I think in the month of September, and going through it I was very much struck with the Moore's Arctic plum. The trees were bearing, and he allowed them to grow and bear in the nursery rows, and certainly the crop was the most extraordinary I ever saw. The trees were bent to the ground with the weight of fruit. He sold the crop to some men in Montreal to whom he had sold his crop of apples; they gave him a lump sum for the whole thing. I do not know exactly what the crop was, but it was an enormous weight of fruit on such young trees. It seemed to me that Moore's Arctic was a very desirable variety to cultivate. I had a few specimens two or three years before that, but they did not succeed. It is a very dark blue plum, very fair size, as large as the Lombard. I did not test their quality, they were not quite ripe. I have invested a good deal of money in plums. I am now trying North Western varieties. I fruited De Soto last year, and I tasted the jam, which was very good.

MR. BRODIE.—With the plums I had growing I took no care, they were growing in a corner of my orchard. When the old trees died, I took them up and there are always young ones growing.

CHAIRMAN.—Do they attain a large size?

MR. BRODIE.—Yes. About six inches in diameter of trunk, but if they bear a very heavy crop they generally die the following year.

MR. PATTISON.—I have tried Moore's Arctic and can corroborate all Mr. Shepherd has said. I was very much surprised to find this spring a tree only set three years ago contained quite a number of plums.

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MR. WATSON.—I have a yellow native plum from Western Ontario that produces well, it is not astringent. I find that by encouraging hens to feed around them, I always get some plums.

MR. DUNLOP.—I have tried Moore's Arctic and find it satisfactory in productiveness and early bearing, but the fruit is of poor quality, it is a cooking plum.

MR. SHEPHERD.—Is it a good preserving plum?

MR. DUNLOP.—It may be, but it is much inferior to many of our seedlings, and not so productive or good as some of these grown on the Island of Montreal.

MR. GIBB.—I planted, eleven or twelve years ago, a number of European plums in my hen yard. I have had no trouble with the curculio, but these varieties have not done well; the climate is too cold; they do better in the sheltered city gardens of Montreal. I had one tree of Lombard which gave a magnificent crop, but only once. Bradshaw has borne and Washington also, but they are all equally unsatisfactory. I have a number of Wisconsin wild plums; they bore five good crops one after another, then took a year's rest. I neglected them, then they bore another crop, and this last year they took another year's rest; they are fair in quality, not the best, but they gave me a large amount of fruit.

Another variety I have that has given me a fair amount is the Miner; it is good size, dark red, tastes like a musk melon, ripens in October and keeps to November. My special hopes now are turned towards the improved varieties of the North Western States. I fruited De Soto and I find it an advance on any I have tried. Another I think a good deal of is the Wolf, a large plum of but fairly good quality, and one of those hardy and vigorous trees with rough coarse leaves that look as if they could stand any amount of summer heat. I have more hopes of North West plums from my own experience and from what I have seen in the West, than I have even of the Russian Plums.

STRAWBERRIES.

MR. SHEPHERD.—I would like to ask Mr. Dunlop if he has cultivated strawberries.

MR. DUNLOP.—I have done so, but only to a limited extent, and my experience does not extend far enough back to be of much use; it is experimental so far and I would not like to say very much about them.

MR. BRODIE.—I have fruited five or six different varieties, those I find best are the old Wilson's Albany and Manchester. For a late variety I fruited the Atlantic last year and it comes in at a time when there are no other strawberries. I have Daniel Boone and Sharpless; the latter is one of the largest berries grown. I had some last season that measured six and one half inches in circumference, although I have heard of them even larger than that.

MR. DUNLOP.—My experience of Manchester, so far as it goes, is that it is subject to rust more than any other variety I have tried. The foliage of the Daniel Boone also suffers from rust, but not to such an extent as the Manchester.

MR. SHEPHERD.—I am growing the Manchester and I think very highly of it. I prefer the Manchester to the Sharpless; the berries are larger with me and I have

not noticed the rust very much. The Manchester grows on very strong stalks, not very long, and the berries are always held up. The Sharpless grows on very weak stalks and the berry falls to the ground very frequently. I have also fruited the Bidwell and I think its flavor the highest.

MR. BRODIE.—I may mention that the buds of the Sharpless are very apt to be killed by late frosts in the spring; it sends its blossoms high above the leaves and there is no protection.

The following paper was then read by Mr. Charles Gibb on

EXPERIMENTAL WORK AT ABBOTSFORD.

About six years ago, the members of our Fruit Growers' Association became interested in those fruits of Russia and other parts of Eastern Europe, which hitherto had not reached us, and it became our desire to obtain these fruits and distribute them among our members and thus test their value in our own soil and climate.

In the spring of 1884, the Association distributed to its members 189 Russian apple trees of 24 varieties, being in part varieties imported by U. S. Department of Agriculture in 1870 and which were received from A. G. Tuttle, Baraboo, Wis., and A. W. Sias, Rochester, Minn., and in part from Ellwanger and Barry, Rochester, N. Y., of varieties received by them from Moscow and other sources. The Society also procured a Flemish Beauty pear tree for each member, making an allotment of 7 trees to each.

Again in the spring of 1886, the Society distributed as follows: from the Iowa Agricultural College 167 apple trees of 21 varieties, 31 Bessemianka pear, and 71 cherry trees of 21 kinds. From A. G. Tuttle, Baraboo, Wis., 104 apple trees of 25 varieties, and from Simon-Louis Frères, Metz, Lorraine, Germany, 36 apple trees of 12 kinds, 30 pear trees of 7 kinds, and 18 plum trees of 4 kinds, and 45 cherry trees of 8 kinds; making a total of

307	Apple trees of 42 varieties,	
61	Pear " 9 "	
18	Plum " 4 "	
116	Cherry " 26 "	
or 502 trees of	81	including some duplicates, and being about 13 trees to each member.

The Society also received from Mr. R. Schroeder, of the Agricultural Academy at Petrovskoe Rasumoykoe, near Moscow, in 1884, 119 plum and 50 cherry trees, but as these were delayed in transit, and reached us only on June 27th, only about 20 trees survived.

Again in October 1886, we received from Mr. Schroeder, Moscow, 60 cherry trees of 6 kinds, and 40 plum trees of 4 kinds, all in prime order.

Besides this, some of the members of our Association have entered largely into this experimental work, so that we now have growing at Abbotsford about 87 varieties of Russian apples and 12 kinds of German late keepers; of pears, 48 varieties, Russian, Polish and German; of Russian plums, 5 varieties, some German plums and several North West kinds and Chickasaws; cherries about 35 kinds.

Such work must make our exhibitions of more than ordinary interest, and must add to our lists of fruits, varieties of value.

In this work we have at least done our share.

CHAIRMAN.—This is a most gratifying and commendable report, and I only wish other country Horticultural Societies or Fruit Growers' Associations of the Province of Quebec, could show anything like that. This local Society is setting an example which ought to be followed.

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MR. DUNLOP.—I have a letter here from Mr. Hale, of Sherbrooke; it does not contain very good news, but perhaps we should have both sides of the story.

SHERBROOKE, December 29th, 1886.

W. W. DUNLOP, Esq., Montreal.

DEAR SIR,

In reply to your card asking me to prepare a paper on Crab apples and the hardy varieties of apples for the coming convention at Granby, I deeply regret that owing to my want of success in growing apples of any kind I do not feel competent to do the subject justice. I am deeply interested in fruit growing and would do anything in my power to further the interests of any association engaged in encouraging what I acknowledge to be one of the most important of our agricultural products, but, owing to as yet some unexplained trouble, all my attempts at fruit tree growing have proved abortive. I cannot blame the climate nor the fertility of the soil, but in a locality like this, where Fameuse, Tetofsky, Peach and Canada Baldwin apple trees will uniformly die in three years from the time of planting out, and Montreal Beauty, Rose of Stanstead, Queen's Choice, and other crabs will follow in two or three years later, you must acknowledge that the prospects of apple growing in certain portions of the St. Francis Valley are not encouraging. Given a good healthy three year old apple tree and the best of ordinary treatment, the chances here are as 99 to 100 that it will be dead, trunk and branch, in three years. My garden is two acres in area and situated 25 feet above and 600 feet from the ordinary level of the river. In this and on a variety of soils I have tried apples, plums, cherries and crabs with all the care and attention that has ever been suggested and always with the same result. Back on the hills, say 100 to 200 feet higher, apples do grow, but here the trouble of attending to the orchard and the danger of having the fruit stolen has deterred most of those whose homes are near the river from engaging in the enterprise. I have tried lime, ashes, bone dust, leaf mould, in hoed crops, in sod, with mulch, with top dressing, root pruning, under draining; have budded my own seedling stocks and found that those which took died, while the Siberian crab seedling would grow and bear a small hard red crab like the parent, though in strong garden soil. I have consulted all authorities and even I believe puzzled my old friend, Charles Gibb, of world renowned fame. I have, of late years, trench dug portions of my garden from 18 to 24 inches deep and from what I have found below the surface am inclined to suspect that much of the fertile soil of our river meadows has underlying it a subsoil more or less impregnated with protoxide of iron and that this, in exercising a detrimental influence on plant life, kills the trees as soon as the roots enter it. Trees do live and do well here on made terraces, the soil of which is nearly all from the surface, and this too nearer the river than the one in which I have so often failed, so the theory of "River fogs" which one hears so often brought forward, as the cause of all our trouble has very little weight with me. My excuse for thus troubling you with so long a letter must be that I am still in hopes of having the mystery solved, and I know of no body as competent to do so as the Montreal Horticultural Society and Fruit Growers' Association of the Province of Quebec.

I remain,

Yours very truly,

W. A. HALE.

CHAIRMAN.—I would like to know whether anybody else has similar experience, and would also like to know whether this is not an extreme local peculiarity. Stanstead, I fancy, is a good fruit growing region and I think I have seen orchards about Lennoxville.

REV. MR. LONGHURST.—Can the Chairman inform us whether the presence of this protoxide of iron would cause it.

CHAIRMAN.—I question the existence of it. Salts of iron sometimes exist, that may be possible. In the immediate vicinity of Sherbrooke, as many of you are aware, there are pretty broad belts of slate charged with iron, great belts that rest more or

less on the surface and when broken and exposed to the air give out salts of iron, &c., sometimes associated with copper but principally a sulphate of iron. He states, not far away, at an elevation of 200 feet apples can be grown, the only trouble being the boys stealing them; therefore I should hope that this accursed place is a very narrow place and that this blight does not extend to any great distance away. I should like if somebody else could throw any light on the subject of fruit growing in that vicinity. There was recently an exhibition at Sherbrooke and some of the gentlemen might tell us whether there were not fruits grown in that immediate vicinity. It almost seems as if this was a libel on the country which I hope it does not deserve. Can Mr. Gibb throw any light on it?

MR. GIBB.—I can only say this: there are orchards on the hills above Lennoxville. I remember them long ago as doing fairly well, but the St. Francis Valley has a very bad name; people say that apples cannot be grown there; how far it is true I cannot say. In Compton, in Stanstead, and about Sherbrooke, there are a great many places where good apples are grown.

I want to add one word, Mr. Chairman. You have spoken of the experimental work at Abbotsford and hoped other societies would do likewise. The Shefford County Horticultural Society imported two years ago a certain number of Russian apples which had fruited on this continent, and they distributed them to their members. The Brome and Missisquoi Societies have also done the same. L'Islet has been experimenting. At Abbotsford we have entered more extensively into this work, but we are all working together.

CHAIRMAN.—You are aware that last year was the first experiment we made in the way of these general meetings for discussion. Last winter we held two meetings, one for discussion of fruits, and one later for flowers. At the discussion on fruits, a good many gentlemen (some are here to-night) were present and took a very active part, and the interest manifested at that time was so great that we determined to accept your kind invitation and come out here and meet with the Shefford Society on this occasion; and certainly the success which has attended this meeting, notwithstanding the severity of the weather, has been so great, that I think it will encourage us to repeat the experiment, and that it may be continued year after year. The different local societies and the Montreal Society may meet another year in some other county, and I hope we may have better weather and as good a meeting as we have had to-day.

The meeting then adjourned.

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WINTER MEETING FOR THE DISCUSSION OF FLOWERS.

The second winter meeting for the discussion of flowers was held in the Fraser Institute, on the evening of Thursday, March 18th, the Vice-President, Prof. D. P. Penhallow, in the chair. In calling the meeting to order, the Chairman recalled the success attending the first of these meetings held the previous winter, and stated that, while there was every reason why such meetings should be held for an interchange of opinion relative to the mode of cultivating plants, their continuance must to a very large extent depend upon the success of the present occasion. He therefore hoped the members present would take an active interest in the discussion of the papers to be read. The Chairman also announced that during the past year a large number of books of special interest to Florists had been added to the library, and that a new publication on orchids, the *Reichenbachia*, had been subscribed for and would soon be available. Mr. S. S. Bain was then called upon to read his paper on "The Cultivation of Fuchsias."

FUCHSIAS, AND HOW TO GROW THEM.

By S. S. Bain, Montreal.

The Fuchsia is well termed the "Peoples' Plant." You will find it in the palace and in the cot, in the mansion of the millionaire and in the dwelling of the humblest artisan; in the crowded city and in the country home; wherever you travel this favourite can be met with.

The plant was first discovered about the year 1700, by a monk named Father Plumier, who named it Fuchsia in memory of Leonard Fuchs, a German Botanist of the 16th century, famed for his skill in describing and drawing plants. The species belong mostly to the Central and Southern regions of America, some to Mexico, Chili and Peru, 2 varieties are natives of New Zealand namely, *Fuchsia Escoticata* and *Procumbens*.

The first variety introduced into England, was *Fuchsia Coccinea* (the latter name meaning scarlet) and doubtless you are familiar with the story of its introduction and how Mr. Lee, Nurseryman of Hammersmith, obtained possession of it. It is said that a gentleman came into his greenhouses one day to whom he was showing his floral treasures, and who turned to Mr. Lee and said: "You have not in your whole collection so pretty a flower as one I saw to-day in a window at Wapping." "Indeed," replied Mr. Lee, "what was it like?" "The plant was beautiful and the flowers hung down like tassels from the drooping branches, the color was a deep crimson, with a centre of rich purple." Mr. Lee enquired where it was to be seen, and taking note of the exact whereabouts, he hastened off to the place, eager to see this wonderful novelty. Having found the house he at once entered and asked the mistress to sell it. "Ah, Sir," she replied, "I couldn't sell it for any money, it was brought to me from foreign parts by my husband, who has gone away again and I must keep it for his sake." "But I must have it." "No, sir, I cannot spare it." Here Mr. Lee, knowing the weakness of human nature, emptied his pockets, and on the table soon appeared gold, silver and copper, amounting in all to over eight guineas, and with a faithful promise of a young plant, *Fuchsia Coccinea* became his property. With hurried steps he returned to the nursery, at once stripped off the flowers and destroyed every blossom and bud, cut the plant into as many cuttings as possible, and plunged them into bark beds, soon to root and grow. When sufficient stock was secured (to the number of 300) and the young plants grown to flower, Mr. Lee placed two of them in his window and the plants sold rapidly, realizing to him a profit of 300 guineas that summer. Since that time, however, the Fuchsia has made rapid strides in improvement, the varieties now known are over a hundred, and every year sees an advance upon the preceding one in some way or other, so that our old friend *Coccinea* is to-day no where to be found—only known as a thing of the past.

CULTIVATION.

To have Fuchsias and to be able to grow them are two very different things, and yet there are few plants more easily grown *when one knows how*. To grow Fuchsias well a good deal of judgment is needed. To begin with, the grower must of necessity make himself thoroughly acquainted with the nature and requirements, not only of the plant, but of the plant's enemies, for to grow plants to perfection they must be guarded, as well as fed, in order to prevent disease, for the slightest check to their growth is very detrimental to their full development.

Habit must next be taken into account, for as among the "Children of men" there are those who require to be kept in, so in Fuchsias there are varieties that may be termed compact growers, and some which require to be stopped from having too much of their own way if good results are to be expected from them. Take for examples, Avalanche, Arabella improved, Covent Garden White, Speciosa, and such like, these must have their tops taken out when about 6 inches high, and four or six branches staked out to the sides of the pot; this is done by placing a piece of brass wire around the rim of the pot and fastening the branches to it. These must be allowed to grow about 6 inches long before a new top is allowed to form, and when this centre shoot has grown about 8 to 10 inches long it must be stopped again to give the side branches strength and thereby give a good bottom to the plant. This kind of stopping must be continued until the plant is as bushy as we wish it, and until such time as a perfect specimen is attained. There are other varieties, however, with which great care must be taken not to injure the centre shoot; otherwise it will be found difficult to grow symmetrical specimens. Such varieties are known as compact growers and only require to have their side shoots stopped to make them bushy. Now the question may naturally be asked by some, "what is stopping?" It is to arrest progress; when a branch has grown a few inches, the centre should be taken out, so that instead of one branch, a branch from each eye starts out, giving a multiplication of branches every time the centre is stopped, when, if continued for a sufficient length of time, the plant will be so thick that the eye cannot penetrate its foliage. Let it be taken for granted therefore that the nature and habit of the Fuchsia is understood, we may now begin the growing of this most interesting plant. We will suppose that we are now starting with our minds made up to grow first prize plants only; it is very simple to grow decoration plants, but to grow first class specimens is a matter which requires constant care and watchfulness, and a great amount of determination on the part of the grower. November and December I take to be the best time to put in cuttings for this purpose, as plants which have stood outside in the fall, and have been taken into the house, will furnish just the kind of cuttings to make a good start. Taking a cutting from an old plant and striking it (or rooting it) is a thing which can be performed by any one, but depend upon it, there is a right and wrong sort of cutting, and if the start is not right, our work will have been in vain. The cutting chosen should be strong, healthy and woody, with not less than three joints under the sand when inserted in the cutting pot. All leaves but the two top ones should be cut off in order to give it a chance to make a larger quantity of roots. Each cutting should be struck singly in a thumb pot, and placed as deep as the pot will allow, choosing coarse, clean, river sand, and the pots plunged in a warm situation, and kept close and moist until the cuttings show signs of growth, when they may be exposed a little. As soon as they have made a nice growth, and the small roots show through the bottoms of the pots, shift into three inch pots; the pots must be new, or at least very clean. In shifting them from one pot to another, make sure that the soil is in a proper condition, not too dry, not too wet, of the same temperature as the house, and do not allow the plants to be in a dry state when shifting, but rather on the wet side. As soon as the roots fill the pots they must be shifted into larger ones, never allowing them to become pot-bound, for if so it causes the wood to become hard, throws the plant into bloom before it has attained its proper size, and all the former time spent is lost. In order to succeed they must be grown like Balsams, and never receive a check from beginning to end of the season, repotting them at the right time and in the right soil, never for a moment losing sight of the ideal set before the mind at the beginning. There is another matter, however, I would like to mention before leaving the repotting of Fuchsias, namely, the system which I would like to call the *potting back system*. When growing Fuchsias it is always best to have the soil very rich, so that

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the growth may be rapid, consequently the roots will be largely scattered through the soil in the pot. When the plant has attained a considerable size, and is occupying say a 16 or 18 inch pot, I have found it an excellent plan to shake the larger quantity of the soil from the roots, and pot back into as small a pot as the plant's roots will admit of. By this a large amount of soil which has become spent (and hence of no value as a feeder to the plant) is taken away, and fresh, sweet, rich soil is brought in contact with the hungry roots, which they will speedily enter and occupy. The effect of this will be fresh vigor and strength to the plant, *but remember* that this operation must never be performed when the sun is shining upon the plants, nor must they be exposed to the sun for some days. Keep the house closed, the plants and paths syringed three or four times a day with water of the same temperature as the house in which the plants are. When it can be seen that the plants have taken to the new soil, light and air can be admitted by degrees, again shifting them into larger pots as before until they are in as large a size as required, which would bring it to about the time necessary for them to be in 12 inch pots. The last shift must be made about three months before they are required to be in bloom, still stopping them, however, until two months before they are required to be at their best.

SOIL.

The best soil for Fuchsias is a mixture of yellow loam and leaf mould, or peat, with about the same quantity of well rotted horse or cow manure, which has been kept under cover, passing it through a coarse sieve, adding half the quantity of clean, coarse, river sand, mixing all together at least a month before using. If an improvement on the above is required, you have only to have the whole placed over a strong fire until hot enough to kill all eggs of worms or insects which may be in the soil, the latter is of very great importance when first class results are expected.

WATERING AND SYRINGING.

Where clean rain water can be used, it is without question the best, but if such cannot be had, let the water to be applied stand in the house at least over night before using, for at no time must Fuchsias be watered or syringed with cold water, as a check is very likely to be given to the plants resulting in the falling of the leaves. The plants must receive liberal waterings—not dribbles, but sufficient to saturate every particle of soil in the pot. Syringe at least twice a day; do this in the same thorough manner, and health and cleanliness will be the result. I hold it to be a fact, that all filth by insect life, either red spider or mealy bug, is the result of laziness on the part of the person in charge.

AIR.

Give all the air possible on warm days, keep the paths well watered, and as soon as the strong sunlight falls on the plants they must be carefully shaded, but the minute the sun is off the plants let the shading be taken away and all the light possible be given to them. The most of the failures said to be due to the climate can be overcome by a sufficient amount of foresight.

LIQUID MANURE.

The best liquid manure I know of is made from horse manure that has been dropped in the meadow where the horses have been feeding on grass. Of this take half a bushel to a barrel of rain water, into which put the same quantity of soot and mix well together. When clear give each plant about half a pint a day, increasing it toward the last. Be sure not to overdo this or the foliage may all drop off. Fuchsias are gross feeders, but it is better to give them any such stimulant in weak doses, and frequently.

INSECTS.

The insect which troubles Fuchsias most in this climate is the Red Spider, and the best remedy is a moist atmosphere and ample syringing. Green Flies and Thrips are best got rid of by tobacco smoke.

All this, some may say, about growing Fuchsias: Yes; and in answer, a great deal more must be known before a perfect specimen can be obtained, but when it is, what a thing of beauty

to behold!—How all the toil and trouble is lost sight of when friends exclaim—How rich!—How beautiful! And we begin to say with the poet:

“ Graceful flower, on graceful stem,
Of Flora's gifts a favorite gem;
From tropic fields it came to cheer
The natives of a climate drear.”

DISCUSSION.

THE CHAIRMAN.—What special virtue does Mr. Bain attribute to the use of soot? Is it soot or charcoal?

MR. BAIN.—It destroys insects and also improves the growth of the plant. The soot is derived from the combustion of soft coal.

THE CHAIRMAN.—If the result to insect life which Mr. Bain describes follows the application of soot, it may possibly be due to organic products similar in their nature to creosote. So far as the soot consists of carbon, it possesses no manurial value, since carbon in the free state cannot be appropriated by the plant, and any stimulation of growth must be due to associated products of combustion.

MR. HARVIE.—What is the special advantage of back-potting? The paper as read appears to contain a contradiction of statements.

MR. BAIN.—The back potting is a method which I believe to be new, as I have never seen it practiced by any one else. It is attended with great benefit to the plant, but requires great care. The earth must be partly removed by means of a sharp pointed stick, to avoid breaking the roots, soil is then added, and this imparts fresh vigor and strength to the plant. During the week or two following the process, the house must be kept close, moist and shaded, to prevent the plant from flagging.

MR. HARVIE.—It is possible that soot may contain a certain percentage of ammonia, which would thus account for its effect upon the plant.

THE CHAIRMAN.—How is the soot applied? Soot or charcoal if applied directly to the soil might tend to increase the warmth of the soil, since we know that all black bodies have the power of absorbing large quantities of heat. The effect of this would be in the direction of more active growth.

MR. BAIN.—The soot should be put in a bag and suspended in a barrel of water. Certain substances are dissolved out and the clear water or solution thus obtained is used in watering the plants.

MR. BURDON.—This is a practice from which very beneficial results may be obtained. The carbon does not escape from the bag, but certain soluble substances are extracted, such as ammonia.

What is the best treatment for old Fuchsias?

MR. BAIN.—Old plants should be put in the cellar or root house to rest until January, when they may be pruned and started into fresh growth.

MR. BETRIX.—Mr. Bain's method of growing Fuchsias is not a good one.

MR. A. C. WILSHIRE.—Is it necessary to have three eyes to a cutting; would it not take as well with one eye?

MR. J. MACKENNA.—Is it not possible for a Fuchsia cutting to grow without an eye? And is it necessary to put that cutting in sand?

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MR. BAIN.—It must not be understood that cuttings cannot be grown without eyes, but where there are eyes there is much more certainty of obtaining fine plants. To get a good specimen of Fuchsia it must be struck not later than December, and be kept growing continuously. It is possible to grow a good plant from a spring cutting, but this will not give the finest specimen. The very best way to strike cuttings is to tie each to a toothpick and insert the latter in the moist sand just far enough to bring the base of the cutting in contact with the surface of the sand. By this method the roots readily strike into the sand, and there is no danger of damping off.

MR. BETRIX.—I bloom my Fuchsias as late as possible in the fall, then dry them off. Toward spring they are trimmed for a fresh start. I have in this way bloomed Fuchsias for two years in the same pot and earth, using a solution of guano.

MR. MCGREGOR.—Can large specimens be kept over in pits or root houses out of doors?

THE CHAIRMAN.—Among the Japanese, who are most skilful gardeners, it is a common practice to keep camellias, roses, and other plants in this way. The pits are made similar to hotbeds, for which they are afterwards used. The protection is given by banking with manure and covering the sashes with thick straw mats. The snow affords the rest of the needed protection. Care must be taken not to allow the air to become stagnant, and toward spring the sashes should be raised occasionally, during the heat of the day to afford a thorough change of air.

The latitude where this mode of treatment is practised is about as high as that of Montreal, and the snow is equally as deep, although the cold is not as severe. The method, however, is one deserving of careful trial here, as it will undoubtedly prove useful. Mr. Gardiner, of St. Paul's Church, has in this way successfully treated Hydrangeas, tender roses and Fuchsias.

Mr. Burdon was then called upon for his paper upon Foliage Plants.

FOLIAGE PLANTS.

By Thos. W. Burdon.

The tribe of "Foliage Plants" is such a varied and numerous one that it would require a good sized volume to contain all that might be written in their favor. It will readily appear, therefore, that a paper such as this is intended to be, can only touch, and that in a cursory manner, on a few of those in somewhat general cultivation in this country.

In order then to treat our subject in as concise a manner as its importance and our time will permit, we purpose to deal in the first place with a few members of this beautiful class of plants generally recognized by horticulturists in this country as being best adapted for out-door ornamentation, and secondly, to dwell in a somewhat more extended form upon culture, propagation and other points of interest of some of those generally to be found among our best conservatory and hot-house collections.

It may seem a needless task to allude in any way whatever to such well known classes as the ever popular Coleus Achyranthes, Canna, Caladium Esculentum, Alternanthera, Echeveria and Ricinus or Castor Oil Bean, and yet, judging from the very limited extent, comparatively speaking, to which these old favorites for out-door ornamentation are used, in this city and district, at least, we are led to believe that their rare adaptability for ornamental and sub-tropical gardening is not fully appreciated by the amateur portion of the horticultural public. The writer recalls to mind a visit he was permitted to make to the beautiful grounds and environments of a private mansion. On an extensive lawn there were beds cut out in every conceivable shape, and filled in with the well known bedding varieties of Coleus, such as Verschaffeltii, Golden Bedder, Hero, Kirkpatrick, Firebrand, Puck, Speciosa and others, all arranged to color and design. Inter-

scattered were beds of the variegated ice plant, edged with *Alternanthera*, here and there were groups of the beautiful *Echeveria*, well under the shade might be seen beds of *Cannas*, with their *Musa* like leaves, lined with *Caladium Esculentum*, while along the borders were groups of the stately *Castor Oil* plant, with its luxuriant foliage relieved by means of brilliant colored *Gladioli* twining in and out among their more majestic companions, the whole presenting to the eye a scene of wondrous beauty. Although, comparatively speaking, it is only a very few of the human race who can indulge in the luxury of such a spot as I have attempted to describe, yet every man who can lay claim for the time being to a front plot or to a yard in rear, however small, has the glorious opportunity at a very trifling expense, of adorning his home during the summer months by adding thereto a wealth of beauty in the form of a few of those lovely foliage plants. Even a few dozen of *Coleus* and *Achyranthes* planted out in the shape of a star or other favorite design, according to contrast or blending of tints and colors, during the first week of June, when all danger from frost is over, and kept in trim by an occasional clipping, will at least for four months of the year materially add to the pleasures of home, while the cultivation of such must in no small degree contribute to elevate the mind, refine the taste, and bring the usual sensibilities of our being into a closer union and more perfect harmony with the Great Creator of all things.

The cultivation and propagation of the above named families are so well known that we will not occupy the time of the meeting by any reference thereto, nor would we have alluded in any way to that which comes within the ordinary knowledge of all lovers of flowers and plants, were it not for the hope that the proceedings of this evening may through the medium of the society tend to a more universal cultivation of these beautiful gifts of nature among the general public.

We will now turn to the consideration of a few of those rarer species of foliage plants which by their very nature are specially adapted to the warm conservatory, hot house and stove house.

It may be safely laid down as a general principle in the cultivation of this class of plants, natives as they are of tropical regions, that the nearer we approach to nature the greater will be our success. And yet it must be borne in mind that though one may have soil the most suitable, heat and moisture all that could be desired, we yet lack, with regard to many species, the rich plant food with which the atmosphere of the tropical countries is laden, as well as the natural locations in which the plants are found in their native homes.

BEGONIA REX.

We mention among these the ornamental leaved *Begonias* first of all, because they are old and valued friends of every lover of horticulture. In every cottage window, however humble, that can boast of a few plants, as well as in the conservatory of the stately mansion, this universal favorite may be seen. The usual manner of propagation of this plant is to cut the leaves into small pieces at the junction of the ribs and insert them in moist sandy soil: these soon decay, and the young plants rise Phoenix-like from the ashes, and these potted into small pots form the young stock. A high authority upon the culture of this plant adopts another plan, which is to select leaves of a firm texture, lay the choicest kinds flat upon pans of sandy soil, and secure them by means of pegs. The leaf stalk is buried in the soil, and the principal ribs are cut through with a knife at short intervals. From the cut portions buds are produced just as when the leaf is cut up altogether, and in the case of some kinds a leaf will continue to push forth buds for a long time until finally it decays. To obtain new varieties, however, recourse must be had to seed. And of late years some magnificent kinds both as regards size of leaf, firmness of texture and beauty of foliage, have been added to this lovely family.

DRACENA.

Among all the ornamental foliage plants in general cultivation at the present time, perhaps none have attained such universal and continuous popularity as the *Dracenas*, and deservedly so, for among the various species of this beautiful family, requiring at all times a warm temperature, there are to be found some of the most charming variegated plants under culture, alike notable for the brilliant coloring of their foliage and their graceful habit as a decorative plant for the warm conservatory, for greenhouse in summer, or for numerous purposes of decoration in rooms, for

which plants brilliant beauty by its distinctive scene.

The following are the names of the plants, viz:

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which plants are now so extensively used, the *Dracæna* has few equals. Standing alone in its own brilliant beauty, or associated with groups of ferns or flowering plants, it is equally effective, and by its distinctive character and elegant habit a charming and graceful appearance is added to the scene.

The following are the names and general characteristics of a few of the best in general cultivation, viz :

Shepherdii.—One of the largest and strongest growers of the family; the leaves are very long and broad, of a dark green color, with paler green stripes and bronzy-orange hue.

Baptistii.—One of the finest of all the species: the leaves are large and the general habit of the plant handsome; ground color a beautiful shade of rich metallic green, with creamy white flake, flushed with rose.

Terminalis.—One of the oldest, but still one of the best for general decorative purposes, and grown largely for market purposes: leaves, rich crimson hue, marked with pink and white.

Cooperii.—Broad drooping leaves, of a dark purplish green and crimson color, and stands unrivalled for its graceful habit.

Amabilis.—Color green, white and pale violet, a strong grower.

Hybrida.—Deep green ground, margined with bright rose, suffused with deep rose and creamy white.

Goldeana.—One of the rarest of the species, irregularly banded with dark green and silver gray in alternate straight bands.

These are mostly natives of the South Sea Islands and flourish best in a warm, moist atmosphere, planted in a light, rich soil composed of leaf mould, sand, loam and thoroughly decomposed manure, or a mixture of good loam and peat. A liberal supply of soot water, drained through a porous bag and applied to the roots, as well as to the leaves by means of a syringe, will promote a more vigorous growth, enhance the color of the foliage and protect the plants from insect pests.

With regard to the propagation of this family, there are several methods adopted for increasing the stock, the most popular and perhaps the easiest of which is from the tap roots. These are formed from a continuation of the stem which thrusts itself deep into the soil and in time flattens out against the drainage of the pot. When the plant is shifted into a larger pot, these tap roots are cut away, then divided into pieces an inch long and laid in sand until rooted. By this means a large increase to the stock is made while no disfigurement of the plants is involved. Another method is to take off the head of foliage with about three inches of stem and insert it as a cutting in brisk bottom heat. Some prefer, however, to make an incision just below the leaves and bind tighty around the incised part a mixture of leaf mould, sand and moss. The plant is then left in the stove house. In a short time roots will begin to strike out into the prepared soil. The plant is then cut away and potted afresh, and in either of the two latter methods a more vigorous and beautiful specimen is formed than at first with its leaves down to the rim of the pot. In either case very soon after the new formation has been taken away, young shoots, begin to spring forth from the top of the old stem, and these cut away with a little bit of heel to them soon root in a gentle bottom heat and form young plants for increase of stock. When a long, lanky specimen with twelve inches or more of bare stem is to be operated upon, cut the crown of foliage away, as already mentioned, and divide the stem into pieces of an inch long. Insert these in brisk bottom heat in an upright position, just burying the cutting, and young plants will be produced as strong and healthy as by any other method of propagation.

PALMS.

One of the most striking characteristics of the Palm is the graceful ornamental habit which it assumes from its development from seed until mature growth is reached. This, combined with its rare adaptability to harmonize itself with other ornamental or flowering plants for decorative purposes, has gained for it a popularity which few members of the foliage genus have ever attained. It always occupies the most conspicuous position in the adornment of rooms and at festivals, where its handsome fan or feather-like leaves of bright shining green stand out

in beautiful contrast to the more brilliant colors of the surrounding groups. The Palm order is very popular in Europe, where enormous quantities are raised for all the purposes of the decorator's art; and it appears to us that in this Canada of ours, where flower work and plant decoration are yet in their infancy, much might be done by our florists in providing more variety of foliage for uses of a similar kind. Of all members of the beautiful genus of foliage plants none can excel the Palm, as its robust, bony nature admirably adapts it for this kind of work. Palms "at home," when fully developed, are tree-like in proportions. Our knowledge, however, is limited to an experience with them when small and serviceable for pot work, and their treatment as such is an all important consideration. When grown for indoor decoration, it is often desirable to have them in as small pots as possible consistent with a state of perfect health. When it is necessary, therefore to re-pot them a moderate shift only should be given, so as to enable the plants to put forth a few new roots and maintain themselves in vigor for a time. The principal points to be borne in mind regarding Palms used for decorative purposes are having them well rooted and hardened off. Water plays an important part as regards their welfare. They are gross feeders, and if the drainage be good it is scarcely possible to over water them, especially when the pots are full of roots. Frequent syringing is most beneficial to their growth and tends to keep them free from insect pests. The best soil in which to grow the Palm is either peat or loam, or a mixture of both. A few of the best known kinds grown in this country for decorative purposes are *Seaforthia Elegans*, *Latania Barbonica*, *Arecas*, *Kentias*, *Cocos*, *Wedelliana*, *Oreodoxia Regia* or *Royal Palm*, *Carludovica Palmata* or *The Panama Hat Palm*. The whole order numbers some hundreds of species, and are to be found in almost all tropical regions. They are among the most valuable to mankind, as affording food and raiment, as well as numerous objects of economical importance.

THE PANDANUS OR SCREW PINE.

A large number of our stove plants are not only valuable, but useful on account of the exceedingly graceful forms they assume when young as compared with the full sized specimens seen growing wild in their native homes in the tropical regions. It is only when they are young and adapted for pot culture that they have their value, grown as they are in countries foreign to their native homes, simply as decorative and ornamental plants. To this class belongs the *Pandanus* or screw pine, so called from the screw-like form in which their leaves spring from the main stem. Travellers tell us of the noble appearance they have when seen luxuriating in groups, or even as isolated specimens along the sea coasts or river banks of their native country. But it is not as such that we know them. Even the tall vigorous growing *Pandanus Utilis*, which at home is quite a tree in height and shape, with its long arms travelling from the top, would scarcely be recognized by a native, as it is grown by us simply as a stove or decorative plant. The most popular varieties with us are the *Pandanus Utilis* already mentioned, of a deep green color, with a reddish-brown shade on its sharp toothed edges, and *Pandanus Veitchii*, a graceful variegated species from the South Sea Islands. Both species are easily grown and are very frequently used among plants for decoration as well as for the exhibition table. At home they are as valuable to the natives as the palm. Their pine-apple like fruits are eaten in a variety of ways, while the roots are used as ropes and are made into baskets, hats and mats. A well known writer informs us that the flowering of screw pines is as uncommon an event in this country or in any other outside of their native regions, as that of the popular palm. The former bear the female blossoms upon one plant and the male blossoms upon another, and the production of fruit is not possible unless a male plant should flower before the female blossoms are over.

The best soil for the screw pines is peat or loam. They are increased by means of suckers which most of the species produce more or less freely from the main stem. Seed is sometimes to be had, and if it can be relied upon as being fresh, it will soon germinate in a little extra warmth.

With regard to insect pests which are generally to be found infesting the most kinds of decorative plants in common with many other inhabitants of the stovehouse we would say that if the plants are liberally supplied with soot water, not only at the roots, but frequently syringed with the same, little or no trouble will be experienced with those troublesome

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and sometimes filthy monsters. This application of the soot water has a two-fold beneficial effect, for plants which are treated in this manner soon begin to show a more vigorous growth, while the colors of the ornamental varieties become more brilliant than before.

Had time permitted we would have liked to touch upon the merits of fancy Caladiums, Crotons, Marantas and other high class decorative plants to be found in some of our private hot and stove houses, but we trust that enough has been written to provoke a healthy, practical and fruitful discussion, so that a fresh impetus may be given through the influence of this society to a more extensive cultivation and distribution among the floral public of the brilliant species of Nature's Creation called "Foliage Plants."

Mr. Trussell was next called upon for a paper on Chrysanthemums. This paper was written in conformity with the conditions upon which the first prize was awarded at the Chrysanthemum exhibition the previous autumn. The plants had been grown under most adverse circumstances, having been brought into bloom without the aid of a greenhouse. They, therefore, offered substantial evidence of what could be accomplished with limited facilities, and offer a substantial encouragement to others, who need not fear to grow this fine plant if they would only exercise a little ingenuity and skill.

HOW I GREW MY CHRYSANTHEMUMS.

By George Trussell.

I do not pretend to give anything new in the growing of Chrysanthemums. I put the cuttings in early—some in February, some in March, and potted them in 4 inch pots; as soon as they required shifting I potted them in 6 inch pots, and about four weeks later I changed them into 10 inch pots. The soil I used was composed of well rotted manure and sods. I gave them sufficient drainage to keep the water from lodging about the roots—this being an important point in growing Chrysanthemums. If large plants are required they must be grown from the 1st April to 1st July, pinching them about twice a week to keep them as bushy as possible. I find the Japanese varieties are inclined to grow upright, and with these it matters little what system of management is pursued. About the 1st June I put the pots outside in rows (sufficiently distant from one another to allow a man to pass between), taking care not to let the plants root through the pots; and to prevent this it was necessary to move them once or twice a week. I commenced training without delay, giving each branch the support of a stake to prevent it from breaking with the wind and rains. It is well known that Chrysanthemums are vigorous feeders. I supplied them with liquid manure at least three times a week; they were also well watered, to prevent them from flagging. As a preventive from black fly I took water in which tobacco stems had been steeped, and syringed the plants.

The stimulant used was chiefly obtained from cow manure placed in a tub of water, and from stable manure placed in a basket set in water. About the end of September I erected a house to keep the plants from freezing, as I had no greenhouse to put them in. First I chose the south side of a fence, and placed the end of a 12-foot scantling on the top rail, the other end resting on a similar scantling in front about 3 feet from the ground, using no boards in the structure; the fence thus formed the back, and one end. After nailing bags along the front to keep out the cold, I placed hot bed lights on the top, and put a box stove inside to heat the place when required. I continued to cut the bloom until near Christmas.

THE CHAIRMAN.—The paper just read is very suggestive of what may be accomplished even in the face of every obstacle. In the general cultivation of plants, there are many lessons which might be derived from the methods employed by the Japanese, who are in many respects the *beau ideal* of horticulturists. With them, special methods become family property and are transmitted as heirlooms through a long succession of generations, the son taking up the work where the father left it. In this way

have they developed some remarkable features in horticulture. One of their methods which might be successfully employed with us is the use of liquid manure. Instead of applying all the required nourishment to the soil, comparatively little is given at first; but as the plant grows daily applications of liquid manure are made. In this way the plants are continually stimulated to their best growth and the conditions are largely within control. It is one of the most rational methods that can be employed.

MR. DOYLE.—Should stimulants be applied in the early period of growth or later on, for instance, near the time of blooming?

THE CHAIRMAN.—This depends upon the kind of food or manure employed. If nitrogenous foods such as stable manure and night soil are used, their tendency is to promote vegetation or mere growth of the plant with retardation in the formation of the flower. Their continuous or excessive use would therefore be inconsistent with the production of profuse bloom, and such application should cease as soon as the plant has acquired sufficient body to support the bloom. On the other hand fertilizers having a deficiency of nitrogenous compounds, and, therefore, an excess of mineral elements, tend to check growth, hasten maturity, and thus to promote the bloom at a relatively early period. The best results are probably to be obtained when these constituents are properly proportioned to one another, and to the requirements of growth, being adapted to all stages of development.

MR. BAIN.—What causes the production of the flower? That is, what produces flowers, and what produces the wood? We usually attribute the flower to an excess of sap in the plant.

THE CHAIRMAN.—The very common use of the word sap in this connection is ambiguous. The meaning appears to be not so much the accumulation of liquid in the plant, as the excessive increase of nutriment in the tissues. In this sense the remark of Mr. Bain is quite true, and finds its illustration in the growth of every plant. Thus in the Century Plant, which has a period of from thirty-five to fifty years, the entire growth of the plant during this long term of life is devoted exclusively to the storage of digested material or nourishment, in the form of starch and sugar. These compounds are deposited in the very thick and fleshy leaves, which often reach great size. As the period of maturing approaches, the flower bud is formed in the centre of the plant, and soon shoots up to a height of many feet in a remarkably short time. The buds then unfold; the flower expands; the fruit ripens, and the whole plant dies. These changes are all possible in this plant by reason of the great accumulation of nourishment in an available form. This rapid conversion of starch and sugar into a liquid form for the nourishment of the growing parts, is further illustrated by the common practice of the Mexicans, who collect the sweet fluid as it flows up the flower stalk, and ferment it, whence is obtained the disgusting liquor known as *pulque*. As these changes take place, the leaves gradually become flaccid as their contents are withdrawn, since the necessary food for inflorescence is not drawn from the soil.

Again, our ordinary trees illustrate the same laws of growth. The majority of our trees grow in length only during the first two or three weeks of the season. As growth in this direction is arrested, maturing of all parts follows, together with an accumulation of starch and sugar for the early growth of the next season. But this

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maturing is at once accompanied by the development of the flower and the perfection of the seed. From these examples, therefore, we learn that growth in its broadest sense, or the rapid extension of parts, is inconsistent with maturing and hence with the reproductive function. Any mode of treatment which will tend to arrest vegetation, must therefore tend to hasten the reproduction process and hence the development of the flower.

MR. WARD.—Would Mr. Bain advise following his method of growing fuchsias? I do not think it would pay.

MR. BAIN.—The paper I have read discussed the best mode of treatment for a special purpose, and did not take into account the question whether it would pay or not. When plants are grown for exhibition, the controlling motive should be quality without regard to the question of remuneration. To grow plants in the expectation of gaining a large amount of prize money, is a very mean motive and wholly unworthy of one who seeks the general welfare and advancement of horticultural interests.

MR. BURDON.—Is bone dust useful or detrimental?

MR. S. WARD.—Bone dust may have the effect of checking growth. My Chrysanthemums were wholly destroyed by its use, the bone dust having been placed in the bottoms of the pots.

A general discussion followed, from which it appeared that, while ordinary ground bone was only slowly soluble, and in this respect could produce no sensible injury, yet when finely ground and used in sufficient quantity, it might produce injury through heating by reason of rapid decomposition in the contained nitrogenous substance.

THE CHAIRMAN.—The papers read this evening, and the discussions upon them have been most valuable and instructive, and they will be published in full in the next annual report.

A vote of thanks, moved by Mr. McGregor, and seconded by Mr. Harvie, was extended to the essayists for their valuable contributions.

MR. BAIN.—Can these flower meetings be held monthly?

After discussion, a resolution was passed asking the Board of Directors to take steps towards instituting monthly meetings for the discussion of flowers, during the coming winter.

Upon suggestion of Mr. McKenna, Mr. Harvie took the chair, from which the Vice President retired. Mr. McKenna then moved that a vote of thanks be returned to the Vice-President for the great value of his remarks and the benefit he had conferred on the meeting. Carried.

The meeting then adjourned.

Canadian Fruit at the Colonial and Indian Exhibition, AND OUR FUTURE EXPORT TRADE IN FRUIT.

S. C. Stevenson, B. A.

Having been invited by your Society to address you on this topic, I do so with a mixed feeling of pleasure and reluctance—pleasure from the fact that I can speak in the highest terms of the magnificence of the display made, and reluctance from the fact that I feel that I am incompetent to deal satisfactorily with a subject of such importance.

When the people of Canada were called on to show to the world at this Great Exhibition what their country could produce, the appeal was heartily responded to on all sides, and as a result there was placed on view such a grand display of the products and resources of the Dominion as had never before been made. The display elicited the warm admiration of all visitors to the Exhibition; the people of Great Britain were amazed at the variety and excellence of our manufactures, while our brother Colonists generously admitted the pre-eminence of Canada, and agreed, as one expressed it to me, that Canada was "the backbone of the Exhibition." All who visited our Court came away profoundly impressed with the idea that Canada was a country of great capabilities and vast resources. The Exhibition has certainly had the effect of demonstrating that ice and snow are not the chief products of the country, but that our mineral resources are enormous, our soil productive, our educational system unsurpassed, our manufactures excellent, and that our broad acres offer homes to millions, and last but not least, that our fruits are of the finest quality. The result of the Exhibition cannot fail to have a most beneficial effect on the country, by increasing our foreign trade, by attracting capital, and by drawing to our shores the most desirable class of emigrants. After such an Exhibition, every Canadian may justly feel proud of his country, and it should also act as an incentive to each one of us to do his part in working out that great future that is surely in store for us if we are but true to ourselves.

There is so much to be said in connection with the Exhibition that I fear I am wandering off from the subject that I have in hand. From the first it was determined that a worthy and creditable display of our fruits should be made. The Department of Agriculture at Ottawa gave every assistance and encouragement, and the various horticultural associations throughout the country took up the work with zeal and energy.

As the shipments had to be made in March, some difficulty was experienced in procuring good specimens of the different varieties. The growers, however, responded heartily, and a very creditable collection was got together in each of the Provinces. It was obvious that it would be impossible to keep the specimens in good condition in their natural state for any length of time, and it was decided to preserve them in a solution of salicylic acid (a method of preservation which had been suggested by Prof. Saunders of London, Ontario.)

Through the agency of the various horticultural societies, the best specimens available were procured and placed in large glass jars filled with the preparation

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above referred to; the lateness of the season at which the fruit was collected rendered it impossible to get as good specimens as could have been procured earlier; yet, taking everything into consideration, the collection thus obtained was an exceedingly good one. The fruit arrived in London in very good order; in some few cases where the apples had lost their color, they were replaced by others that had been sent forward for this purpose. The question of how and where to place the collection in order to obtain the best effect, was a matter of some consideration, and it was finally decided to place it on the Agricultural trophy—shelves being provided on which the jars were placed.

The Agricultural trophy consisted of a magnificent collection of the cereals and food products of the Dominion, and was by most people considered the *pièce de résistance* of the Canadian Court. It was thus the most appropriate place for the fruit collection, which, in its turn, by the bright colours of the fruit, added much to the attractiveness of the trophy. Labels were attached to the jars, giving the name of the variety exhibited, together with the name of the exhibitor and the Province and locality where grown. Certainly no better place could have been selected in which to show the collection; visitors were constantly admiring it and asking questions regarding the various varieties. Indeed, so much was the collection admired that if we had acceded to the requests of those who wanted to purchase, we could have sold off apples, acid and all, in the first week.

In answering enquiries we generally ended up by telling our interrogators that this collection did not worthily represent Canada's capacity in fruit growing, and that if they would favour us with a visit again in September or October, when the new fruit had come over, they would then be able to see something that would certainly interest them. We thus waited patiently for the first shipment of the season's fruit; these first consignments consisted of the earlier and softer varieties of apples, and were carried in the cold storage compartments which had been specially fitted up on the steamers for the purpose; they arrived in London in perfect condition, thus proving that by means of cold storage our earliest and most delicate varieties could be placed in the British markets in perfect order. Plates filled with these apples were placed in the Agricultural trophy, and the balance was placed with Mr. D. Tallerman, who had charge of the Canadian market in the Exhibition, and this gentleman had no sooner placed them on view than they were eagerly purchased. One could not ask for a finer looking apple than the Duchess of Oldenberg shipped in cold storage; such an apple would bring in any ordinary season in London or Liverpool \$5.00 per barrel.

When the complete collection of Canadian fruit arrived in October, arrangements were made to have it displayed in the great conservatory adjoining the Royal Albert Hall, one of the most attractive and thronged portions of the Exhibition. Three parallel tables were laid the entire length of the conservatory, and on these the fruit was arranged on plates, according to Provinces. It would be difficult to exaggerate the magnificence of the grand display thus made. If the English people had never before seen anything like it, no more had Canadians; and I feel that I am safe in saying that never had such a splendid and varied collection of apples been brought together as on this occasion. In Canada our exhibitions of fruit are generally restricted to individual provinces, and while these displays are nearly always creditable,

it is obvious that the combined collections would make such a display as we are not often permitted to see here. The name was placed alongside of each variety, and the name of the province was placed prominently over each collection, and numerous cards bearing the inscription "Grown in the open air," were placed throughout the entire display. This latter device was adopted for the purpose of dispelling the idea that existed in the minds of many Britishers that Canada was a sort of Arctic region, and that no fruit could be grown without the aid of hot houses.

The collection most certainly did its work well in dispelling that erroneous idea, and tens of thousands of visitors after gazing in amazement and admiration at the magnificent collection, left the conservatory with their ideas thoroughly changed in regard to Canada and its climate. They felt convinced that the climate must be genial indeed where such a splendid collection of fruit could be produced in open air by ordinary field culture.

One of the chief difficulties with which Canada has to contend in Great Britain and throughout Europe, is the erroneous opinion that people have regarding her climate. Our fruit display was a most convincing proof of the excellence of the climate and the productiveness of the soil; it appealed at once to the eye and to the imagination, and was an argument that none could resist.

The splendid collection of vegetables and root crops that was sent over was placed on tables along the sides of the conservatory; it merited and gained its full share of admiration.

On all sides we constantly heard expressions of astonishment at the beauty and extent, the excellence and the variety, of the fruit display; experts examined it with attention and interest; the newspapers were loud in their praises of it, and the Fruit Committee of the Royal Horticultural Society inspected it minutely, and expressed in a report the great gratification they derived from seeing the collection.

All the provinces did well, and as the collection was essentially Canadian, and not Provincial, it would be alike invidious and indiscreet to draw comparisons.

As regards the collection from the Province of Quebec, I can say that it was excellent, and in colour, form and flavor the specimens were all that could be desired. The only article in the entire collection that, in my opinion, did not come up to the mark was the grapes; they seemed to me not to possess the bright and healthy appearance that they generally have here, and were not equal to the grapes ordinarily seen in England; our apples and pears, on the other hand, were clearly superior in colour and general appearance to those usually seen there.

The collection, as a whole, was one of which the Dominion may justly feel proud, and the Associations and the individuals who contributed in getting it together deserve the warm thanks of the country.

Without detracting from the merits of any other portion, I am safe in saying that no department of the Canadian Exhibit reflected more credit on the Dominion, or tended to place her in a more true and favourable light before the world, than did the fruit display. And furthermore, I feel convinced that there is no trade in Canada which is capable of greater development and extension than the export trade in fruit.

This brings me to the most practical part of my paper, and to the portion that will prove most interesting to members of the Horticultural Society. It may here be opportune, however, to compare our apples with those of English growth.

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The latter, when grown by ordinary cultivation, are, judging by the specimens we see in the markets, small and poor; but where extra cultivation is used, and liquid manure with sulphate of iron is made use of, and the trees well trained, large samples are produced. The colour and form, however, even in these cases is generally deficient, and the apples lack that smoothness that we are accustomed to see in Canadian fruit. In some varieties of English grown apples the flavour is good and there is also some colour, but as a rule there is a harshness in the flavour of English apples that is not found in ours; many experts expressed surprise at the tenderness of flesh and juiciness of our fruit.

From a comparison as above it is evident that by ordinary culture the English grower cannot compete with the Canadian; there is no danger of highly cultivated English fruit coming into competition with ours, but even if it did, the Canadian fruit is still superior in form, colour and flavour.

This superiority of our fruit was very generally admitted; it has gained the highest reputation in the English market, and it is now the interest as well as the duty of every fruit grower and fruit exporter to strive to maintain this high reputation. In this connection the first duty lies with the fruit grower; judgment should be exercised in planting such trees as will best suit the soil and climate; the trees should be cultivated well and trimmed carefully. It is quite as necessary to fertilize the soil of an orchard as it is to fertilize any portion of land where a good crop is looked for. Orchards should be well drained and trees should be trimmed carefully every year; it will not do to leave trimming off for a series of years and then to open out with axe and saw as if to clear a forest. It will pay to thin out fruit when the tree carries too large a crop to properly mature; half a crop of fine specimens is more profitable every year than a large crop of medium or inferior apples.

Growers need have no fear of planting too many trees, for the demand for fruit is steadily increasing in Britain. Moreover, we have markets opening in Denmark, Norway, Sweden, and other parts of Europe, and in India.

I feel that I am safe in saying that Canadian apples are the best all round, and we need not be afraid of producing too large a crop so long as they are good.

Great care should be taken in the selection of apples for shipment; it is of the utmost importance that only good fruit should be selected for shipment, for by this means only can the reputation of Canadian fruit be maintained in foreign markets. High prices can always be obtained for good fruit, but poor samples are a drug in any market.

By means of the Colonial and Indian Exhibition we have made our apples more widely and more favourably known in British and foreign markets, and if we desire to obtain the profit and advantage that should result from this, it becomes the duty of growers and shippers to pack and ship only the best fruit. It will pay well to be thoroughly honourable and honest in this matter. It should be borne in mind also that it costs just as much to send a poor package of apples to market as a good one; the former will prove a loss to the shipper, not only in a pecuniary sense, but in reputation as well, whereas the latter will prove profitable to all concerned, besides gaining for grower and shipper a good name and doing credit to the country where it is produced.

Apples should be picked so as to prevent all bruising, and no spotted or imperfect apples should be packed for shipment. Let all be graded of even sample. If you are packing a barrel of the finest or Extra, have all the samples as nearly as possible of uniform size and colour, let them be really "Extra." No. 2 may be actually a grade lower, that is, not so even in size or so well coloured, but always good and sound, and No. 3 brand, perhaps almost all green. But in no case permit an apple to go into a barrel that you yourself would not wish to buy, or that you would not recommend to a friend.

It will pay well to select from an orchard the various grades, but it will not pay to mix these grades helter-skelter in every barrel. Take a tree of Baldwins for example; you will find the most highly coloured apples on the outside of the tree, where they get most sunlight. Those of even size here will make "Extra;" smaller samples on the top of the tree, but still highly coloured, will make No. 2, and the good, sound greener samples in the heart of the tree will suit for No 3. It is well to adopt a distinguishing mark or brand; if the grading is carefully adhered to, buyers will seek for your brand with confidence, and will be willing to pay more for it. Diligence and care should be exercised in establishing confidence in a brand, and when that confidence is once established double diligence should be used to secure its continuance.

Every barrel should contain as perfect samples in the middle and bottom as at the top; the results will then be alike satisfactory to grower, shipper and consumer. All growers and shippers should keep up to this standard, not only as a matter of individual honesty and profit, but for the credit and honour of the country.

I heard recently of a case of a French gentleman who, while in Montreal, admired very much the apples which he saw for sale. On enquiring prices and making calculations he saw that there was a large margin of profit in shipping them to France; he called on several dealers, but on looking into the barrels he found the finest specimens mixed up with the poorest; he could find no merchant who would guarantee him some hundreds of barrels of a certain standard, or to repack them up to a certain grade; he was disappointed and he did not buy, for said he, "it would not pay to ship poor apples to France." And it will not pay to ship poor apples anywhere.

The best markets for apples in Great Britain are Liverpool, London and Glasgow; these are the great distributing points.

There are two principal methods of disposing of apples; the best of these I consider to be selling direct to a reliable party a certain grade at a fixed price. I know of one of the largest exporters in Canada who has never shipped a barrel of apples except on a direct order. He has established his reputation by keeping up to his brand; his sales have been very large, as have also been his profits.

Another method of selling is to consign the fruit to some of the large fruit brokers; there are several of these houses which enjoy the highest reputation for integrity and honesty, but I cannot say the same of them all. These brokers sell the fruit and remit the proceeds, after deducting the ordinary charges, to the shipper. Sometimes very good prices are obtained in this way, but it is obvious that this method has elements of uncertainty that the other does not present.

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The providing of cold storage for shipment is a great step towards the promotion of our export trade in fruit, and the experiments made last summer prove conclusively that by this means our earliest and most delicate varieties of apples can be brought into the British market in perfect condition. It should be borne in mind, however, that for some time to come, in such varieties as Fameuse, Duchess, Alexander, &c., only a comparatively limited trade can be done, for the reason that the staple demand in the English market is for a hard, crisp apple, and for the further reason that at the time these varieties would come to hand the English market would be well supplied with pears and other Autumn fruits.

Fameuse and its seedlings, also Wealthy, St. Lawrence, Duchess and other similar varieties might be shipped to great advantage in the fall, in cases containing about a bushel each of choice specimens. I feel assured that the demand for these varieties put up in this manner would soon increase. The smaller the package the more closely is the producer brought into contact with the consumer. Pomme Grise should be shipped in half barrels, lined with paper, so as to arrive in England about the 15th December, and thus be on hand for the Christmas markets; it may also be well in the case of small packages to wrap the apples in tissue paper, as the general appearance of the case has much to do with the sale.

The Canadian fruit exhibit in London when fully displayed consisted of upwards of 2,400 plates, and the effect was indeed most creditable; with a view of making the excellence of our fruits known as widely as possible, large consignments were sent to the Exhibitions of Edinburgh and Glasgow, where they formed, as at South Kensington, one of the main features of attraction.

Trial shipments of small lots were also made to Hamburg, Paris, Leipzig, Berlin, Stockholm, Gottenborg, Copenhagen, Christiania, and other cities, with a view of testing the requirements of these markets. These shipments have demonstrated that, with reasonable rates of freight, good markets may be found in a number of these great cities.

The best samples of roots and vegetables were distributed among butchers and shop-keepers in towns in the best farming districts. Large placards were also provided, marked, "Canada—grown in open air by ordinary field culture," and as those to whom they were distributed agreed to keep them on view as long as they would last, it may be presumed that some of them are still doing good work for Canada.

By means of the Exhibition, Canadian apples have obtained a reputation distinct from and superior to American apples. Fruit brokers who have only previously sold on commission have expressed their desire to purchase Canadian apples for next season. For some time the three great centres which I have before mentioned will be the chief distributing points, but from enquiries that were instituted during the summer it is probable that direct trade may be established shortly with such cities as Manchester, Birmingham, Sheffield, Newcastle-on-Tyne, Leeds, Wolverhampton, Hull and Plymouth in England, and Edinburgh, Dundee and Aberdeen in Scotland.

A new market also looms up for us in India. Apples are a luxury there, and some shipments that were made in ice vessels from the United States brought the enormous price of 16 cents per apple.

By means of the steamships, which we hope to soon see running across the Pacific in connection with the Canadian Pacific Railway, we will be able to ship to India almost as easily as to Britain.

A word should be said regarding the melons which were sent from Montreal to the Exhibition; they arrived in perfect order, and when cut and eaten by melon growers, were pronounced superior to any before tasted. With cold storage our melons can be successfully shipped to England, and they will bring higher prices than any grower would readily believe. For any one who would undertake to work up this melon trade there are large profits to be gained.

Before closing I cannot refrain from remarking that the Government has earned the gratitude of every one interested in the growth or shipment of fruit in this country. All the arrangements were most satisfactory, and nothing that could be suggested by the Fruit Growers' Association as necessary or useful in making the display was withheld.

Hon. John Carling, Minister of Agriculture, and Mr. John Lowe, Secretary of the Department, to whom these suggestions were made, had them carried out promptly and cheerfully. The Executive Commissioner, Sir Charles Tupper, fully realized the importance of the fruit display, and did all in his power to give to it the prominence to which it was entitled, and to gain for it the success which it deserved.

To the gentlemen who, at the Exhibition, arranged and took charge of the collection too much credit cannot be given, and I have pleasure in mentioning in this connection Prof. Wm. Saunders, of London, Ont.; Mr. C. R. H. Starr, of Nova Scotia, and Messrs. A. McD. Allan and P. C. Dempsey, of Ontario, Mr. Allan being President of the Ontario Fruit Growers' Association. To the active and hearty co-operation of the societies and growers in Canada, however, the success is in no small degree due, and you who have each contributed, to a greater or less extent, in securing the result that has been achieved, may justly feel that you have a share in this success.

The good work which your society is doing is worthy of all praise, and its effects have already made themselves apparent. The reports which you issue are thoroughly practical and useful in their character, and I doubt if there is any similar society in the world that, in proportion to its membership, is doing more important work or disseminating more valuable information. Meetings of this kind are calculated to do an immense amount of good. Your society seems to be able to accomplish pretty much anything it undertakes; it has done much to enlighten the people regarding the selection and cultivation of fruit—might it not appropriately take up the question of the best means to be adopted for the advantageous disposal of fruit in foreign markets?

Intercourse between the various Provincial Horticultural Societies could not fail to have good results; if gentlemen from other societies were invited to read papers at your meetings, I am sure they would gladly respond, and we could not but gain knowledge from the experience of those engaged in fruit culture in other Provinces.

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Canadian Fruit at the Colonial and Indian Exhibition.

By C. R. H. Starr, Port Williams, Nova Scotia.

Late Commissioner in charge Canadian Fruit Department Colonial and Indian Exhibition.

The Canadian fruits, preserved in about one thousand glass jars, and arranged about the base of the much admired "Agricultural Trophy" formed one of the most attractive features of the exhibition throughout the season. Many of these fruits, in chemical solutions, although the bright colours suffered, retained their size and symmetry and looked fairly natural, certainly they were far more satisfactory than coloured wax models or any imitation.

Fresh apples were kept and shown on plates up to the middle of July. The longest keeping varieties were Nonpareil Russet, from Nova Scotia, and Fallwater, from Middlesex Co., Ontario. The latter were packed in oat hulls, which served a good purpose as packing, but imparted an unpleasant flavour to the fruit. The Nonpareils had only a little excelsior in the ends of the barrels.

At the R. H. S. Flower Show in the Conservatory, adjoining the exhibition buildings, on the 11th May, we displayed 15 plates of the following varieties of apples, all in good order, viz: Baldwin, King of Tompkins, Northern Spy, Golden Russet, Rox. Russet, English Nonpareil, Canada Red, Vandevere, Ben Davis, Limber Twig, Phenix, Mann, Swaar, Seek-no-further and Wagener. An exhibit of Australian fresh fruit, which had been gathered from the trees in March and sent to England in cold storage, arrived a few days previous to this exhibition and was in perfect condition. The Canadian apples, however, notwithstanding the fact that they had been off the trees some seven months, were considered by the judges equal to the fresh Australian fruit, and each collection was awarded a silver medal. The first arrival of autumn fruits was from Nova Scotia, and reached the exhibition on the 2nd of September. On the 7th we received 50 cases of Duchess of Oldenburg in splendid order from Ontario. Reserving 2 cases for exhibition, the balance was sold at an average price of 7/ per case. At the same time we also received a small consignment of tomatoes and melons packed in infusorial earth which opened badly. These lots were followed by one of apples and pears from Ontario. Very few of the pears were sound when they reached us.

The first arrival of fresh fruit from Quebec reached the exhibition on the 2nd of October ex "Caspian" and consisted of 7 cases of Alexanders and 6 cases of Oldenburgs bearing the name of James McKenna, Montreal. All were well grown and selected, but the Oldenburgs were over-ripe and wasty and only realized 3/ per case. Some of the larger Alexanders were spotted but they sold for 6/ per case.

The next consignment of 33 cases from Quebec came in *cold storage*, ex "Sardinian," reaching us on the 5th of October in splendid condition, excepting the tomatoes in two of Cochrane's patent cases. These had not decayed, but the weight of the tomatoes had broken the pasteboard fittings and the fruit was badly smashed.

Some 15 cases St. Lawrence, from John Doyle, Montreal, sold for 6/6 per case and was the best lot of that variety received from any of the provinces.

The collections of apples sent by the Montreal, the Missiquoi and the Brome County Horticultural Societies, the Huntington County Agricultural Society and the Revd. J. A. Fulton, of Maritana, were all very fine considering the early date at which they were gathered, but the Montreal Society's collection excelled all the others in colour and maturity of fruit. The above collections, together with a collection of fruit from Nova Scotia and one of vegetables from Wm. Rennie & Son of Toronto, were displayed on tables in the conservatory and attracted much attention until their removal, previous to the 12th of October, when the Royal Horticultural Society, who had exclusive right to the Conservatory on certain days, opened their show of hardy fruits. They, however, kindly allowed the Canadian Commission the use of one table during their show, and we greatly hoped that our fresh fruit ex "Vancouver" would arrive in time to be displayed side by side with the English fruit. In this we were disappointed and could only fill the table with the best of our former exhibit, which having been off the trees some three weeks and already shown several days, did not appear to advantage by the freshly gathered products of English gardens.

The R. H. S. made confessedly the finest display they had for years, but while their fruit was remarkable for size and showed evident signs of extreme cultivation, it lacked very perceptibly the high colour of our Canadian fruits.

The shipment ex "Vancouver" was the largest of the season, comprising 317 cases of fruit and vegetables from British Columbia, Ontario and Quebec. The British Columbia collection opened in very good condition, some cases of grapes from Ontario, as well as about all the harder fruits from Ontario and Quebec, also opened well.

Closely following this consignment came 25 cases and barrels of fruit and vegetables from Nova Scotia and New Brunswick, all in good condition.

The Conservatory being vacated on the 14th, with the assistance of Messrs Allan and Dempsey of Ontario, we began the opening and arranging of the recent consignment. By special permit of the Royal Commission we were able to work all night, displaying the following day about 2,400 plates of fruit, a collection in which nearly every province of the Dominion was represented.

On the 19th we received a further instalment of 57 cases of fruit and vegetables from Ontario, Quebec and Manitoba. The bulk of the fruit in this consignment together with a few selections from the tables, making nearly 500 plates in all, were sent forward to Edinburgh in charge of Mr. Allan, and shown during the closing week of the International Exhibition in that city.

A few cases of Fameuse sent by the Abbotsford F. G. A. and carefully wrapped in manilla paper opened in capital order, although scarcely better than some of the same lot packed in the usual way.

On the 26th and 27th of October we were again obliged to clear away for the R. H. S. show of Chrysanthemums and vegetables, and here again, through the courtesy of Mr. Barron, to whom we are under obligation for many favours, we were given the use of a table, on which we displayed about 250 plates of our choicest specimens from the whole collection.

For this exhibit the Canadian Commission was awarded the Society's Silver Gilt Medal.

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Previous to the removal of our fruit however, I should say, the fruit committee of the R. H. S. by special request, inspected the Canadian collection, and made an interesting report thereon, a copy of which I regret I have not at hand.

After the close of the Chrysanthemum show, we again replaced such of the fruit as was presentable, and made a grand display of field roots and vegetables. A huge pyramid of gourds forming the centre figure, with smaller pyramids of roots at the ends of the table, which was well covered with fine specimens.

The latest consignment was a case of very handsome apples from the Sheffield Agricultural Society, which were much admired for their great brilliancy.

On the whole, the fruit and vegetable show at the C. and I. E. has been, decidedly, a success, and has done much towards dispelling the general and lamentable ignorance prevailing in England regarding Canada's climate and agricultural capabilities. The greatest astonishment was expressed by thousands that such fruit and such vegetables had been grown in Canada and "all in the open air," as we found necessary to have it placarded.

A new and sincere interest has been awakened, in this country, which hitherto, by a large class, has been supposed to be covered with ice and snow for a greater part of the year and inhabited mainly by Indians.

Many have been the enquiries from persons eager to know more of Canada with a view to trying their fortunes amongst us. Numbers have already reached our shores and doubtless many more will soon follow, and these of a better class of people than the average emigrant of the past.

Apples of such varieties as Fameuse, Oldenburg, Alexander, &c., will never take a *high* place in the English market on account of being too soft, besides which, they arrive at a time when the market is well supplied with pears and other autumn fruits. To suit the English markets, our apples must be crisp and hard, and with cold storage to keep them in this condition, markets may be found some seasons for large quantities of these early kinds at fair prices. Illustrative of the advantage of cold chambers for our fruit, I will cite the instance of the lot of "St. Lawrence" from Montreal ex "Sardinian" in a refrigerator, which reached us on the 5th of October fresh and crisp, in fact, hardly fit to eat, in the estimation of a Canadian, while those of the same variety received on the 20th and 28th of September from Ontario were ripe and spotted, and Alexanders from Montreal received on the 2nd of October were more or less decayed and ripe.

Among the sorts most grown in Canada, the Ribston, Golden Russet, King of Tompkins and Blenheim, command the highest prices, and, where soil and situation are suitable, are the best kinds to grow for foreign shipment.

The demand for apples is greatly on the increase throughout Great Britain as well as on the Continent, and with improving facilities for transportation we may hope to place Canadian apples on many new, and what may yet prove extensive markets.

Trial shipments of small lots of apples were made to Hamburg, Paris, Leipzig, Berlin, Stockholm, Gottenborg, Copenhagen, Christiana and other cities with a view to testing the requirements of those markets. Although the financial results of these shipments, owing to the heavy freight expenses, were not on the whole as satisfactory

as we could have wished for, enough has been done to demonstrate the fact that with reasonable rates of freight there are likely to be seasons where satisfactory markets for good apples may be found in a number of those great cities.

At the request of Sir Charles Tupper, High Commissioner for Canada, I also made enquiries in many of the great commercial centres of England and Scotland, with a view to ascertaining the practicability of recommending direct consignments of apples from Canada.

The majority of these cities are, at present, mainly supplied, with only what are known as American apples, by parties who buy at auction sales in London, Liverpool or Glasgow. Direct trade with many cities is not yet practicable, for although they may be large centres of population, the demand for apples is too limited to constitute a market sufficiently reliable to be supplied from so great a distance, but in addition to London, Liverpool and Glasgow, which are, and must continue to be, the chief markets, considerable direct trade may be advantageously done by Canadian shippers with such cities as Manchester, Birmingham, Sheffield, Newcastle-on-Tyne, Leeds, Wolverhampton, Hull and Plymouth, in England, and Edinburgh, Dundee and Aberdeen, in Scotland. I cannot close this paper without a word relative to a most important feature in the apple business, even at the risk of incurring the displeasure of interested parties, viz., the universal and often most unsatisfactory custom prevailing in Liverpool and Glasgow, and very largely in London of selling all Canadian apples at auction.

From personal observation during the present season, and 10 years previous experience in shipping, I am firmly convinced that good apples should be sold by private sale instead of, as is too frequently the case, being slaughtered wholesale under the hammer. The fact that one firm in London, have during the past few seasons sold a large share of the Canadian apples sent to that market at private sale, supplying many of the best retail shops in the city, effectually disproves the assertion that all our apples must be sold at auction sales.

I have unbounded faith in the prospects for Canadian apples in Great Britain and Europe, and feel confident that the markets on that side of the water are susceptible of enormous development, and that with the increase of the supply will come an increased demand.

Canadian apple growers need not fear competition with any part of the apple growing world, but it must be remembered to grow only standard varieties best suited to each growers locality, shipping only good and carefully selected fruit, tightly and above all honestly packed and marked, when apple growing in Canada will, in future, as in the past, prove one of our most profitable and enjoyable industries.

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THE FRUITS OF TURKESTAN,

By A. Regel, St. Petersburg.

WITH INTRODUCTION AND NOTES BY C. GIBB.

When at St. Petersburg in August last, it was my good fortune to meet Mr. Albert Regel, who had been living in Sungaria for 5 years and in other parts of Turkestan for 4 years. During these 9 years of residence in Turkestan he had been practising as a physician and surgeon, but had given much time to the collecting of the flora and fruits of that comparatively unknown country. These collections were sent from time to time to the Imperial Botanic Gardens at St. Petersburg, and from there some have even reached here. Mr. Regel has been doing a very valuable work which the horticulturists of this continent will watch with interest. He tells me that the Russian fruits have been tried and are being tried in many of the Russian colonies. At Vierny (or Wernoje) many varieties of fruit are grown, some of which were introduced from Russia 30 years ago; at Tokmac, S. E. of Vierny, the Russian peasants introduced many kinds of Russian apples and pears in 1862; also at Kapal there are many plum, pear and apple trees, brought from Russia many years ago; and at Aksow the peasants are introducing and growing the Russian fruits. But what is of chief interest to us is the Chinese fruits, the fruits of eastern or local origin which Mr. Regel tells me are to be found where the Dungans have formed colonies.

Mr. Albert Regel seems to have penetrated every nook and corner of this country and wandered eastward as far as the longitude of Calcutta. A plan of some of these journeys may be seen in *Descript. Plant. Nov.* presented by Dr. Regel to the library of the Montreal Horticultural Society.

To Mr. J. Fraser Torrance I am indebted for translating the following extracts from the "*Gartenflora*," published now in Berlin.

GRAPES.

The culture of the grape reaches its northern limit on the southern slope of the Eastern Kashgarian foothills of Thian Shan in the district of the Ili, and in a lesser degree near Vierny, thence the boundary crosses the Naryn plateau and extends past Andidsban and Tashkend to the northern slopes of the Western Karatan, to the south of the Hindoo Kush, Kafirstan, Tchatral and Kranschut; besides this the whole of South Western Asia (far to the east) and part of China are vine growing lands. Turfan is the only place where the grape vine is cultivated without artificial support, but it requires winter protection. In Tashkend, high espaliers or arbors are used, and the rows of vines laid down in winter. We find the vine growing without winter covering for the first time in the shaded arbors of Eastern Bokhara, and thence to the lower Paendsh. But the eye is oftener delighted with the more southern vegetation of Darvas and its warm surrounding country, where the grape vines climb freely to the tops of the trees, some of them being as much as 8 inches in diameter of trunk. In Tekumardsh, opposite the mouth of the River Paendsh, it is often quite difficult to discriminate between the carefully cultivated vines and the wild growth. Many of the Central Asiatic varieties of vine are closely allied with those of Persia, and are

distinguished by their early ripening. In Tashkend the first bunches come to market in June. In Darvas the grapes ripen at the end of July. The long-clustered are the best kinds there. The seedless kind, with round green berries, which the Sarts use under the name of kishmish, for making their wine, also grows there. One of the best black varieties of Darvas grows in the Jaugulam Valley, and has large round berries. The grapes of Roshan are of medium size.

In the Shughnanian district of Barpaendsha, the vine flourishes only under the protection of high walls. The Shah cultivates four kinds there, namely (i) a splendid large, long-fruited white with thick skin, (ii) a medium sized green one, (iii) a round black of medium size, (iv) a sweet variety with oval berries of a delicate lilac color, which remain, however, quite small. On the fruit dishes which are presented to the welcome guest, in Bokhara, clusters of grapes are the choicest token of friendship. The wine grapes in Darvas, as well as in most parts of the interior of Asia, are dried on flat roofs for winter use. The beautiful perforated brick work which serves for this purpose in Turfan is lacking elsewhere; only near Sharsondse are there some perforated drying lofts for various purposes. A kind of brandy is distilled from grapes in Shughnan, but very rarely and by permission of the Governor; but this use seems to be more general in the countries south of the Hindoo Kush. The Sarts of Tashkend have long been in the habit of secretly preparing grape brandy.

POMEGRANATES.

The pomegranates require winter covering in Tashkend, as well as in Turfan, and form only small shrubs. The largest pomegranate bushes stand in the garden of the late Prince, at Andidshan. In Darvas the pomegranate forms vigorous growing shrubs, never unhealthy ones, whose fruit is equalled in size and brilliant coloring only in Kulab. The skin of the famous pomegranate of Sharsondse is yellow.

ALMONDS.

The almond tree is cultivated in Tashkend and in the Kokan country. Some trees also stand in the garden at Kalaichumb. In Eastern Bokhara there are almonds and pistachium nuts, gathered from the wild growth of the foot hills, and brought to market for use as dessert and confectionery. Splendid samples of the cultivated pistachium may be seen in the garden at Andidshan.

PEACHES.

Next to the pomegranate, the Asiatics prize the peach, and the Oriental poetry compares its lusciousness to the fruits of Paradise. The culture of the peach reaches its northern limit in the district of the Ili. The young plants, which, as throughout Asia, are grown from the seed, without grafting, suffer greatly there from frost and require careful covering; nevertheless the large, smooth, red, and the rough, hairy, yellow fruit of the Chinese varieties develop excellent characteristics. According to the observations of the naturalist Wilkins, there are 40 varieties in the Kokan district, among them some Chinese ones. In the South the peach extends to Afghanistan and Tshotral; its proper home, however, is Northern Persia to the Caucasus. In Darvas the peach forms trees 30 feet high with broad tops. The rough skinned giant peaches

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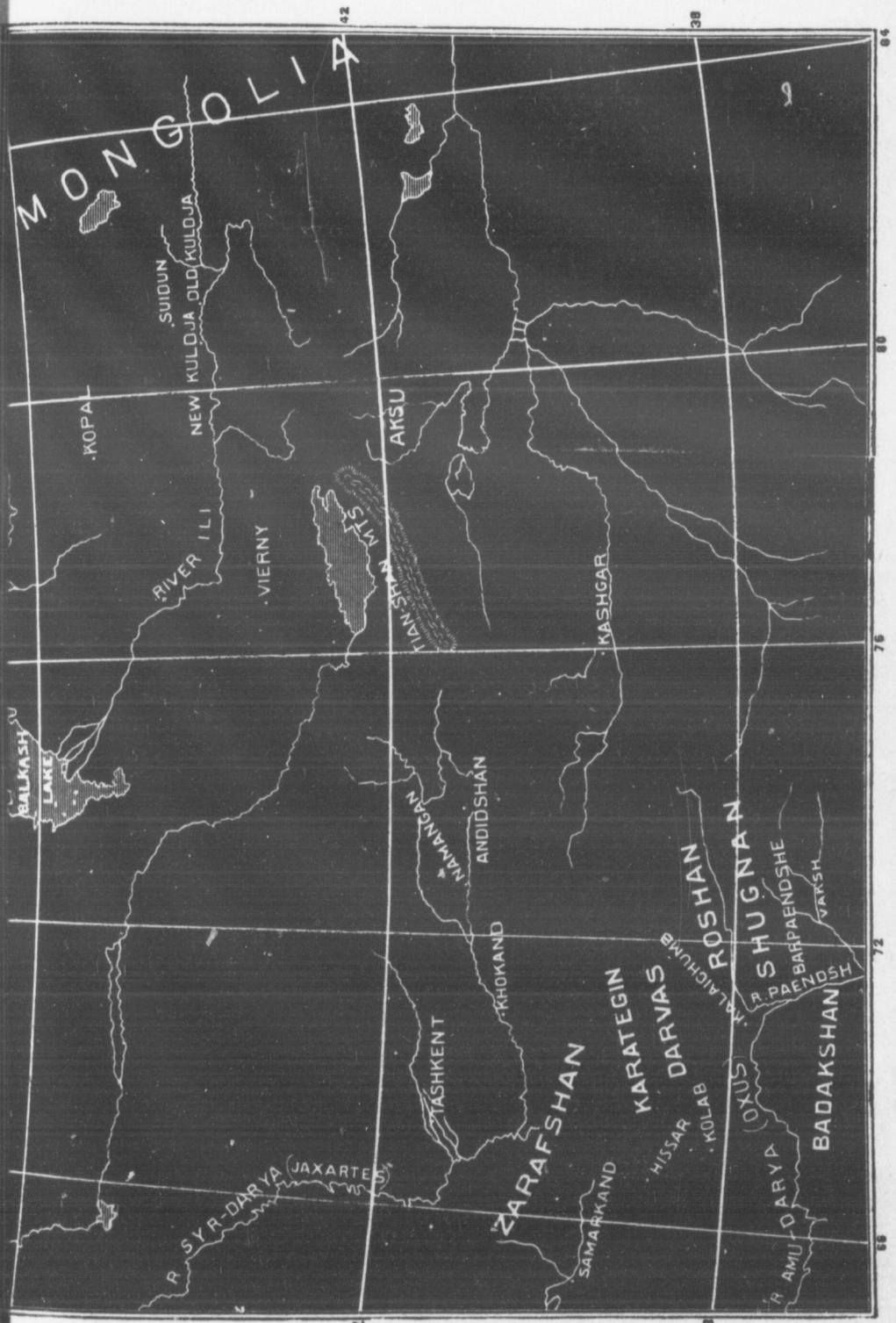
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of the garden of Kalaichumb are of unsurpassed lusciousness and aroma, and most inviting bloom (tinting of the cheeks). They attain the size of an average apple. The fruitfulness of this variety is so great that the leaves seem to be concealed by the peaches. The Bokhariots prize the smaller rough skinned, and red checked variety at Tchaspak, which is distinguished by strong aroma and firm, almost astringent flesh. The yellow peaches are especially sweet. The number of rough skinned kinds at Kalaichumb is considerable.

NECTARINES.

The smooth skinned nectarines of this region among which there are smaller pale yellow varieties and very large red checked ones, are of unusually fine flavor and melting flesh; but they are equalled by the nectarines of Samarcand. There are also small sweet yellow kinds, which stand half way between the rough coated and smooth coated peaches, such an one grows in the exposed region of Vaendsh. In Jasqulam, a small rough-skinned, red peach with astringent flesh and musky aroma, flourishes. Roshan, the district of Barpaendsha, and Surshan on the lower Hund, produce later ripening and less valuable varieties, than the territory of the lower Paendsh.

APRICOTS.

The apricot is from the Caucasus onwards the most faithful companion of the central Asiatic settlements. In the severer winters of the Eastern "country of seven streams," the varieties which are cultivated there suffer. The territory of Tashkend possesses a large number of varieties whose fruit, however, is inferior in delicacy to those of Europe, and they operate injuriously on the digestive organs, and increase the influence of miasma on travellers. The earliest apricots of Tashkend ripen in May. On the upper Tarafshan and towards the upper Amudaria, however, the apricots hang on the tree until August and remain small. The apricots everywhere are dried on the roofs, for use as dried fruit. In the bazaars are found mostly the large fruits of Namangan and Andidshan. The beautiful and delicately flavored apricots of Badachshan, before being dried are stoned, and then pressed into a long shape like dates. In the regions of the Amudaria, apricot kernels form a favorite dainty. The preparation of a conserve made of the juice of the apricot in the form of pastilles, is known to the Tadshiks of the upper Zarafshan, and to the Dungans of Suidun. In Shugnan a libation is prepared from apricot juice, wherewith the wooer after apparent rejection is made welcome at the house door on carrying off the bride, and as a token of consent. Afterwards the bride and bridegroom drink a bowl of it in separate chambers, during the blessing. Also the wreaths wherewith the bridegroom adorns himself in the wedding procession, consist chiefly of dried apricots. It is still unsettled whether the roundish blue-black fruit which is cultivated on the upper Zarafshan under the name Kara Uriuk or black apricot, belongs to the prunes (Zwetschen). Darvas possesses a sour, green, egg-shaped plum. The common plum of the district of Tashkend and of the more elevated settlements of the southern territory is the beautiful Bokharian plum, which to our palates seems sour when unripe, and after ripening, insipid. It is particularly abundant in Karaegin and may be found also in the middle district of the Paendsh Valley.

CERRIES.

Of the sweet cherry only isolated specimens may be found in Turkestan, but suitable trees stand near Karatag in the Hissar district. The original district for cul-

tivation of the sour cherry in Central Asia embraces all of West Turkestan, from Tashkend and Kokham to the upper Amudaria and Afghanistan; well flavored, clear, red kinds are found in Baldshuan. In Shugnan, the cherry juice is used as a cooling drink, but cherry brandy is unknown.

APPLES.

The apple, whereof excellent Chinese varieties are cultivated on the Ili, seems to languish in the hot settlements of the Turkestan Sarts, although, contrary to expectation, European kinds have been successfully introduced. In Tashkend the first apples ripen simultaneously with the apricots in May. From Samarkand onwards the late ripening, long leaved form, becomes more and more common, and towards the Amu-Daria becomes more nearly allied to (presses towards) the usual (western) form. In the Shugnan territory this (latter?) form is the only one found. The valley of the Vaksh is especially rich in beautiful varieties of apples. In Kalaichumb, a small delicate red cheeked apple of fine flavor is preferred, but the apple region proper begins in Roshan and Shugnan. About Barpaendshe there flourish unusually large round summer apples of beautiful carmine color and mealy flesh, as well as slender stalked sweet white ones of longish shape, and also remarkably long pointed, fiery tinted, harvest apples, such as grow also in North Western Badakshan. The chief winter variety here is a small or medium sized roundish pointed apple of beautiful color with firm flesh and of delightful flavor. There is also a kind known which is said to ripen its fruit 3 times in the year. On many trees the apples hang up to November. Altogether Shugnan possesses about 40 varieties of apples. The number of kinds in Roshan is said to be still greater. There also the beautiful late red Paradise apples are grown, which are different from the early Paradise apples of Samarkand. From the middle of Badakshan come large, pale, round or flattish round, sweet, soft-fleshed apples, with a hard core and stiff stem. In Shugnan they cook a dish of apples and mutton together. The fruit is sometimes buried in the earth in winter, as with pears, and laid on straw towards spring; in this way they can be preserved until the next harvest. The Dungans of Suidun have adopted the more careful Chinese method of picking and wrapping in paper. In Eastern Bokhara, apple preserves are known and are prepared in a similar way to their rhubarb preserves.

PEARS.

The pear has the same distribution as the apple, but is more extensively cultivated on the Amu-Daria than in other parts of Central Asia. The firm-fleshed pears of Suidun are famed for their aroma, and the large yellow pears of Sharsause are equally popular. The best kinds in Darvas are a large, hard, green pear, and a small yellow sugar pear. In Shugnan there is a small yellow pear which in some trees in the garden of the Shah, develops singular forms like birds, and also a rare fine juicy kind of considerable size and yellowish green color. From Badakshan come large roundish pears with musky aroma.

QUINCES.

The quince, which is very popular in Tashkend and Kokan, is found in the garden at Kalaichumb with a fruit of only medium size.

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PERSIMMONS.

The date plum (persimmon, *diospyros*) in the warmer districts of Darvas becomes a large tree the fruit of which is considered injurious until it has been blackened by the first frost, while *Berberis integrifolia* and *Hippophae rhamnoides* are used in upper Darvas only as quickly growing hedge plants.

ELÆGNUS.

The *elægnus hortensis*, that splendid silver decoration of the garden, is the constant companion of the silver willow from the Sir-Daria and Ili onwards on the well watered camps of the districts of Western Turkestan, and it is a prized fruit tree in Darvas as well as in Shugnan, and the varieties with dry and mealy fruit are as highly prized here as by the other Asiatics.

NETTLE TREE.

From Zarafshan the nettle tree (*celtis*) is distributed through all the districts as far as Darvas, and with its rather dark foliage replaces the elm. The yellow berries ripen late.

MULBERRIES.

The foliage of the green fruited and black fruited mulberry tree is very variable but the outline of the tree is depressingly monotonous. This tree imparts to all the Central Asiatic cultivated districts on this side of the mountains of the border range of Sungaria their luxuriant appearance. The mulberry tree in Kashgaria and in the country of the Sarts, is used for silk culture, a quiet occupation for women; while the tasteless mulberries are shaken from the tree by the children. They are considered the most valuable nourishment from the regions of Zarafshan eastward to the Amu-Daria. Dried mulberries furnish a sweet food in the countries where corn is scarce and in every household large piles are stored for winter use. In Shugnan, a dish full of dried mulberries is used as the unit of measure, and the help of the physician as well as the skill of the singer is valued at so many dishes of mulberries. All through the Paendsh district the dried berries are ground. A bag full of mulberry meal forms the provision for pedestrians and hunters. In the region of Vaendsh, a heavy bread is baked out of mulberry meal, which replaces the corn bread during hard times. On the upper Darvas and in Shugnan the mulberry juice is thickened into a tough syrup of peculiar flavor. The Shugnanites enjoy distilling mulberry brandy. The wool of the mulberry tree furnishes to the Tadshik of the upper Amu-Daria his winter shoes and sandals, his whips and guitars, and to the boy of Roshan his hobby horse. The ripening of the mulberry announces the beginning of summer. The last Shah of Shugnan had set up opposite his residence, on a high hill, an indicator set in the direction of the point in which the sun rose over the hills at the time of the ripening of the mulberry. The red fruited mulberry tree of Bokhara is often found in the Zarafshan country and around Baldshuan, and extends along the Paendsh to Jasqulam. The red fruit, like raspberries, gleam behind the large, rough, heart-shaped leaves and yield a refreshing juice. The Sart doctors use the dried berries as a sudorific. In Tokmai, a village above Kalaichumb, a tree is cultivated bearing an early ripening agreeable red berry and the leaves of which resemble those of the hazel.

* NUTS.

The culture of nuts (Nussbaume) extends from the Eastern to the Western parts of Turkestan, but reaches its natural limit on the Tianshan line, for this tree is planted in the Ili district only in an experimental way for ornament. Magnificent old nut trees shade the village squares of the upland settlements of Eastern Bokhará and the entire valley of the Paendsh. In Shugnan, the culture of nuts extends half way up the side valleys. In the stone seats of the Amudarian villages there are small hollows where young and old enjoy their pastime in cracking nuts. Nut oil used for lighting the houses is expressed like other oils on stones. Nut oils and nuts form an ingredient in many Bokhariot confections.

FIGS.

The culture of figs begins at the southern foot of Western Karatan and follows the same breadth to Turfan, crosses the Hindoo Kush in a southern direction, and is subject to the same conditions as the culture of the pomegranate. In Darvas the fig forms high shrubs with a stem thicker than one's arm which require no protection; the fruit remains small and is eaten fresh. The drying and the pressing of the fig is practised in more western districts.

Southern fruits which require a mild winter such as the Aurantiacae come into consideration as little as the tea plant or other evergreen woods. A small lemon from Southern Afghanistan is used among the Sarts in their drug trade. Oranges are said to flourish in Bokhara and Karsh, but their culture is safely established first on the Indian boundary. The Shugnans hardly ever see Chinese tea, and drink a decoction of *angelica songorica*, or of a potentilla.

In the neighborhood of Tashkand an imitation brick tea of *Lythrum* forms an article of export. The Mongols and Tarants of Sungaria boil a substitute for tea out of the leaves of *Cotoneaster* and make a salad of *nepeta nuda* or *origanum vulgare* with milk and salt.

MELONS.

The number of varieties of melons in Central Asia are innumerable; a melon and a slice of bread form the day's food of the Turkestan laborer. On the Amu-Daria the green Kashgarian varieties are preferred. In Karategin as well as in Shugnan a small smooth round "chito"-melon is gladly kept in one's room for the sake of its aromatic perfume.

In Dr. Schuyler's Turkestan, N. Y. 1876, p. 326, Vol. I, that author divides this region into four climatic districts. The Northern zone, extending south to lat. 45°, where the climate is cold and where apricots and vines do not grow. At Kasala the summer lasts for five months and is exceedingly hot and without rain and the Sir Daria here during an average of 19 years has been frozen over for 123 days. The Apricot zone includes Perovsky, Turkestan, Aulié-ata and Vierny. At this latter place grapes ripen but are inferior to those grown farther south. At Perovsky the river is frozen on an average 97 days. In this district the temperature occasionally falls to 30° below zero, Fahr. The peach and almond zone includes Mankent, Tashkend, Tokmak and the districts of Kulja and Zarafshan. From Tashkend southwards grape vines do

* The nut trees described by Mr. Regel seem to be walnuts.

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not need winter covering. Here the summer climate is much like Sebastopol and sometimes reaches 110° in the shade. In winter snow falls for about a month but quickly melts, yet the temperature sometimes reaches 6° below zero, Fahr. The district of Kulja, although lying far to the north is protected on every side by high mountains, which accounts for its comparatively high temperature, the yearly average of which is 48.5° , Fahr. It is possible therefore to raise apricots, peaches, grapes, pomegranates and other tender fruit.

The fourth zone comprises the valley of Hodjent and all the small mountain valleys south of lat. 42° . Here even the pistachio tree grows and at an elevation of 3500 feet above the sea.

In his chapter on the Zarafshan Valley (p. 296, vol. i) Dr. Schuyler says: "The gardens constitute the beauty of all this land. The long rows of poplar and elm trees, the vineyards, the dark foliage of the pomegranate over the walls transport one at once to the plains of Lombardy or of Southern France. In early spring the outskirts of the city, and indeed the whole valley, are one mass of white and pink, with the bloom of almond and peach, of cherry and apple, of apricot and plum, which perfume the air for miles around. These gardens are the favorite dwelling-places in the summer, and well may they be. Nowhere are fruits more abundant, and of some varieties it can be said that no where are they better. The apricots and nectarines I think it would be impossible to surpass any where. These ripen in June, and from that time until winter fruit and melons are never lacking. Peaches, though smaller in size are better in flavor than the best of England, but they are far surpassed by those of Delaware. The big blue plums of Bokhara are celebrated through the whole of Asia. The cherries are mostly small and sour. The best apples come either from Khiva or from Suzak to the north of Turkestan, but the small white pears of Tashkend are excellent in their way. The quince, as with us, is cultivated only for jams, or marmalades, or for flavoring soup. Besides water melons ("tarbuz," whence the Russian "arbus,") there are in common cultivation ten varieties of early melons, and six varieties which ripen later, any one of which would be a good addition to our gardens. In that hot climate they are considered particularly wholesome and form one of the principal articles of food during summer. When a man is warm or thirsty he thinks nothing of sitting down and finishing a couple of them. An acre of land, if properly prepared, would produce in ordinary years from two to three thousand, and in very good years twice as many. Of grapes I noticed thirteen varieties, the most of them remarkably good. * * * * Large quantities of fruit are dried."

Russian Central Asia, by Henry Lansdell, D.D., London 1885, adds much to our knowledge of the fruits of these regions. The work is a wonderful accumulation of facts. Dr. Lansdell mentions (p. 375, Vol. 1) the fruit zones already mentioned and the cities in which different fruits are grown. He says that in the Zarafshan province there are whole forests of almond trees and mentions among the wild trees "many species of cherry, plum, apples, pears and apricots." Fruits seem cheap enough in Turkestan. In Khiva grapes sell at 1d per pound and peaches in season up to half that price. Of mulberries they take so little account as not to pick them for sale. Apples however cost from 24s. to 30s. per cwt. In the City of Bokhara, Dr. Lansdell notes 13 varieties of grapes grown, of which he tasted several; the berries of the largest being from 1 in. to $1\frac{1}{2}$ in. in length. Of peaches three kinds, the red, white

and green, but the best come from Samarcand; an apricot tree 5 ft 3 in. in circumference of trunk; plums, yellow and black, the latter he "found particularly well flavored" on Oct. 11. In the Khanate of Bokhara there are grown eight kinds of apples. The best are from Khiva but these not to be compared with English apples. Quinces abundant in Khokand and elsewhere.

I have said enough to show that the fruits of Turkestan offer a most promising field for investigation and experiment.

Tabulated Descriptions of Russian Apples.

R. Schroeder, Moscow.

Note of explanation. In May 1879, Mr. Schroeder, the veteran horticulturist of the Agricultural Academy at Petrowskoe Rasumowskoe, near Moscow, sent a collection of scions of apple trees to the State Agricultural College at Ames, Iowa.

The most of these were successfully grafted, mostly top grafted on Haas which Prof. Budd had previously planted for this purpose. It would seem that 154 varieties were saved; at any rate that is the number in the list published in the Iowa College Bulletin on Russian Fruits, &c., of 1885, and in the Iowa State Horticultural report of that year. Mr. Schroeder had gathered this collection from different parts of Russia for trial on the College farm at Petrowskoe Rasumowskoe. A large number of them were not described in Dr. Regel's *Russkaya Pomologaya* published in 1868, and we were greatly in need of descriptions of them.

In August last, I called upon Mr. Schroeder and again wandered with him through his experimental gardens, and he has very kindly sent us the much needed information as tabulated in the following pages.

CHAS. GIBB.

Name.	Size.	Form.	Color.		Calyx.	Basin.	Stem.	Cavity.	Core.	Flesh.	Flavor.	Use.	Season.	Tree.	Where grown.
			Shaded Side.	Sunny Side.											
1. Repolovka.	med.	flat round.	green yellow.	yellow red.	open.	broad ribbed.	rather long.	oblique rus.st.	closed.	greenish white.	sub-acid sweet aromatic.	table.	autumn winter.	hardy.	North Russia.

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Name.	Size.	Form.	COLOR.		Calyx.	Basin.	Stem.	Cavity.	Core.	Flesh.	Flavor.	Use.	Season.	Tree.	Where grown.
			Shaded Side.	Sunny Side.											
1. Repolovka.	med.	flat round.	green yellow.	yellow red.	open.	broad ribbed.	rather long.	oblique russet.	closed.	greenish white.	sub-acid sweet aromatic.	table.	autumn winter.	hardy.	North Russia.
2. Hare pipka.	med.	flat conical.	green dotted.	brownish.	closed.	flat ribbed.	short, med.	oblique.	closed half open.	greenish.	acid.	cooking.	winter.	med.	North Russia.
3. Lead.	med.	round.	green.	brown.	closed.	flat wrinkled.	long, thin.	very deep.	closed.	firm.	acid sub-acid sweet.	cooking table.	autumn winter.	med.	Mid. Russia.
4. Ostrokov's glass.	med.	round.	green.	brown.	closed.	flat wrinkled.	long, thin.	very deep.	closed.	firm.	acid sub-acid sweet.	cooking table.	winter.	med.	Mid. Russia.
5. Royal table.	large.	high conical ribbed.	green yellow.	yellow red.	open.	deep wrinkled.	short.	deep and smooth.	closed.	white firm.	sub-acid sweetish aromatic.	table.	winter.	tender.	Falio Provinces.
6. Grandmother.	med.	flat round ribbed.	green yellow.	yellowish red.	closed.	flat ribbed oblique.	med. thick.	russet.	half open.	yellowish firm.	extra good.	table.	winter.	tender.	Mid. Russia.
7. Osimoe (Hilernal).	large.	flat conical ribbed.	greenish yellow.	red striped.	closed.	closely wrinkled.	med.	russet.	open.	whitish tender.	acid.	cooking.	winter autumn.	hardy.	North Russia.
8. Strischapel sladku.	med.	flat round ribbed.	greenish yellow.	yellow brown.	closed.	oblique.	med.	oblique.	open.	firm.	sweet.	cooking table.	winter.	hardy.	Mid. Russia.
9. English Borovinka.	large.	flat conic ribbed.	greenish yellow.	yellow red.	half open.	deep ribbed.	med.	deep narrow ribbed.	half open.	greenish white firm.	sweet.	table cooking.	winter.	med.	Mid. Russia.
10. Ukraine.	med.	round ribbed.	green.	yellow red striped.	half open.	narrow ribbed.	med.	ribbed.	half open.	yellowish firm.	acid.	cooking.	autumn winter.	med.	West Russia.
11. Romenskoe.	med.	roundish conical.	greenish.	dark red.	half open.	deep wrinkled.	med.	deep narrow reddish.	closed.	greenish white firm.	acid.	cooking.	winter.	med.	Mid. Russia.
12. Varguik.	med.	flat conical.	greenish yellow.	reddish.	half open.	wrinkled.	short.	deep russet.	closed.	white firm.	acid.	cooking.	winter.	hardy.	Mid. Russia.
13. Mottled anis.	med.	med.	med.	med.	med.	med.	med.	med.	med.	med.	med.	med.	med.	med.	med.
14. Anisim.	med.	flat conical.	greenish yellow.	red striped.	closed.	flat and closely ribbed.	thick.	flat.	closed.	greenish white.	sub-acid.	table and cooking.	winter.	hardy.	Mid. Russia.
15. Strischapel (Kreuzapfel).	med. large.	flat conical ribbed.	green yellow.	light red striped.	closed.	flat and closely ribbed.	med.	ribbed green.	open.	greenish firm.	sub-acid sweet.	table and cooking.	winter.	hardy large.	Mid. Russia.

Name.	Size.	Form.	Shaded side.	Sunny side.	Calyx.	Basin.	Stem.	Cavity.	Core.	Flesh.	Flavor.	Use.	Season.	Tree.	Where grown.
16. Vargul.	large.	flat conical.	greenish yellow.	yellowish red striped.	closed.	deep closely ribbed.	med.	russety.	closed.	yellowish firm.	sub-acid sweet aromatic.	table.	winter.	tender.	South Mid. Russia.
17. Kruder oder blauer (winter)	med. small.	flat round.	greenish yellow.	yellowish red.	closed.	broad folded.	med.	deep russety.	closed.	yellowish firm.	sub-acid aromatic.	table.	winter.	tender.	South Russia.
18. Blackwood.	med.	flat round conical.	light greenish yellow.	yellowish red.	half open.	flat wavy oblique.	rather long.	flat and oblique.	closed.	yellowish firm fine grained.	sub-acid aromatic.	table.	winter.	tender.	South Russia.
19. Kursk Reinecke.	med.	flat round conical.	greenish yellow.	yellow red striped.	closed.	ribbed.	long and thin.	russety.	closed.	greenish yellow.	sweet aromatic.	table.	winter.	med.	Mid. Russia.
20. Karabovka.	small.	round conical.	greenish yellow.	red striped.	closed.	deeply ribbed.	med.	oblique and russety.	open.	reddish white fine grained.	sub-acid sweet.	table.	summer autumn.	med.	North Russia.
21. Blushed calville.	med.	flat round.	greenish yellow.	red.	closed.	deeply ribbed.	med.	wide greenish.	open.	greenish white coarse.	sub-acid sweet aromatic.	table.	winter.	med.	Mid. Russia.
22. Apopt.	large.	flat conical.	greenish yellow.	red striped.	half open.	deeply ribbed.	med. thick.	deep russet.	closed.	yellowish firm.	sub-acid.	table and cooking.	winter.	hardy.	Mid. Russia.
23. Sandy glass.	med.	flat round.	greenish yellow.	yellowish red.	open.	flat ribbed.	med.	small.	open.	white coarse.	sub-acid.	table and cooking.	winter.	tender.	Baltic Provinces.
24. Danais pipka.	med.	high elliptic.	greenish yellow.	red.	closed half open.	ribbed wrinkled.	short thick.	yellow russet.	half open.	greenish yellowish firm.	acid.	table and cooking.	autumn winter.	med.	popular everywhere.
25. Antonovka.	large med.	flat conical ribbed.	greenish yellow.	yellow brown.	half open.	deep ribbed.	short.	flat russety.	closed.	greenish white firm.	sub-acid.	table.	winter.	hardy.	Mid. Russia.
26. Large anis.	med.	flat round.	greenish yellow.	red.	closed.	flat ribbed.	med.	flat russety.	half open.	greenish white firm.	acid.	cooking.	winter.	hardy.	Mid. Russia.
27. Kluevskoe.	med.	cylindrical high.	yellowish.	red marbled striped.	half open.	deep ribbed.	long thin.	deep narrow russety.	open.	white fine grained.	sub-acid sweet aromatic.	table.	winter.	tender.	Baltic Provinces.
28. Melonen oder non-pen.	med.	flat round.	light green yellow.	yellow.	open.	deep broad ribbed.	short.	russety.	open.	fine grained firm.	sub-acid sweet.	table.	winter.	med.	Mid. Russia.
29. Lednets.	med.	flat round.	greenish yellow.	red.	closed.	deep wrinkled.	med.	russety.	closed.	firm, fine grained.	sub-acid aromatic.	table.	winter.	tender.	South Russia.

Name.	Size.	Form.	Shaded side.	Sunny side.	Calyx.	Basin.	Stem.	Cavity.	Core.	Flesh.	Flavor.	Use.	Season.	Tree.	Where grown.
30. Ais.	small.	flat conical ribbed.	green yellow.	carmine.	closed.	flat narrow ribbed.	med.	deep greenish.	closed half open.	greenish firm, fine grained.	sub-acid sweet aromatic.	table.	winter.	hardy.	Everywhere.

Color.

Name	Size	Form	Shaded side	Sunny side	Calyx	Basin	Stem	Cavity	Core	Flesh	Flavor	Use	Season	Tree	Where grown
29. Melonen oder non-per.	med.	cylindrical high	yellowish	red marbled striped	half open	deep narrow ribbed	long, thin	deep narrow russety	open	white fine grained	sweet aromatic	table	winter	med.	Mid. Russia.
30. Lednets.	med.	flat round	light green yellow	pale red	open	deep broad ribbed	short	russety	open	white fine grained firm	sub-acid sweet	table	winter	tender	South Russia.

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Name	Size	Form	Shaded side	Sunny side	Calyx	Basin	Stem	Cavity	Core	Flesh	Flavor	Use	Season	Tree	Where grown
32. Ai is.	small.	flat conical ribbed	green yellow	carmine	closed	flat narrow ribbed	med.	deep greenish	closed half open	greenish firm, fine grained	sub-acid aromatic	table	winter	hardy	Everywhere.
33. Winter stripe.	med.	round conical	greenish bloom.	red carmine striped	closed	narrow flat	med.	deep green	half open	white, firm fine grained	sub-acid sweet aromatic	table and cooking	winter	hardy	North Russia
37. White bordered-ka.	med large.	flat conical	pale greenish yellow	yellowish brown	open	deep somewhat ribbed	med.	deep russety	closed	white, fine grained	sweetish sub-acid	table	autumn	med.	Mid. Russia.
38. Polish cinnamon	small.	flat conical	light green	yellow red striped	closed	flat ribbed	rather long	deep red	closed	white tender	sub-acid	table	summer	hardy	Mid. Russia.
40. White summer calville.	large med.	flat round ribbed	greenish white	reddish dotted	closed	ribbed oblique	med.	deep ribbed oblique	half open	white tender	slightly sub-acid sweet	table	summer	tender	Baltic Provinces.
41. Recumbenti.	very large.	flat conical ribbed	greenish yellow	red striped	half open	deep ribbed	med.	deep russety	open	yellowish firm coarse	acid	cooking	winter	hardy	Mid. Russia.
42. Bokovoe.	large.	flat	light yellow	striped	half open	deep ribbed	med.	deep russety	open	yellowish firm coarse	acid	cooking	winter	tender	Mid. Russia.
43. Arbusovskoe.	very large.	flat round ribbed	green	pale yellow	closed	broad wrinkled oblique	short thick	deep smooth	half open	loose coarse	acid	cooking	summer	hardy	Mid. Russia.
44. Lipinskoe.	med.	flat conical	greenish white	light yellow	half open	flat wrinkled	med.	russety	closed	white tender	slightly sub-acid	table	summer	hardy	Mid. Russia.
45. Korolevskoe.	large med.	flat round	greenish yellow	yellow brown	half open	narrow ribbed oblique	long thin	narrow russety	closed	yellowish white tender	slightly sub-acid	table	summer	hardy	North Russia.
46. Early cinnamon.	med. small.	flat round	light greenish yellow	red fine striped	closed	wide wrinkled	long thin	yellow russety	closed	greenish white tender	sub-acid sweet aromatic	table	summer	hardy	Mid. Russia.
47. Yellow Kiev.	med large.	flat round	yellow	yellow brown	closed	flat narrow wrinkled	med.	flat russety	closed	tender yellowish white	sub-acid	cooking and table	autumn	tender	Mid and South Russia.
48. Cinnamon pine.	med. small.	flat round	greenish yellow	yellow red	closed	flat narrow	long thin	flat slightly russety	closed half open	white, fine grained	sub-acid aromatic	table	summer	hardy	Everywhere.
49. Sweet mensk.	med.	ribbed round cylindrical	yellowish red	carmine striped	closed	flat narrow ribbed	long thin	red smooth	closed	white, fine grained	sweet	table	autumn, summer	med.	Mid. Russia.

Name.	Size.	Form.	Color.		Calyx.	Basin.	Stem.	Cavity.	Core.	Flesh.	Flavor.	Use.	Season.	Tree.	Where grown.
			Shaded side.	Sunny side.											
50. Swan.	med.	flat conical ribbed.	greenish white.	white brown.	open.	ribbed.	pretty long, thick.	narrow yellowish.	closed.	white juicy.	acid.	cooking.	summer.	hardy.	Mid. Russia.
51. Avenarius.	med.	flat conical.	greenish yellow.	carmine striped, dotted.	closed.	flat ribbed.	short thick.	wide narrow.	open.	white, fine grained.	sweet.	table.	summer.	hardy.	North Russia.
52. Riga translucent	med.	flat conical ribbed.	light green.	light yellow brownish.	closed.	flat narrow ribbed.	pretty long.	deep oblique.	half open.	greenish white yellowish.	sub-acid sweet aromatic.	table <i>citradr.</i>	summer, autumn.	tender.	Baltic Provinces.
54. Great Mogel.	med.	flat round.	pale greenish white.	pale reddish.	open.	ribbed wavy.	long, thin.	greenish russet narrow.	closed.	white loose.	acid.	cooking.	summer.	tender.	Germany.
55. Rukinsko.	med.	flat round.	light green bloom.	yellow red.	half open.	flat ribbed.	long, thin.	deep smooth.	closed.	white, fine grained firm.	slightly sub-acid aromatic.	table.	winter.	tender.	South East Russia.
56. Longfield.	med.	flat conical.	pale greenish yellow.	red striped dotted.	closed.	flat, wavy.	long, thin.	deep narrow smooth.	closed.	greenish white tender.	slightly sub-acid.	table.	summer.	med.	Mid. Russia
58. Gvo ditchoe.	small.	flat round.	light green.	white.	closed.	flat wrinkled.	med.	grey russety.	open.	greenish white loose.	sweet.	table.	summer.	hardy.	Mid. Russia.
59. Repka arcad.	med.	flat round.	light green.	brown yellow.	half open.	wrinkled.	med.	a little russety.	closed.	white, tender, juicy.	sweet.	table.	summer.	hardy.	Mid. Russia.
60. Smoky arcad.	small.	flat round.	light greenish yellow.	yellow red.	open.	reddish striped.	med.	russety.	open.	greenish yellow loose.	slightly sub-acid aromatic.	table.	summer.	hardy.	Mid. Russia.
61. Melonen.	large.	round conical ribbed.	light yellow.	light red.	half open.	deep ribbed.	short.	narrow deep russety.	open.	white juicy, fine grained.	sub-acid aromatic.	table cooking.	autumn.	tender.	East Germany.
62. Richard.	large.	flat round ribbed.	greenish light yellow.	yellowish red.	small.	deep wavy.	med.	broad oblique ribbed russety.	half open.	white greenish juicy.	slightly sub-acid.	table <i>citradr.</i>	summer.	hardy.	Mid. Russia.
63. Kolomensko.	small.	flat round.	greenish yellow.	yellow red.	half open.	flat wrinkled.	pretty long.	deep russety.	closed.	yellow.	sweet aromatic.	table.	summer.	hardy.	Mid. Russia.
64. Yellow sweet.	small.	round conical.	greenish white.	yellowish white.	closed ?	flat narrow.	long, thin.	flat smooth.	open.	white, firm fine grained.	slightly sub-acid.	table.	summer.	hardy.	
65. Krimsko vs-duchnoe.	med.	flat conical.	light greenish.	greenish yellow.	open.	wrinkled wavy.	long, thin.	smooth.	half open.	whitish yellow fine grained.	slightly sub-acid tender.	table.	autumn.	tender.	Baltic Provinces.

Name.	Size.	Form.	Color.		Calyx.	Basin.	Stem.	Cavity.	Core.	Flesh.	Flavor.	Use.	Season.	Tree.	Where grown.
			Shaded side.	Sunny side.											
67. Nastedka.	med.	flat conical ribbed.	green yellow.	brown red.	open.	ribbed.	med.	deep russety.	open.	greenish white firm.	acid.	cooking.	autumn.	hardy.	Mid. Russia.

Color.

Name.	Size.	Form.	Shaded side.	Sunny side.	Calyx.	Basin.	Stem.	Cavity.	Core.	Flesh.	Flavor.	Use.	Season.	Tree.	Where grown.
65. Krimskoe v-s- dushnoe.	small.	round conical.	greenish white.	yellowish white.	closed	flat narrow. wrinkled wavy.	long, thin.	flat smooth.	open.	white, firm fine grained	slightly sub-acid.	table.	summer.	hardy.	Baltic Provinces.
66. Revel pigeon.	med.	flat conical.	light greenish.	greenish yellow.	open.	open.	long, thin.	smooth.	half open.	whitish yellow fine grained.	slightly sub-acid tender.	table.	autumn.	tender.	
67. Nasiedka.	med.	flat conical ribbed.	green yellow.	brown red.	open.	ribbed.	med.	deep russety.	open.	greenish white firm	acid.	cooking.	autumn.	hardy.	Mid. Russia.
68. Broad green.	large.	flat conical.	green	greenish yellow.	closed.	broad wrinkled.	pretty long.	broad oblique russety.	closed.	greenish white.	acid some- what sweet.	cooking table.	autumn.	hardy.	Mid. Russia.
69. Early red.	med.	flat.	yellow.	yellow.	closed.	wrinkled.	med.	large russety smooth.	half open.	yellowish white.	slightly sub-acid.	table.	summer very early	hardy.	North Russia.
70. German prolific.	med.	flat conical.	greenish yellow.	yellowish red striped.	closed.	wrinkled.	med.	large russety smooth.	half open.	yellowish white.	sub-acid.	table cooking.	autumn.	hardy.	West Russia.
71. German tee.	small.	flat conical somewhat ribbed.	greenish yellow.	red striped.	open.	pretty deep.	pretty long.	deep russety.	half open.	greenish white tender.	sub-acid. sweet aromatic.	table.	summer.	hardy.	Baltic Provinces. widely grown.
72. Sweet miron.	small.	flat conical.	light green bloom.	yellow red striped.	open.	narrow flat.	short.	russety.	open.	white loose.	sweet.	cooking.	autumn.	hardy.	North Russia.
73. Sweet prolific.	small.	round conical.	yellow red.	carmine.	closed.	flat ribbed.	pretty long.	narrow greenish.	open.	white tender reddish.	sub-acid.	table.	summer.	hardy.	Mid. Russia
74. Green Astrachan.	med.	flat conical.	greenish.	red striped.	half open.	deep somewhat ribbed.	long, thin.	deep yellow.	half open.	white loose.	sweet.	table.	summer.	tender.	Mid. Russia.
75. Silken.	small.	round conical.	yellow red.	carmine.	closed.	flat ribbed.	pretty long.	narrow greenish.	open.	white tender reddish.	sub-acid.	table.	summer.	tender.	Baltic Provinces.
77. Sweet stripe.	med.	flat conical.	greenish.	red striped.	half open.	deep somewhat ribbed.	long, thin.	deep yellow.	half open.	white loose.	sweet.	table.	summer.	tender.	Mid. Russia.
79. King's stripe.	med.	flat conical.	greenish.	red striped.	half open.	deep somewhat ribbed.	long, thin.	deep yellow.	half open.	white loose.	sweet.	table.	summer.	tender.	Baltic Provinces.
80. Petrovskoe.	large.	flat round.	yellowish white.	red striped.	open.	narrow ribbed.	med.	somewhat russety oblique.	closed.	loose greenish yellow, juicy.	slightly sub-acid.	table cooking.	summer.	hardy.	Mid. Russia.
83. Pear.	small.	flat conical.	greenish yellow.	yellowish red.	half open.	flat wavy.	med.	deep oblique.	half open.	white tender fine grained	slightly sub-acid.	table.	summer.	hardy.	widely grown.
84. Bergadorskoe.	med.	flat conical.	pale green	red striped.	open.	ribbed oblique.	long, thin.	large oblique.	half open.	greenish white tender.	sub-acid sweet.	table.	autumn.	tender.	Baltic Provinces.
85. Glass.	med.	flat conical.	pale green	pale red.	half open.	flat wrinkled.	med.	deep somewhat russety.	closed.	greenish white loose.	acid.	cooking.	winter.	hardy.	widely grown.

Name.	Size.	Form.	Color.		Calyx.	Basin.	Stem.	Cavity.	Core.	Flesh.	Flavor.	Use.	Season.	Tree.	Where grown.
			Shaded side.	Sunny side.											
86 Bialgorod	med.	flat round.	green.								table.	autumn.	hardy.	Mid. Russia.	
87. Herren.											table.	autumn.	tender.	Baltic Provinces.	
88. Berganot.	med. small.	flat conical.	greenish yellow.	red striped.	half open.	flat narrow wrinkled.	long and thin.	deep smooth.	open.	white delicate fine grained.	slightly sub-acid aromatic.	table.	summer.	tender.	Mid. Russia.
89. German Calville.											table.	summer.	tender.	Baltic Provinces.	
90 Rosy apart.	large.	round conical.	greenish yellow.	red striped.	closed.	flat wrinkled.	med.	deep, smooth.	closed.	yellowish white, loose.	slightly sub-acid aromatic astringent	cooking.	autumn.	hardy.	North Russia.
91. German Skrutze.	med.	flat round.	wax yellow.	red striped.	closed.	ribbed.	thin, pretty long.	deep russety.	closed.	yellowish white, firm.	sub-acid	cooking.	autumn.	hardy.	Mid. Russia.
92. Svinets.	med.	flat conical.	dark green dotted.	brownish.	half open.	flat ribbed	short.	flat oblique	closed.	greenish firm, fine grained	sub-acid aromatic	cooking and table.	autumn.	hardy.	Mid. Russia.
93. Wine.	med.	flat conical.	greenish yellow.	red striped spotted.	open.	flat wrinkled.	med.	large striped russety.	half open.	greenish white, tender.	slightly sweet sub-acid	table.	summer.	tender.	Germany.
94. Kalkidovskoe.	large.	flat conical.	green.	yellowish red striped.	closed.	flat narrow.	med.	wide, smooth.	open.	greenish white, loose.	sweetish sub-acid juicy.	table.	autumn.	tender.	South Russia.
95. Fomarik.	small med.	high conical ribbed.	light yellow.	yellow.	closed.	narrow flat wavy	thin, pretty long	deep narrow ribbed.	half open.	white tender	slightly sub-acid	table.	summer.	med.	Mid. Russia.
96. Juicy ribbed.	med.	flat conical ribbed.	pale green yellow.	brownish.	closed.	narrow ribbed oblique.	long, thin.	brad.	half open.	white, loose.	acid astringent	table, (juicy.)	summer.	hardy.	North Russia.
97. Marble.	med.	flat conical.	white.	red striped dotted.	closed.	deep ribbed wavy.	med. thin.	narrow oblique.	wide closed.	white, loose.	slightly sub-acid aromatic.	cooking and table.	summer.	hardy.	Mid. Russia.
98. Smolensk.	large.	flat round conical ribbed.	greenish yellow.	red stripe.	open.	broad deep wrinkled	rather long, thick.	broad, flat.	closed.	yellowish firm, fine grained	light sub-acid sweet.	table.	autumn.	tender.	Mid. Russia.
99 Long arcad.	med.	round conical.	light greenish yellow.	light greenish white yellow.	closed.	wrinkled.	long, thin.	smooth.	narrow closed.	greenish white, tender.	pure sweet.	table.	summer.	hardy.	Mid. Russia.
100. Putimskoe.	med. small.	flat round.	light green.	yellowish brown russety.	open.	flat.	med.	deep russety.	closed.	white firm fine grained.	sub-acid.	table and cooking.	summer and autumn.	med.	Mid. Russia.

Name.	Size.	Form.	Color.		Calyx.	Basin.	Stem.	Cavity.	Core.	Flesh.	Flavor.	Use.	Season.	Tree.	Where grown.
			Shaded Side.	Sunny Side.											
102. Pestruchka (streiffing.)	med.	flat conical.	pale greenish yellow.	yellow red	closed.	deep wrinkled	rather	deep and	closed.	greenish white	acid	table and			

99 Long arcad.	med.	round conical.	light greenish white yellow.	closed.	wrinkled.	long, thin.	smooth.	narrow closed.	greenish white, tender.	pure sweet.	table.	summer.	hardy.	Mid. Russia.
100. Putimskoe.	med. small.	flat round.	light green.	open.	flat.	med.	deep russety.	closed.	white firm fine grained.	sub-acid.	table and cooking.	summer and autumn.	med.	Mid. Russia.

Name.	Size.	Form.	COLOR.			Calyx.	Basin.	Stem.	Cavity.	Core.	Flesh.	Flavor.	Use.	Season.	Tree.	Where grown.
			Shaded Side.	Sunny Side.												
102. Pestruchka, (streiffing.)	med.	flat conical.	pale greenish yellow.	yellow red striped.	closed.	deep wrinkled.	rather long, thin.	deep and smooth.	closed.	greenish white firm aromatic.	acid aromatic.	table and cooking.	winter.	med.	Mid. Russia.	
103. Striped Calville.	med.	flat round ribbed.	greenish yellow.	yellow red striped.	closed.	ribbed oblique.	long, thin.	deep yellow russety.	half open.	greenish white.	slightly sub-acid.	table.	summer.	tender.	Baltic Provinces.	
105. Charlamoff.	large.	flat round.	greenish	yellow red brown.	closed.	flat ribbed wrinkled.	rather long, thin.	deep russety.	closed.	greenish white tender.	acid.	cooking.	autumn.	med.	Mid. Russia.	
106. Potaince.	small.	round conical.	white.	yellowish white.						white aromatic.	sub-acid aromatic.	table.	summer.	hardy.	Mid. Russia.	
107. Serinka.	med.	round conical ribbed.	greenish grey.	yellowish grey.		ribbed.	med. thin.	deep russety.	open.	white fine grained.	light sub-acid aromatic.	table.	autumn.	tender.	Baltic Provinces.	
108. Sweet Apert.	large.	flat conical.	greenish yellow.	pale red.	open.	narrow deep wrinkled.	pretty long.	deep rus-sty.	open.	greenish white, tender.	sweet aromatic.	table.	summer.	tender.	South Russia.	
100. Amber.	med.	ribbed flat round.	greenish red yellow.	reddish yellow.	open.	deep oblique.	med.	deep russety.	half open.	greenish yellow.	sweet.	table.	autumn.	tender.	South Russia.	
110. Translucent.	small.	flat conical ribbed.	greenish yellow.	yellowish red.	closed.	narrow ribbed.	thin.	russety oblique.	closed.	white, fine grained.	sub-acid.	table.	summer.	hardy.	widely grown.	
112. Champagne.	med.	flat conical ribbed.	light greenish yellow.	yellowish pale red striped.	closed.	narrow ribbed.	long, thick.	deep smooth ribbed.	open.	white, tender, loose.	light sub-acid.	table.	autumn.	med.	North Russia Baltic Provinces.	
113. Raspberry.	small.	flat conical ribbed.	greenish red.	carmine.	closed.	narrow ribbed.	long, thin.	deep yellow.	half open.	greenish white.	sub-acid.	table.	autumn.	med.	widely grown, (several kinds)	
114. Stephen.	small.	flat round.	bright green.	bright yellow.	open.	deep wrinkled.	short.	russety.	closed.	greenish white.	sweet.	table.	summer.	hardy.	North Russia.	
115. Early translucent	small.	round ribbed.	light green yellow.	brownish red.	closed.	wavy ribbed oblique.	med.	narrow ribbed oblique.	closed.	yellowish white, juicy, tender.	sub-acid.	table.	summer.	tender.	Mid. Russia.	
116. Heidorn.	med.	round conical.	pale greenish yellow.	red striped.	half open.	flat wrinkled.	med.	russety.	closed.	white, tender, juicy.	sweet.	cooking.	autumn.	hardy.	North Russia.	
120. Miron Rshesvskii.											sweet.	table.	summer.	hardy.	North Russia.	

Name.	Size.	Form.	Color.		Calyx.	Basin.	Stem.	Cavity.	Core.	Flesh.	Flavor.	Use.	Season.	Tree.	Where grown.
			Shaded Side.	Sunny Side.											
121. Poniavinskoe.	med.	flat round ribbed.	green.	greenish brown.	open.	deep ribbed wavy.	pretty long, thin.	russety.	closed.	greenish white delicate.	sweet sub-acid, fine.	table.	summer.	hardy.	Mid. Russia.
122. Berestinskoe.	med. large.	flat round.	greenish yellow.	yellowish brown red	open.	narrow deep wrinkled.	med.	large russety smooth.	closed.	yellowish white, firm.	sub-acid	table, cooking.	autumn, winter.	tender.	West Russia.
123. Polish prolific.	med.	flat conical.	greenish yellow.	yellow red striped.	closed.	narrow deep wrinkled.	med.	flat, smooth.	narrow closed.	white, fine grained.	sub-acid sweet aromatic.	table.	autumn, winter.	hardy.	North Russia.
134. Champagne pipka.	med.	round conical.	greenish yellow.	red striped spotted.	closed.	narrow wrinkled.	long, thin.	flat, smooth.	narrow closed.	white, fine grained.	sub-acid sweet.	table.	summer, autumn.	tender.	North Russia.
125. Juiry stripe.	med.	flat conical.	pale yellow.	red striped.	open.	flat wavy ribbed.	med.	flat russety.	half open.	tender, juicy.	sub-acid sweet.	table.	summer, autumn.	tender.	North Russia.
126. Early grand-mother.	med.	flat round.	greenish yellow.	yellow reddish.	half open.	flat wrinkled.	pretty long, thin.	deep russety.	closed.	yellow, firm, fine grained.	sweet aromatic.	table.	summer.	hardy.	Mid. Russia.
127. Yellow sweet.	small.	flat round.	greenish yellow.	yellow.	closed.	narrow flat wrinkled.	med.	deep narrow russety.	half open.	yellowish, loose.	slightly sub-acid.	table.	autumn.	hardy.	Mid. Russia.
128. Lemon.	med.	elliptic.	light green.	yellowish red red striped.	half open.	wide wrinkled.	med.	deep russety.	closed.	yellowish.	slightly sub-acid aromatic.	table.	autumn.	tender.	Mid. Russia.
129. Autumn Apport.	large.	flat conical.	greenish yellow.	yellow orange.	half open.	wrinkled.	pretty long.	russety.	closed.	yellowish, greenish white, firm.	slightly sub-acid fine grain.	table.	summer.	hardy.	Mid. Russia.
131. Yellow prolific.	med.	flat round.	greenish yellow.	yellow red striped.	closed.	ribbed wavy.	med.	russety.	closed.	white tender, fine grained.	acid.	cooking.	winter.	hardy.	widely grown.
132. Prolific.	small med.	flat conical.	greenish yellow.	yellow white.	closed.	narrow ribbed.	pretty long.	deep ribbed oblique.	open.	white loose, fine grained.	slightly sub-acid sweet.	table.	autumn.	hardy.	widely grown.
133. Juicy white.	med. large.	flat conical ribbed.	greenish white.	yellow white.	closed.	deep wide ribbed.	short, thick.	deep yellow.	half open.	white tender, juicy.	sub-acid aromatic.	table.	autumn.	med.	widely grown.
134. Tifovka.	large.	round ribbed.	greenish yellow.	yellow red striped.	closed.	narrow ribbed wrinkled.	med.	ribbed russety.	open.	white fine grained, firm.	sub-acid aromatic.	table.	summer.	med.	Mid. Russia.
135. Russian Gravenstein.	med.	flat round ribbed.	light green yellow.	light green red striped.	closed.	ribbed wrinkled.	pretty long, thin.	slightly russety.	closed.	white fine grained, firm aromatic.	slightly sub-acid aromatic.	table.	summer.	med.	South and Mid. Russia.
130. Scented white.	med.	flat conical ribbed.	greenish white.	yellowish white.	half open.	ribbed wrinkled.	pretty long, thin.	slightly russety.	closed.	white fine grained, firm aromatic.	slightly sub-acid aromatic.	table.	summer.	med.	South and Mid. Russia.

Name.	Size.	Form.	Color.		Calyx.	Basin.	Stem.	Cavity.	Core.	Flesh.	Flavor.	Use.	Season.	Tree.	Where grown.
			Shaded Side.	Sunny Side.											
137. Benka Apport.	large.	flat	light greenish	yellowish red	open.	ribbed	pretty	deep russety	open.	white	slightly sub-acid	table.	autumn.	tender.	Mid. Russia.

Name	Size	Form	Color.		Calyx	Basin	Stem	Cavity	Core	Flesh	Flavor	Use	Season	Tree	Where grown
			Shaded Side	Sunny Side											
135. Russian Gravenstein.	med.	flat round ribbed.	light green yellow.	light green red striped.	closed.	narrow ribbed wrinkled.	med. pretty long, thin.	deep russety oblique.	open.	white loose.	slightly sub-acid sweet aromatic.	table.	autumn.	tender.	Mid. Russia.
136. Scented white.	med.	flat conical ribbed.	greenish white.	yellowish white.	half open.	ribbed wrinkled.	pretty long, thin.	slightly russety.	closed.	white fine grained, firm aromatic.	slightly sub-acid aromatic.	table.	summer.	med.	South and Mid. Russia.
137. Repka. Aport.	large.	flat round.	light greenish yellow.	yellow red striped.	open.	perfectly round.	med.	deep greenish.	closed.	yellowish fine grained.	sub-acid sweet.	table.	autumn.	tender.	widely grown.
138. Borovinka.	med.	flat round.	light green.	yellowish white.	half open.	flat, ribbed wrinkled.	med. thin.	broad russety.	closed.	white fine grained, firm.	sub-acid.	table.	summer.	tender.	Mid. Russia.
139. Repka.	small.	flat round.	light green.	yellowish white.	closed.	flat, ribbed wrinkled.	med. thin.	broad russety.	closed.	white, fine grained.	sweet.	table.	summer and autumn.	tender.	Mid. Russia.
140. _____	med.	round conical.	greenish yellow.	yellow russety.	half open.	narrow wrinkled.	med. thin.	deep russety.	closed.	white, fine grained.	sweet.	table.	summer.	med.	Mid. Russia.
141. Taskin.	med.	flat round ribbed.	light green yellow.	yellow brownish.	closed.	flat wavy.	med.	smooth ribbed.	closed.	white, fine grain.	slightly sub-acid.	table.	summer.	med.	Mid. Russia.
142. Red check.	med.	flat round conical.	light greenish.	red.	open.	flat folded wrinkled.	rather long, thin.	narrow deep russety.	open.	greenish white tender, fine grained.	sub-acid.	table and cooking.	autumn.	hardy.	Mid. Russia.
143. Red Arcad.	med.	round ribbed.	light green.	red.	open.	deep ribbed wavy.	med.	deep ribbed oblique.	open.	greenish yellow, loose.	sweet.	table.	autumn.	hardy.	Mid. Russia.
144. Marmalade.	med.	flat round.	greenish yellow.	red striped.	closed.	flat wavy.	rather long.	flat russety.	closed.	white, loose.	acid.	cooking.	summer.	hardy.	Mid. Russia.
145. Early stripe.	small.	flat conical oblique.	greenish yellow.	striped red.	open.	oblique, ribbed.	med.	large smooth.	open.	white, loose.	slightly sub-acid.	table.	summer.	hardy.	Mid. Russia.
146. Large prolific.	med.	flat conical.	light greenish yellow.	red striped spotted.	open.	flat ribbed.	rather long, thin.	russety.	open.	white, tender.	sub-acid.	table.	summer.	tender.	Mid. Russia.
147. Charottenthaler.	med.	flat round ribbed.	light greenish yellow.	light red striped.	closed.	broad ribbed oblique.	rather long.	large russety oblique.	closed.	white, loose.	slightly sub-acid.	table.	summer.	tender.	Baltic Provinces.
148. Rubets.	med.	flat conical.	light greenish yellow.	red striped.	closed.	narrow ribbed wavy.	rather long, thin.	smooth oblique.	closed.	white, loose.	acid.	cooking.	autumn.	hardy.	North Russia.
149. Revel Glass.	med.	round conical.	pale yellow.	red striped.	closed.	flat ribbed wavy.	long, thin.	narrow smooth russety.	closed.	white, juicy.	sub-acid.	table.	autumn.	delicate.	Baltic Provinces.
150. Vuiskoskoe.	large.	flat round ribbed.	greenish light yellow.	red striped.	open.	deep ribbed oblique.	med.	large dark russety.	open.	yellowish white, loose.	sub-acid.	cooking.	summer.	hardy.	Mid. Russia.

Name.	Size.	Form.	Color.		Calyx:	Basin.	Stem.	Cavity.	Core.	Flesh.	Flavor.	Use.	Season.	Tree.	Where grown.
			Shaded side.	Sunny side.											
151. Romanoff.	large.	flat round ribbed.	greenish	yellow red striped.	closed.	large wrinkled.	rather long.	flat broad russety.	closed.	white loose.	acid.	cooking.	summer.	hardy.	North Russia.
152. Breskovka.	small.	flat conical flat ribbed.	light greenish	red striped.	closed.	narrow wrinkled ribbed.	rather long, thin.	broad russety.	open.	white, fine grained.	slightly sub-acid sweet.	table.	autumn.	hardy.	North Russia.
153. Imperator.	med.	round conical.	greenish yellow.	red.	half open.	flat ribbed.	med.	deep narrow smooth.	closed.	greenish white tender.	acid.	table, cooking.	autumn.	hardy.	North Russia.
155. Arabka.	large.	flat conical.	dark green.	black red.	open.	ribbed wrinkled.	long, thin.	deep russety.	open.	greenish white firm.	sub-acid.	table, cooking.	winter.	tender.	South Russia.
156. Juicy red.	med.	flat conical.	light greenish yellow.	red striped.	closed.	flat ribbed wavy.	med.	ribbed russety.	half open.	white.	sub-acid sweet.	table.	summer.	med.	
157. Broad green.	large.	flat round.	green greenish yellow.	red brown.	closed.	broad wrinkled.	pretty long.	broad oblique russety.	closed.	greenish white firm juicy.	sub-acid sweetish.	table, cooking.	autumn.	med.	Mid. Russia.
158. Autumn stripe.														med.	Baltic Provinces.
159. Crooked spike.	med. large.	flat conical ribbed.	light greenish yellow.	reddish brown.	closed.	narrow flat ribbed.	med.	deep russety.	closed.	greenish white, fine grained.	slightly sub-acid.	table, cooking.	autumn.	hardy.	Widely grown in the North.
160. Waxer.	med.	flat conical.	greenish yellow.	yellow.	half open.	narrow flat, wavy.	med.	deep light russety.	open.	white, firm fine grained.	sub acid.	table, cooking.	summer, autumn.	med.	North Russia.
161. Christmas.	med. large.	round conical.	green yellow.	brown red.	closed.	narrow ribbed.	med.	deep narrow smooth.	open.	greenish white, fine grained.	acid.	table, cooking.	winter.	tender.	South and Mid. Russia.
162. Markovka.	med.	flat round.	light green.	greenish yellow, light striped.	closed.	deep wrinkled.	med.	flat russety.	closed.	greenish white, tender.	sweet scarcely sub-acid.	table.	summer.	hardy.	North Russia.
163. Red mitron.	small.	flat conical.	light greenish yellow.	red striped.	closed.	pretty deep wrinkled.	pretty long.	narrow russety.	open.	white tender.	sweet.	table.	autumn.	hardy.	widely grown.
164. Juicy yellow.	med. large.	flat conical ribbed.	light green.	yellow.	closed.	narrow wrinkled.	pretty long.	often full.	closed.	white loose juicy.	acid.	table, cooking.	summer.	hardy.	Mid. and South Russia.

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SWEDISH FRUITS.

By Charles Gibb, Abbotsford, Que.

What fruits of special value has Sweden originated? On this question I can give the opinion of Mr. A. Pihl, Director of the Royal Horticultural Society of Sweden, and under whose direction the Society's experimental work is carried on.

APPLES.

The three best summer varieties are:

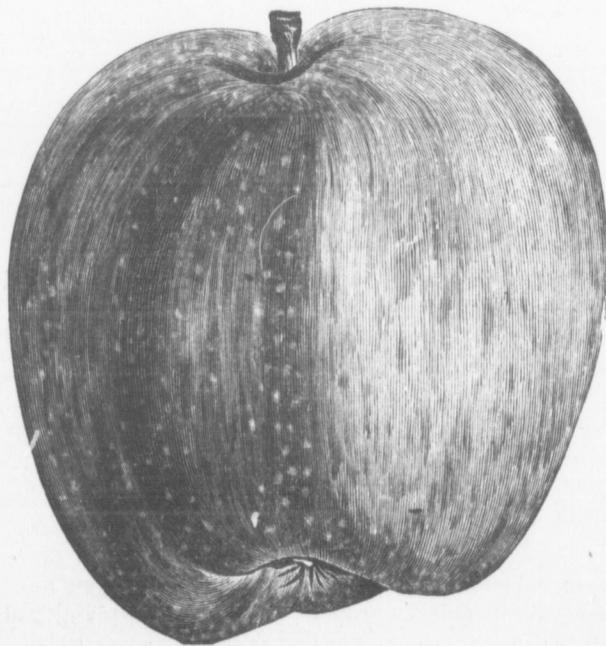
(i) *Hampus*. A medium sized fruit of first quality. It has a little brownish red on the sunny side. A good bearer and valuable either for home use or for market.

(ii) *Oranie*. A greenish fruit of medium size and of first quality, an unusually heavy bearer, and valuable for home use, not showy enough for market.

(iii) *Safstaholm*. A large, or longish apple of first quality, striped with red on the sunny side. The tree is a good bearer, and the fruit is valuable for home use or for market.

The two best autumn varieties are:

(i) *Kafvelas*. A large fruit with stripings of red on the sunny side. It is of first quality and valuable for home use, but not showy enough for market.



ROSENHAGER.

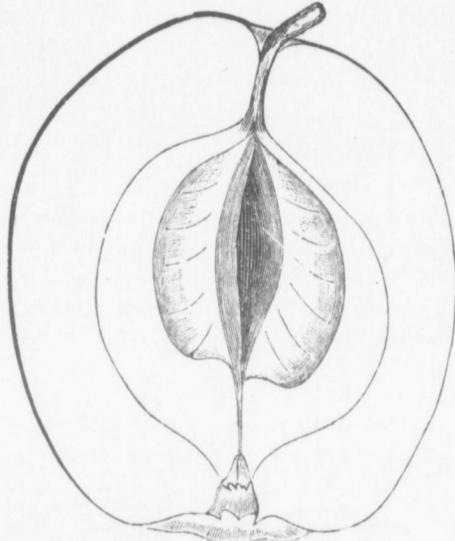
(ii) *Rosenhager*. A large, handsome, deep red apple of first quality. It is in season until the beginning of December or till Christmas. It commands a ready

164. Juicy yellow.
 small. med. large.
 cal. flat conical ribbed.
 greenish yellow. light green.
 striped. yellow.
 closed. closed.
 deep wrinkled. narrow wrinkled.
 long. pretty long.
 russet. often full.
 open. closed.
 tender. white loose juicy.
 sweet. acid.
 table. table, cooking.
 autumn. summer.
 hardy. hardy.
 Mid. and South Russia.

sale, and is a very valuable fruit. This must not be mistaken for the Danish Rosenhager, which is a very different fruit.

The three best winter varieties are :

(i) *Stenkyrke*. A greenish fruit with some red in dots and shadings on the sunny side. It is of first quality, and is valuable either for home use or market. It commands a ready sale and keeps till May.



AKERO.

(ii) *Akero*. An apple of excellent quality, in fact the best of all. It is above medium size, and is of a strange reddish yellow color. The tree is a very strong and healthy grower. No decayed branches are ever found upon it, but like all fast growers it is not an early bearer. It keeps till March or April, and owing to its many good qualities is held in very high esteem.

(iii) *Vinterpostof*. A large apple of second quality, greenish, with some red on the sunny side. The tree is a good bearer and the fruit keeps till January or February.

Besides these Swedish apples, many German and Russian varieties are largely grown. Among them are White and Red Astrachan, the latter, however, is considered too acid to be marketable; Virginisher rosen, which perhaps may be our so-called Fourth of July (see 8th report, M. H. Soc, p. 46), Alexander, Gravenstein, but this latter not much farther north than Stockholm. Cellini succeeds, and Ribston Pippin usually does well. Of other varieties, Gelber, Richard and Boiken are very promising and, in the South, Spanish Reinette.

PEARS.

Of the pears of Swedish origin I shall mention but two varieties.

(i) *Fullero*. A rather large, greenish fruit, with a little dull red on the sunny side. An early summer fruit of first quality.

(ii) *Hofsta*. A medium sized pyriform pear, which ripens in October. It is only of fair quality for eating, but as a cooking fruit is well known and commands a ready sale.

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The Flemish Beauty is grown a good deal about Stockholm and southwards, and does well except during cold wet summers when it fails to ripen. But the pear which is grown the farthest north in Sweden, and which stands the cold winter the best (a fact we need to know) is the Gra of Eneroth or the Gute graue of Diel. Eneroth in the "Svensk Pomologi" says "Almost with certainty can I declare that no other sort of pear is better than Gute graue in regard to its hardiness, productiveness and fine flavor."

PLUMS.

Plums are not grown in quantity in Sweden, they are grown only for home use and for local markets. Lawrence's Gage, Espercus, Golden drop, and others of that class do well, providing they ripen early. Late kinds are worthless. The yellow Magnum Bonum, I am positively assured, does not ripen at Stockholm more than once in 4 or 5 years. Two varieties of Swedish origin, grown from suckers, are worthy of trial in other lands.

(i) "*Common Yellow*." An early variety of fine quality and a good bearer, may be seen more often in the Swedish markets than any other.

(ii) *Westmanland*. A medium sized, early red plum of good quality.

CHERRIES.

Perhaps the two kinds which have given best satisfaction are *Elton* and *Bigarreau Napoleon*. But these are not recommended farther north than Stockholm. The *Reine Hortense* has proved a very shy bearer. Many seedlings are grown from suckers, but the fruit is somewhat inferior.

OTHER FRUITS.

Grapes have been ripened in the open air at Stockholm, but so seldom that their culture is considered useless. Quinces have been grown, but ripen rarely, only during warm summers. The peach tree sometimes stands the winter without injury, but is more often winter killed. The fruit, too, is not sure to ripen. (I think they have not the earliest ripening varieties.) In Southern Sweden a few peaches are grown. Apricots may be found in the neighbourhood of Stockholm and are doing fairly well.

The Royal Horticultural Society of Sweden has about 500 members living in different parts of Sweden, but mostly in the neighbourhood of Stockholm. The annual fee for membership is 6 kroners or about \$1.50. The Society publishes reports which it exchanges with kindred societies. The annual grant is usually \$1,000, but has reached \$2,125, this increase being chiefly used for the support of a school of gardeners, which has on an average about 30 pupils. Sweden has also a system of societies for promoting agriculture and horticulture and some of these societies publish from 4 to 6 reports each year, and, what is very important, some of them employ travelling gardeners who act as general advisers, the expenses of these men being paid in part by the societies and in part by those who employ them.

There is no Minister of Agriculture in Sweden, but the Royal Academy of Agriculture acts as adviser to the Government in all such matters. The largest orchard regions in Sweden are in Skåne in the South, about lat. 56°, and in Kalmar,

which is somewhat farther north and along the Baltic. Apples are not grown in large quantity farther north than Upsala. When at Trondhjem, in Norway, I visited the fruit gardens at Frosten Island, lat. $63\frac{3}{4}^{\circ}$, supposing them to be the most northerly in the world, and I am told by Mr. Pihl that there are apple, plum and cherry trees at Umca, on the Gulf of Bothnia, nearly in lat. 64° , where some good apples have been grown, but they do not ripen with certainty. Let us not forget that this is about 276 miles farther north than Cape Farewell, in Greenland. At Pitea, lat. $65\frac{1}{2}^{\circ}$, some Russian varieties had been tried but they failed to do well.

In years past Sweden has not only supplied her home markets with apples, but has exported them as well. Of late years, probably owing to rapidly increasing consumption, large quantities have been imported, especially from America, and of the American varieties the Baldwin is the most popular. Apples are also imported from Northern Germany, Bohemia and the Tyrol, and France sends Calvilles and Duchess d'Angouleme pears.

The climate of Stockholm one may judge, with fair accuracy, from what I have already said, viz., that the Bigarreau Napoleon is one of their most satisfactory cherry trees, and that the Flemish Beauty pear sometimes fail to ripen enough to be worth picking. How cool must be the summers, how mild the winters compared with Montreal. This may be farther shown by the trees in the parks and gardens. In the experimental grounds, surrounding the residence of Director Pihl, are three fine young specimens of Nordmann's spruce, in but one of which was there any trace of that shortening of its leading shoot, which is often the case at Boston and even in New York; also *Abies Apollinis*, a native of the mountains of Greece, a specimen eight or nine feet high, in fine health; *Abies Cephalonica*, and the Nootka Sound Cypress. In the parks, the golden and purple leaved forms of the sycamore maple, the weeping ash and silver leaved elm (*U. campestris folius maculata*) show that the winters of Stockholm are not much more severe than those of Boston. One shrub I must mention as being a great favorite on account of its hardiness and its beautiful long fringe of yellow blossom. It is *Cytisus Alpinus*. It is not the ordinary Laburnum, which is not now grown there, owing to its lack of hardiness. It is, however, more or less like it in flower and grows from twelve to fifteen feet in height. I have seen it over thirty-five feet high at Munich.

These Swedish fruits, it would seem, do not promise to be of special value in this province, they are more likely to be of value in such climates as Boston or Toronto.

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ABBOTSFORD OPINIONS ON APPLES.

Experimental work began at Abbotsford in 1857, and has been continued ever since. We have tried to be the introducers of promising fruits. The members of our Association held a series of meetings in Feb. last, and as a result we offer the following record of our failures and successes.

Alexander.—Introduced into Abbotsford in the year 1866, and has become generally planted. It bears annually, but heavier every alternate year; a saleable variety, and one of the best for profit (Reference: see Montreal Hort. Report, I. p. 9, II. p. 34, V. p. 23.)

Ben Davis.—CHAS. GIBB.—I have 18 trees, 10 years planted, which have proved young and abundant bearers. Fruit medium in quality and a good keeper, but some of these trees had been injured by over bearing, and the winter of 1884-5 proved too severe, killing nearly all; the remaining 3 or 4 trees are severely injured.

N. Cotton Fisk.—I planted 9 trees 8 years ago; 4 of them were injured by the winter of 1885, and died during the summer of 1886, the other 5 are healthy. It is a prolific bearer; fruit of medium quality.

Wm. R. Honey.—I have 15 trees planted some 9 years; they have made a fine growth; 2 were slightly injured by the winter of 1885. A heavy bearer, fruit fine and well colored, good keeper and of fair quality. I would not advise heavy planting.

John M. Fisk.—It has not proved as hardy as Fameuse with me, but on account of its productiveness and keeping qualities, I should recommend it for favorable localities.

Chas. Wilkins.—I have four trees planted six years which are now bearing. Tree a good grower and hardy; fruit handsome and of good size; quality medium (Rep. I. p. 19, V. p. 16).

Blink Bonny.—N. C. Fisk.—Not worthy of cultivation.

Geo. C. Roach.—It is a good bearer; size about like Fameuse, and very good in quality yet I would not recommend planting many trees.

C. Wilkins.—I have one tree planted about eight years, which has borne for four years. Tree hardy. Fruit good for dessert and cooking, season September. Rep. V. p. 23.

Blue Pearmain.—J. M. Fisk.—Not a profitable variety to plant into orchard. A late as well as shy bearer; fruit good, large and attractive, and keeps well. A fine exhibition apple. A tree or two for family use is all one wants of it.

N. C. Fisk.—I would not plant it if setting an orchard on light soil; on heavy soil it does better. It is a sparse bearer. It is of a good quality and a good keeper.

Geo. E. Roach.—Planted seventy-five trees about fifteen years ago. They are just coming into bearing, some trees averaging two barrels each. Seems to be hardy. In wet springs the blossoms blight.

W. R. HONEY.—Have a number in orchard. It is a tardy bearer; fruit of good quality. I should plant sparingly.—Rep. I. p. 13.—V. p. 16 & 28.

Blunt's Seedling.—J. M. FISK.—Tree not proving very hardy with me; should not recommend for general cultivation.

O. CROSSFIELD.—This is a new apple with me. Fruit is large and of good flavor, keeping well up to the present time (February). I think it is going to be a good winter variety. Cannot tell much about the tree, as it only bore last year for the first time.—Rep. III. p. 119.

Bourassa Russet.—Received from St. Hilaire and probably a seedling of Bourassa. It has been generally planted here but is not worthy of cultivation.

Canada Baldwin.—N. C. FISK.—This apple, already described in former reports, was brought by me from St. Hilaire in the year 1858, and planted into orchard. They commenced bearing early and the tree proved a very vigorous grower and not inclined to run to brush; the main limbs being covered with fruit spurs clear to body of the tree, and it is a very prolific bearer. Fruit of fair quality and has kept well into June. As I had been in search of a good winter apple I thought I had found just what the Province of Quebec wanted; and certainly I never saw a more promising tree. In the year 1867 I commenced propagating it extensively, and named it the Canada Baldwin.

The trees have done well in almost all instances until they were eight or ten years of age, and then those on light soils began to blight; those planted on heavy soil outlived Fameuse and St. Lawrence.

The blight which attacks the tree is peculiar. The bark adheres to the trunk of the tree and turns black. Often it is confined to a small spot at first. The injury does not seem confined to any particular side of the tree. The tree will often live on and continue to bear fruit for many years after it is first attacked, but the fruit will not be as good as before the disease commenced. Although it has given such poor satisfaction on light soils, it is still doing well on heavy soils and will (I think) be highly prized for such localities.

C. GIBB.—I have about fifteen trees, planted on light dry soil sixteen years ago, which have borne some fine crops of fruit, but during the last seven years they have begun to fail; two thirds are already dead and the remainder are beginning to decay.

J. M. FISK.—I planted 75 trees about 16 years ago. They did finely until they were from 8 to twelve years old, when many became affected with sun scald and in the course of a year or two died. I have hardly a sound tree left but they continue to fruit as long as there is a live branch left. I shall plant no more of them.

W. R. HONEY.—I have 25 trees planted, some about 20 years ago and the balance 12 years ago. Tree a thrifty grower and promised well; they bore fine fruit; I have lost about 5 trees; the remainder are apparently healthy although planted on warm soil; fruit sells fairly.

GEO. E. ROACH.—I planted 35 trees 10 years ago. Lost twelve last year. I would not plant any more.

WM. GILL.—I planted about 40 trees 12 years ago, most of them are dead, no sound ones left; soil light, sandy gravel.

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WM. MARSHALL.—Planted about 100 trees 15 years ago. About 25 are living, but mostly diseased. Will never plant another.—Rep. II. p. 28, IV. p. 120, V. pp. 16, 36 and 86.

Cellini.—C. GIBB.—Promises, as far as tried, to be a hardy tree and a moderate bearer of large, handsome, oblong, well colored fruit. Season, October.

W. R. HONEY.—Very promising and a good grower, fruit fine. Worthy of cultivation.

C. WILKINS.—Have one tree planted about ten years, not very hardy, but has borne some fine large fruit of fair quality.—Rep. I. p. 9, V. p. 23.

Charlottenthaler.—C. GIBB.—I have had this only as a top grafted tree on a hybrid crab. It fruited heavily for three years; fruit of good size and good quality and in eating order as early as July 25th. I was so pleased with it that I allowed it to completely overbear, so that it died after bearing its third crop. It is so like Yellow Transparent that they can hardly be distinguished.

J. M. FISK.—Both in tree and in fruit like Yellow Transparent, except fruit a little larger. One of the best for early summer use.

Clarks Orange.—C. GIBB.—This is a seedling produced by Geo. P. Pepper, of Pewaukee, Wis. I planted a number of root grafts in 1873, and planted but one tree into orchard.

Dominion Winter.—WM. MARSHALL.—This apple was propagated from a seedling grown at Abbotsford, in the orchard of Mr. W. J. Whitney, which has stood our climate some fifty years and is still vigorous. I planted thirty trees of this variety into orchard in the spring of 1878. Most of the trees fruited the second year; with me it is a free bearer. The keeping qualities of the fruit are very good, keeping fresh and juicy throughout the spring months.

Duchess of Oldenburg.—Unanimously admitted to be one of our most profitable apples. Tree very hardy. Abundant and annual bearer. Well worthy of general cultivation.—Rep. I. p. 6.—11. p. 34.—V. p. 21.

Edith.—See notes on Granby meeting.

Early Joe.—C. GIBB.—I find this a slow grower and not thoroughly hardy. Yet it bears early and well. The fruit has a peculiar flavor and when in its prime is a delicious apple. For home use only.

C. WILKINS.—Have several top grafts on seedling trees. A fine dessert apple, season, August.—Rep. I., p. 7.—V. p. 21.

Fall Mellow.—GEO. E. ROACH.—Tree healthy, low spreading grower; bears well; fruit even in size and of a yellowish color; apt to spot a little; quality medium; fairly good market apple, but needs quick sale.—Rep. III. p. 116.

Fameuse.—N. C. FISK.—Well worthy of cultivation anywhere that the trees will grow. One of the best varieties for profit. Were it not for the spots, it would be the best variety for profit. Quality unequalled by any other variety.

The first spotting of the Fameuse was brought to my notice by Mr. Beadle, of St. Catharines, Ont., in the year 1868; since then it has gradually spread throughout the Province, and in my opinion, it has come to stay. When clearing out my ice-house a couple of years ago, I placed the old sawdust under a sweet apple tree which usually

bore small scabby fruit. Since then the fruit has been free from spots. I do not know if the sawdust was the cause or not, but the experiment is worth repeating.

WM. GILL.—I think it the best apple grown in Canada; and the fact that it has spotted for two or three years back, I think is owing to the cold wet windy springs we have had; and when we have a spring of average warmth I think it will be as good as ever it was.

J. M. FISK.—There are more trees planted here of this variety than any other (and this will also apply to the Province). Its disposition to spot is a serious loss to the country; a loss of at least 50 per cent. with me last season.

From the first of October to January, we have nothing to compare in quality with this apple, which is a general favorite and it sells, spots and all, for something, and generally at a profit to the grower. I should recommend each member to try mulching with sawdust, as suggested by Mr. N. C. Fisk.

ABEL BROUSSEAU.—Mine have been almost entirely free from spots, especially two years ago. The site of my orchard is, north-east slope, sheltered on all sides by high ground; except the north-east.

C. GIBB.—I regret that I must speak unfavorably of this delicious apple. My orchard is fully exposed to the south-east wind. I have about seven hundred Fameuse trees, and for the last three years the fruit has been so spotted that I could not send it to a first class market. I could only sell it in bulk to peddlers or send it to local markets. I have known Fameuse of the finest quality to be grown in orchards which the year previous bore nothing but spotted fruit, yet I fear that this spot is increasing year by year. Orchards at Abbotsford less exposed than mine to the south-east wind have done better.

O. CROSSFIELD.—It has been one of our best and most profitable apples for any market, but for the last two years it has been rather on the decline on account of the spots. The tree is hardy and a good bearer; I do not think it is best to give it up yet, as there may be a change in the atmosphere in the right season, which I think is the cause of the spots. Being a late fall and winter variety it is very profitable.

WM. J. GIBB.—I have about four hundred trees in orchard, planted twenty-eight by thirty feet apart. For the last ten years they have spotted badly every year. My orchard is on a southern slope.

GEO. E. ROACH.—I planted about five hundred trees sixteen years ago. All are looking healthy and are bearing an average crop annually. About two-thirds of the fruit is good and one-third badly spotted. I find them less spotted on high land. They were less spotted last year than the two or three years previous.

ROBERT WHITNEY.—I have about thirty trees, mostly young. They have never spotted badly with me. Fruit equally free from spot on older trees. Several boxes grown from these trees were sent to the Colonial & Indian Exhibition in London, last fall, and were pronounced very fine.—Rep. I. p. 12.—II. p. 32.—V. p. 27.

Fameuse Noir.—N. C. FISK.—An apple of the Fameuse type from St. Hilaire. I have trees planted twenty-five years which are thrifty and healthy. Fruit more oblong and of a deeper red than Fameuse. It is apt to spot a little. I have never propagated it. Do not think it as profitable as Fameuse.

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A. BROUSSEAU.—This is a tree of the Fameuse type, and with me second to none for profit. The tree is a rapid grower with long slender branches evenly distributed; it requires little pruning. Tree very hardy, and bears annually, but heavier alternate years. The past season my trees were loaded to the ground with fine dark red fruit, rather larger than the Fameuse, slightly conical in shape; flavor nearly as good as Fameuse and keeps and sells as well. Fruit never affected by spots or worms.

WM. GILL.—I have one tree top grafted about ten years ago. A heavy alternate bearer—tree open headed; fruit of medium quality and sometimes bakes in the sun before picked.

Foundling or Late Strawberry.—This was one of our first propagated varieties; thirty years ago it was considered one of our best, but lately it has proved less hardy, and is short lived—tree a vigorous grower and bears heavily; fruit large and fine; skin green, splashed with red; flesh very tender and juicy with an aromatic flavor. Ready for market in September. When carefully handled it keeps well into winter. Desirable to plant for family use.—Rep. IV. p. 121.—V. p. 86.

Golden Ball.—**W. R. HONEY.**—I have twenty trees in orchard, all healthy; tree a regular bearer; fruit very fine and large. A profitable market apple; season, September. Would recommend planting it.—Rep. V. p. 24.

Golden Russet.—**J. M. FISK.**—The best russet I have ever tried. Tree quite as hardy with me as Fameuse. An annual bearer, heavier alternate years; fruit keeps well if placed in covered barrels in a cool cellar. If exposed to air on shelves in a warm cellar, it will wilt and become so tough as to be worthless.

GEO. E. ROACH.—I planted a few trees fourteen years ago, and they have proved very hardy so far; it bears sparingly on the ends of the twigs. Fruit of good size and keeps till June or July.

N. C. FISK.—One of our best russets. Tree appears to thrive best on dry gravelly soil.

C. WILKINS.—I have had some experience with this variety at Rougemont, Que., (where I owned an orchard a few years ago) although I have none in orchard here. Trees were planted on dry gravelly soil; they were thoroughly hardy, and bore an abundance of fine fruit. I consider it an excellent winter apple and well worthy of general cultivation.

C. GIBB.—The best of the russets which I have tried, unless, perhaps, the Kellog. I have eighteen trees in orchard planted ten years ago. I grew these trees from root-grafts, and they did not seem very hardy in nursery, neither did they all stand transplanting. Those which survived this are now sound healthy trees, bearing good crops of good fruit. I received this russet from J. S. Stickney, of Wawantosa, Wis., and am not sure of its being the same as that grown by others here.

O. CROSSFIELD.—This is one of our best winter varieties. Tree hardy but a rather shy bearer. I had a very heavy crop of fine apples last year which are keeping well and are not wilted; I keep them in a tight box. The quality of the fruit is not to be disputed.—Rep. I. p. 14.—V. p. 16 & 29.

Grand Duke Constantine.—**C. GIBB.**—Here we have a very near relation of the Alexander. Fruit not as large, but much like it in form and color. Flesh firmer and much sweeter. It is an early bearer and has borne 3 crops of fine fruit. I received this from Ellwanger and Barry, Rochester, N. Y.

Gueule Noire.—N. C. FISK.—This I received from St. Hilaire and planted a few trees 25 years ago. The tree grows much larger than the Fameuse and appears hardy but is a light bearer. Fruit larger than Fameuse, highly and very deeply colored and somewhat of same flavor, but with a slight astringency. A fall apple, not desirable for general cultivation.

Haas.—W. R. HONEY.—I have 4 trees in bearing. Tree a hardy, thrifty, upright grower; bears annually; fruit well colored.

J. M. FISK.—Tree as hardy as a crab; fruit not extra quality; a good cooking apple. Will do to grow where you cannot grow anything better.

C. GIBB.—I have 19 trees planted 10 years ago. They have proved very strong growers and hardy and healthy trees, and have borne a large amount of fruit of second quality. The fruit is often lively in color, and though it sells at fair rather than good prices, it may be considered a profitable apple. Season, October; use, cooking and market.—Rep. V. p. 88.

Hardy.—C. GIBB.—This was received from Knowlton, Que., and has the reputation of having stood without injury the severe winter of 1858 (?). The tree is hardy and bears well; fruit medium in size, green in color; not at all skowy, but a good keeper. It would seem to be a good winter apple for home use.

Jeffers.—C. GIBB.—This is from Pennsylvania, where it is a fruit of the finest quality. Here the fruit is smaller and does not seem so good in quality, and not worthy of further trial.

Jonathan.—C. GIBB.—I have planted out several trees of this variety. Some lingered and died and some have borne fruit. It does not thrive.—Rep. V. p. 16 and 29.

Johnston.—C. GIBB.—This is an old seedling tree in my front garden, a model of longevity and fruitfulness. It is a medium sized red fall apple of fair quality, saleable, and has proved quite profitable. However, I regret to say that young trees of it though they have borne heavy crops of beautiful red fruit, are not as healthy as the parent tree.

Kellog Russet.—C. GIBB.—I received this from A. G. Tuttle, of Baraboo, Wis., Mr. Tuttle at one time propagated this by mistake for Golden Russet, but finding out his mistake has propagated it instead of that variety. I find the tree hardier when young than the Golden Russet, and fruit a fac-simile of it. The query has arisen in my mind whether it is as good a keeper and on that point I am not sure.

Long Stemmed Russet.—N. C. FISK.—I have a few trees planted 25 years ago; all still healthy, a shy bearer. Fruit larger in size than any russet we have, but of rather poor quality. Would not recommend it.

Magog Red Streak.—C. GIBB.—I received this from Dr. Hoskins, of Newport, Vt. The tree is hardy and a fairly young and fairly good bearer; fruit large, greenish yellow, rarely has it a streak of red. Its flavor is somewhat "salvy." I do not like it and consider it far surpassed by Scott's Winter.

May Seek-no-Further (of the West).—C. GIBB.—I have a number of trees of this which I have grown from root grafts received from J. C. Plumb, Milton, Wis. In nursery it proved fairly hardy and it has been bearing lightly for the past two years. Fruit of good size, dull dark red in color, with very marked dots. I think it is of pretty good quality and it seems to be a keeper.

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Milding (of New Hampshire).—J. M. FISK.—Tree not hardy here, it might do as a top graft; fruit inclined to spot. Should not recommend for cultivation. Have ceased to grow it in nursery.

N. C. FISK.—Trees killed badly in nursery. I have a few top grafted trees which have borne some fruit. Not fit for cultivation in this climate.—Rep. V. p. 89.

Moscow.—C. GIBB.—I received this from A. G. Tuttle, Baraboo, Wis., who, I think, received it from Moscow. The tree is very hardy and bears a fair quantity of medium sized white apples with a pale blush. Season with or after Duchess; of value only for its special hardiness.

J. M. FISK.—Tree very hardy, fruit medium to small; color white, quite acid and perishable. Not desirable except in exposed localities.

Mountain Beet.—J. M. FISK.—Tree hardy and long lived, bears heavy crops every other year; fruit medium to large and is usually noted for its remarkable dark color; flesh white, but often stained with red to the core; quite acid, becomes pleasant when fully ripe. Season, September. This is not as profitable a market apple as it was a few years ago. It used to sell quite as well as Fameuse but now sometimes spots so badly as to render the crop nearly worthless.—Rep. III. p. 118, V. p. 88.

Mountain Tulip.—N. C. FISK.—Planted 1 tree into orchard 20 years ago; appeared very hardy, but is now failing. A heavy bearer; fruit oblong and larger than Fameuse; color green, splashed with red; fine juicy sub acid but liable to spot. Season October. I would not recommend for general cultivation.—Rep. V. p. 88.

Maiden's Blush.—O. CROSSFIELD.—Is a fine large beautiful apple, good for table use and cooking. An excellent keeper and a fine shipping apple. It is also a fine exhibition apple and free from spot. Tree a hardy good grower.—Rep. V. p. 26.

Newberry Sweeting.—GEO. ROACH.—I planted about 50 trees 16 years ago. Tree not very hardy, yet is an annual bearer. My trees average me from 25 to 30 bbls. per annum. One of the best dessert apples we have, and sells readily where known. Average market price \$1 per bushel. I would not recommend heavy planting as they are too tender.

J. M. FISK.—A strong grower in nursery and orchard for a few years, but the tree is short lived and will not pay to plant though the fruit is one of the finest sweet apples we have.

WM. GILL.—I have 10 trees, but all are dead.

O. CROSSFIELD.—It is a fine early apple, good for the home market, but the tree is not hardy with me, about as long lived as Foundling or late Strawberry.

C. GIBB.—I have had a number of trees of this variety. The fruit is medium and often large, an early sweet apple of rich flavor, which people here are very fond of. The tree however is not hardy and is very short lived, so much so that a young tree is often planted near an older one to take its place. This may be some known U. S. apple under the above name. It should be top grafted in this climate.

Newman No. 19.—C. GIBB.—This is a seedling of J. H. Newman, of Lower La- chine, and is described in second report M. Hort. Soc. p. 31. I have found it a young and heavy bearer; apples medium or above, and very dark in color; flesh firm, juicy and sprightly, and in season in October and November. Sometimes the apples have

numerous little spots of decay, if I may so speak, as St. Lawrence sometimes has. This is its only weak point, and in fact I think a good deal of it. It has never "spotted."

Newman (N. E. of summer house).—C. GIBB.—Another seedling of Mr. Newman described in M. H. S. 2nd report p. 30. A fruit of Fameuse type, but it has spotted very badly with me.

Nasliednik Nikolai Alexandrovitch.—C. GIBB.—This is a conic striped little apple of fine quality. It is almost sweet. Ripens early in September. Judging by the plate and description given by Dr. Regel this seems true to name. I received this from Ellwanger & Barry of Rochester, N. Y., as Nicolayer, but all Nicolayer in Europe is not this variety and it will be best to hold to the above name, or rather to its suggested translation, viz: "Throne."

Northern Spy.—Too tender for this locality except as a top graft.—Rep. I p. 15. V. p. 30.

Peach of Montreal.—J. M. FISK.—Hardy and productive, a tree adapted to a variety of soils and fit for general cultivation, but does not bear as well as Duchess, and will not ship as well.

N. C. FISK.—Hardy and thrifty; bears well, fruit ready in August. Well worthy of cultivation.

WM. GILL.—Have two trees which stand the climate well. A good bearer.

C. WILKINS.—I have one tree just beginning to bear. Very hardy. Fruit large and showy, but must be picked early and carefully, as it shows its bruises—quality medium.—Rep. I p. 7.—II. p. 34. V. p. 26.

Peffer's Golden, No. 4.—C. GIBB.—I received root grafts of this in 1873 from Geo. P. Peffer of Pewaukee, Wis., who originated it. It is a conic pale yellow apple. When top grafted it was below medium in size, but last year I had a tree laden with beautiful large yellow fruit. On this February 19th I find it firm and in fine condition. I had never tried to keep it before, and will watch it more carefully in future.

Pewaukee.—C. GIBB.—This is another seedling produced by G. P. Peffer, Pewaukee, Wis. I grew it from root grafts and found it in nursery to be a shade less hardy than Fameuse, I planted 21 trees into orchard, 10 years ago. They proved only moderate bearers. Fruit sometimes very large and fine. They are not profitable, not a complete success, and yet I am glad to have a few trees.

N. C. FISK.—I planted four trees nine years ago, all still thrifty and have borne for two years—fruit of medium size and drops badly from the tree—color green splashed with red; fair quality, about like Blue Pearmain. Season, winter.

W. R. HONEY.—I have four trees planted nine years. A good hardy grower with me, has fruited four years, fruit of fair quality; drops badly before ripe. Winter apple.

C. WILKINS.—I have four or five trees planted about eight years, all hardy, but they have never borne much fruit. Rep. I, p. 19. V., p. 35.

Plumb's Cider.—C. GIBB.—This is a western variety and was produced by J. C. Plumb, Milton, Wis. At first I expected it to prove very hardy, but of late 2 or 3

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of my trees have received severe winter injury. I had a glorious crop on one tree a year ago, other than this they have been very shy bearers. I, therefore, cannot recommend it for our soil and climate.

W. R. HONEY.—I have a few trees planted in orchard about nine years; have borne for two years. Not hardy. Would not recommend planting for profit.

Pomme Barré.—C. GIBB.—I received this from the orchard of Hon. E. Prud'homme, Côteau St. Pierre, near Montreal. An oblong-conic, striped, red apple of good fair quality. It is a good bearer, fruit of good size and attractive in appearance and should sell well. It has borne but 2 crops and so far I am pleased with it. Rep. II, p. 24.

Pomme de fer.—N. C. FISK.—I received this from St. Hilaire and planted a few trees 25 years ago. The fruit is of a good color and somewhat resembles the Flushing Spitzenburg. It is of good quality and a really good keeper, but the tree is not altogether hardy, some of mine are dead and it is a shy bearer and the fruit often imperfect and uneven in size, hence I cannot recommend it. Rep. II, p. 28.

Pomme Grise.—Tree not hardy and a shy bearer. One of the best winter dessert apples grown. It used to be the favorite Russet for the English market. Too small to grow for profit. Rep. I, p. 15. V., p. 30.

Pound Sweeting.—N. C. FISK.—I have one tree in orchard planted twenty-five years; still healthy, medium bearer.

MARK GILL.—I top-grafted a tree thirty-four years ago. It is still healthy, a medium bearer. A fine baking apple.

Rannet Red.—C. GIBB.—A Russian variety propagated by A. G. Tuttle, Baraboo, Wis., whether received by him from Moscow, or whether it is a "Government Russian," I cannot say. An open headed tree needing very little pruning. Fruit of good size, greenish, with dull blush, of good fair quality. Has many good points and yet not of special value.

Red Astrachan.—N. C. FISK.—I planted a few trees fifteen years ago, but have not realized one bbl. per tree. The fruit ripens very unevenly. I consider the Duchess far ahead of it for a summer apple, for market purposes.

C. WILKINS.—I have eight trees planted about eight years ago; they have never borne much as yet, but have made a good growth and all appear hardy. A good summer variety.

O. CROSSFIELD.—It was a thrifty and hardy tree and a good bearer until the winter of 1885, which was a very severe one for tender varieties. I consider it profitable for the reason that it is early in the market, when apples are scarce, therefore commanding a good price. A good apple in its season, of nice flavor and always saleable.

J. M. FISK.—I have several trees planted fifteen years ago. A number of them have suffered during the last two years and are beginning to die, a branch at a time. The fruit ripens unevenly and varies much in size; it is inclined to spot with me and does best on moist, rich soil.

WM. MARSHALL.—I have five trees planted some fourteen years ago; all are doing well. The tree bears annually, but not heavily. Fruit sells well; will retail at 40c. per pk.

W. J. GIBB.—I have six trees planted fourteen years; those planted on rich soil yield fruit of good size. They have proved hardy with me so far. I consider it one of the best summer apples.

MARK GILL.—I planted fourteen trees eight years ago—six are dead, the remainder are just beginning to bear. Fruit uneven in size, and cracks badly some seasons—and do not consider it at all equal to Duchess for profit.

A. BROUSSEAU.—I have some trees planted about twenty-five years, which have borne fair crops. The trees are nearly all decaying. I have also some younger ones, which are thrifty and produce fine large fruit. Shy bearers.

COTTON O. FISK.—I have six trees planted ten years ago. Foliage very heavy. The trees have never borne any fruit to speak of, but what there was of it was very fine.

W. R. HONEY.—I have twenty trees planted twelve years ago. All thrifty as yet. They are on good soil, and have been bearing for the last five years. Fruit ripens very unevenly; still I consider it one of our profitable varieties for early market. It sells readily, and commands the highest price on local markets on account of its color. I would recommend planting if near market.—Rep. I. p. 8. II. p. 34. V. p. 22.

Red Detroit.—A. BROUSSEAU.—I have five trees of this variety planted about twenty years; they appear fairly hardy but are shy bearers; fruit large; very dark crimson (remarkably so when ripe), flesh white, firm and rather acid. This apple is always badly affected with the codlin worm. Not profitable.

Rhode Island Greening.—J. M. FISK.—I have tried this variety both in nursery and orchard. It killed back every year in nursery, and the trees planted in orchard died before old enough to bear. It might do as a top graft in sheltered localities.—Rep. V. p. 30.

Ribston Pippin.—J. M. FISK.—An apple of fine quality; season, winter. Tree too tender to stand our climate. Might do as a top graft.—Rep. I. p. 16. V. p. 30.

Saxton, or Fall Stripe (of the West).—C. GIBB.—A tree of medium hardiness; not a young bearer, and then only a moderate bearer. I have had but very little fruit on trees planted ten years. A fall fruit. I think it is of fair quality, but I forget. It is not a success.

Scott's Winter.—C. GIBB.—A Vermont apple received from Dr. Hoskins, Newport, Vt. A hardy tree. A rather young and a good bearer. Fruit red and attractive in color, medium size, firm and quite acid. A good cooking apple and a good keeper. This promises to be a valuable winter apple here.

Shiawassee Beauty.—C. GIBB.—In Michigan this is reported very favorably. I find the tree fairly hardy, and it is rather a young bearer, but the fruit is so spotted that it is worthless.

Sops of Wine.—C. GIBB.—I received mine from J. S. Stickney, Wamantosa, Wis., and understood from him that the so-named in the West was not that described by Downing. I have found it a tree of medium hardiness, a young and good bearer of deep, dull red apples, with white, soft, somewhat "salvy" flesh and rich strawberry flavor, neutral or sweetish. A valuable apple for home use. Season, September.

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C. WILKINS.—I have two trees planted about eight years; they have borne for two years. The trees appear hardy so far; fruit of fair size and good quality; color, very deep red. Season October.—Rep. V. p. 22.

Spitzenburg, (Esopus).—**J. M. FISK.**—We can do nothing with it here. I gave it a trial in nursery, and it killed to the ground every winter. I doubt if it would succeed as a top graft here.—Rep. V. p. 29.

St. Hilaire (or Cabane du Chien).—**N. C. FISK.**—This is probably a seedling of Fameuse, and resembles it very much both in tree and fruit. Fruit rather larger than Fameuse, and does not spot so badly. Color not quite as deep as Fameuse. Flesh is firmer and more acid. The tree is a large, vigorous grower. I have it planted twenty-eight years, and it is still healthy; a heavy alternate bearer.—Rep. II. p. 25.

St. Lawrence.—**GEO. E. ROACH.**—I have about two hundred and seventy-five trees, planted some sixteen or eighteen years; they are all looking smooth and healthy. I have not lost more than ten trees since planted. They yield an average crop annually, and I would say, with us it is the most profitable variety in orchard as yet.

ABEL BROUSSEAU.—I have four trees fifteen years planted which appear hardy. Tree bears annually, but not heavily. Fruit good quality but uneven in size.

WM. GILL.—I have forty trees planted twelve years. All were doing well until two years ago. I am not certain if there is a sound tree among them now. Most of them are injured with sunscald. The fruit has spotted somewhat with me during the last two years. Soil, light sandy gravel, and orchard exposed to north wind. The fruit markets well.

W. J. GIBB.—I have about twelve trees fifteen years planted and have only lost one, the remainder seem to be healthy. Fruit spots like Fameuse, and cracks badly.

N. C. FISK.—I have about seventy-five trees planted about twenty years. Most of them are alive and have borne well. Considered one of our best fall varieties.

W. MARSHALL.—I have ten trees, some of which have been planted about fifteen years. All doing well. Annual bearers. Fruit good size and smooth. Sells well.

MILES R. BROUSSEAU.—I have ten trees planted about ten years. Only four of them are sound, the remainder are badly decayed. Had some fruit this year, which was very fine.

C. O. FISK.—I have six trees about ten years planted. All are diseased more or less from sun scald. Fruit small and spotted.

J. M. FISK.—One of our best fall apples, but for the last four years has scabbed badly. Tree makes a late growth in the fall, and in some seasons dies root and branch. A number of my trees planted sixteen years ago are dead, or more or less diseased.

ROBT. WHITNEY.—I have eight or ten trees, four of them being planted twenty-five or thirty years ago, and are still very healthy; the remainder are young trees coming into bearing, and also healthy. Fruit is excellent; no culls. The trees are planted near a ledge. I consider it one of the most profitable market apples.

W. R. HONEY.—I have about seventy-five trees; part of them were planted about twenty-five years ago, and the balance twelve years ago. Have done well with

me as yet, bearing heavily every other year. I consider it one of our best fall varieties. The only objection I would have to planting in large quantities would be the poor keeping qualities of the fruit.

O. CROSSFIELD.—This is a fine apple. Tree rather a light bearer, but is hardy and does well with me. For the last two years the fruit has been spotted like Fameuse. A fine apple for home use. Am in hopes that we shall be able to remedy the spotting, it being such a detriment to the apple.—Rep. I. p. 11, II. p. 33. V. p. 29.

Strawberry, of Montreal.—C. GIBB.—I have but two trees of this, grafted 3 feet from the ground on Golden Sweet Crab. They have proved young and moderate bearers, and fruit of good size and brightly striped. Season about with Duchess.

W. R. HONEY.—I have a few trees planted five years, which are thrifty, upright growers. Are just beginning to bear. Fruit not large, and of average quality. Would not recommend planting for profit.—Rep. II., p. 20 & 34. V. p. 22.

Swoysie Pomme Grise.—C. GIBB.—This is a very fine little dessert apple, but the tree is not perfectly hardy, yet it lives and bears moderately.

Sweet Fameuse (of St. Hilaire, No. 1)—N. C. FISK—I have a few trees planted twenty-five years ago. All still healthy. Tree does not grow as large as the Fameuse, and the fruit is about two-thirds its size, well colored and sweet, and very little troubled with spot. Ready for market in September.

Sweet Fameuse (of St. Hilaire), No. 2.—WM. GILL.—A few top grafted on old trees. They seem to be different from those described by Mr. N. C. Fisk. Fruit large, of deep red color, and sells rapidly; often water cored. It does not keep as well as Fameuse. A good annual bearer, but bears heavier every alternate year.

NOTE.—The Sweet Fameuse grown by Mr. Gill is the same as that received from St. Hilaire and planted in the "Gillipeau" orchard, and the same as that beautiful plate exhibited by M. Bertrand, N. P., (late President of the Rouville Co. Agricultural Society), at our exhibition held at Rougemont in 1884. This apple was sent to the late Charles Downing, and was very favourably reported upon by him, and pronounced "very good."

Tart Bough.—C. GIBB.—A Wisconsin seedling which I received from J. S. Stickney, Wawautosa, Wis., a medium sized striped conic autumn cooking apple. A nice looking fruit and fairly productive, but we have better of its season.

Tetofsky.—C. GIBB.—This is a wonderful bearer. The short little fruit spurs often bearing 2 or 3 apples until their increasing size forces them off the tree. When bearing full crops the size is rather below medium, whitish with a pale blush, not acid, and with a scented, refreshing flavor. It ripens a week or more before Red Astrachan, and was the earliest apple I had, until Yellow Transparent and Charlottenthaler came into bearing. I feel that it is cut out by these varieties. It is strange that I have never seen the name Tetofsky in any Russian or Polish book or catalogue.

J. M. FISK.—Tree, a hardy and upright grower. A young and good bearer; fruit ripens just before Duchess and is of better quality.

WM. GILL.—Have six trees planted about eight years ago. All seem hardy except two which are sun scalded, medium bearer; ripens in early summer, and of good quality.

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W. R. HONEY.—I have a few trees in orchard. It is a very hardy, thrifty, upright grower, with heavy foliage. An annual bearer. Fruit of good size and fair quality. Very profitable for market.

C. WILLIAMS.—Have six trees planted seven years ago. A slow, stocky grower and very hardy. My trees have been bearing three years. Fruit of good quality, but perishable. Season, first of August.—Rep. I. p. 18.—V. p. 22.

Talman's Sweet.—A. BROUSSEAU.—I have seven trees of this variety that have been planted twenty-five or thirty years and they appear quite hardy yet; it bears annually, but only moderate crops, although the tree blossoms profusely. Fruit of fair size, very sweet and remarkably firm. Color pale green when picked, but turns yellow during winter, keeps well until May.

N. C. FISK.—Started it in nursery in the year 1868, they winter-killed three years in succession. Never planted any into orchard.

C. GIBB.—I received root grafts of this in 1873, and they did not prove hardy. I planted several trees into orchard but they did not transplant well. They all died bearing no fruit. These root grafts were received from J. S. Stickney, Wawautosa, Wis., a most careful man and were not likely to be untrue to name. Everything else fruited and proved true.—Rep. V. p. 30.

Utter.—C. GIBB.—A Wisconsin variety received from A. G. Tuttle, Baraboo, Wis. It is not a very hardy tree, but is a young and very abundant bearer, of fine, large, whitish apples, splashed with red. It is very juicy and mildly sub-acid. Season, October.

Victoria.—C. GIBB.—This St. Hilaire apple appeared on exhibition tables at Abbotsford in 1877. It is a lovely apple of Roseau type; a round, rich, glossy red, remarkably attractive. The flesh is pure white and it is of pretty good quality. The tree is not quite hardy although it seems to stand well when top-grafted. It is liable to spot. Rep. III., p. 117., V. p. 88.

Walbridge.—W. R. HONEY.—I planted four trees into orchard nine years ago; three of them are dead and I hope the other one will die also.

WM. GILL.—I have two trees, planted eight years ago. They appear to be feeble growers compared with other kinds. Fruit small, spotted, and of poor quality.

N. C. FISK.—I have four trees ten years planted and are still healthy; have borne but little fruit which is small and acid; drops early. Do not consider it worthy of cultivation in this province.

C. GIBB.—I have 19 trees, planted ten years ago, and have not had up to this time more than a bushel of fruit from them all. Two have died and two or three others intend to follow their example. The fruit is a good keeper, but always small in size, scarcely ever do I get a specimen which is of medium size, and sometimes it is spotted. It is a failure.—Rep. I p. 20, V. p. 35.

Wealthy.—C. GIBB.—I have 36 trees in my orchard, 18 of which were planted 10 years ago and the remaining half 2 years later. It has proved with me a very hardy tree, (I have not lost one yet,) and a young and abundant bearer. It bears in fact too much and some of my trees I find have been making very slow growth and have been injured owing to excess of bearing. The fruit has been of good size, often quite large, good attractive red in color, and though not equal to Fameuse in quality, yet a

fruit of fine quality. Its weak point is that so much of the fruit drops from the tree just before it is fully ripe. It does not keep as long as Fameuse, and should be picked a little on the early side to prevent its falling to the ground. A most valuable apple for home use or for market, and considering its special hardiness of tree, a variety of the highest value to this province. What a service has been done to our country by its originator, Peter M. Gideon of Excelsior, Minn.

J. M. FISK.—One of our most profitable varieties and adapted for general cultivation. Its greatest fault is that it drops too early from the tree.

MARK GILL.—Have two trees which are young and heavy bearers, and very hardy. The fruit is of high color and of fair quality.

WM. GILL.—About thirty trees planted during last eight years. It stands next to Duchess for hardiness. It is a good grower and good bearer. Fruit fairly large, of good quality, and sells well, but drops early from the tree. I consider it one of the best varieties for general cultivation.

W. J. GIBB.—I have a few top grafts, they are heavy bearers. Fruit grows larger than Fameuse, is well colored and of fine quality, but drops early.

N. C. FISK.—Four trees planted ten years ago; all healthy and vigorous. They have borne well for last three years. Fruit fully as large as Fameuse and free from spots. It bears early. The tree ranks next to Duchess for hardiness. I consider it one of the best varieties for profit; and would recommend it for general cultivation.

W. R. HONEY.—I have some fifteen trees planted. A hardy variety, and heavy annual bearer; fine fruit of good quality, and high color, and free from spots. I consider it a profitable variety for planting.

C. WILKINS.—I have six trees planted about eight years, which have been bearing for four years past. Tree hardy, fruit very handsome and of fine flavor. It keeps about like Fameuse. The only fault I have with this variety is that the fruit drops very early from the tree. Rep. I, p. 19., V. p. 17, 33 and 83.

Westfield Seek-no-Further.—J. M. FISK.—I have six trees fifteen years planted. Tree not as hardy as Fameuse and requires more pruning; it bears fairly well every other year. Fruit medium and often uneven in size, fair quality and keeps well up to March. I do not consider it profitable.

White Astrachan.—J. M. FISK.—Tree hardy—fruit medium in size, of good quality, but often water cored, good for home use and near market.

C. GIBB.—I have several trees of this, having received it under the names of Grand Sultan, Count Orloff and Red Transparent. An early apple superseded by Yellow Transparent and others.—Rep. I. p. 9., V. p. 23.

White Winter Calville of Abbotsford.—N. C. FISK.—I planted several trees of this variety twenty-five years ago, and they continued healthy and vigorous till five or six years back, since which time, some have commenced to decay more or less. The tree is very prolific and an early bearer, and fifteen years ago it was one of our best winter varieties, keeping well into March, but lately the fruit seems to ripen earlier in the fall and has not kept so well during the winter.

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M. R. BROUSSEAU.—I have ten trees planted ten years ago, eight of which are living. They are not as hardy as Fameuse; fruit of fair quality, good size and smooth.

WM. GILL.—I planted ten trees twelve years ago. Seven of them are dead; fruit good quality and a good keeper.

C. O. FISK.—I have six trees planted about 10 years; only one of them is dead, remainder apparently healthy and they bore well last year. Fruit of good quality and a good market apple.

WM. MARSHALL.—I have four trees planted about fourteen years, and they have done remarkably well; all healthy. I also planted ten trees eight years ago, on lower ground and they do not appear as healthy; fruit not as large. A fine baking apple.

J. M. FISK.—Tree not adapted for general cultivation, does best on high dry soils.

C. GIBB.—This would seem to be a seedling of the W. W. Calville of France. It has the same ridges and corrugated basin, the same fine texture but without its remarkable aroma. I have 7 or 8 trees planted 7 or 8 years and they have proved young and good bearers. However, these pale yellow fruits readily show their bruises and soon lose their attractiveness unless marketed in baskets, which present prices do not seem to warrant. Rep. II. p. 26. V. p. 16, 36 and 87.

White Winter Calville, of St. Hilaire.—N. C. FISK.—I have five trees planted twenty-five years ago which are still healthy and doing well, medium bearer; fruit larger than Fameuse, more oblate in form, ground color a delicate white with blush on one side; flesh mild sub-acid, delicate and crisp.

J. M. FISK.—I have this variety planted in orchard fifteen years, has not borne much fruit yet, tree fairly hardy, and spreading in form, requiring much pruning. This apple is the nearest approach to a pure white, relieved only by some slight marblings of pink. On the other hand the "Gueule Noir" is often a red black of the darkest shade, and these two varieties (a plate of each) as sent by us to the Colonial and Indian Exhibition, must have been a surprise to every Englishman who saw them.

A. BROUSSEAU.—I have about six trees just coming into bearing. Fruit grows on the end of the twigs, and is of medium size and of good quality. A shy bearer.

C. WILKINS.—I have one tree planted twelve years, which has borne light crops for the last four years, tree looks very healthy. Fruit good quality; keeps about like Fameuse.—Rep. II. p. 27, V. p. 16.

Winter St. Lawrence.—J. M. FISK.—Tree thrifty and hardy, bears every year alternate heavy and light crops. Fruit medium to large, handsomely striped and of very good quality, but does not keep as well as Fameuse, yet well worthy of cultivation.

WM. MARSHALL.—I have about forty trees eight years planted, which are bearing. They are not doing well with me; fruit large and of good quality; sells well.

C. O. FISK.—I have three or four trees. They all appear healthy, but have not borne heavily so far with me.

WM. GILL.—Planted ten trees fourteen years ago. Trees were thrifty and bore well until the last two years; many of them are dying out.

W. R. HONEY.—Planted about fifteen trees into orchard ten years ago. Tree hardy and an annual bearer, but bears heavier every alternate year. Fruit large, good

color and fine quality. It is apt to spot. Well worthy of cultivation.—Rep. V. p. 16. 35 X. 85. XI. p. 17.

Winter Sweeting.—GEO. E. ROACH.—A seedling propagated by Mr. Jos. Roach, about the year 1868. Fruit of medium size, of a rich yellow color, and good flavor. A heavy bearer and hardy tree. I harvested fifty barrels from twenty trees this last season. It sells well in market.

WM. MARSHALL.—I had five trees; two are dead. Fruit large, of good quality and sells well.

Yellow Bellflower.—A. BROUSSEAU.—I have several trees of this variety which are hardy. Tree blossoms profusely every year, but is a very shy bearer. Fruit somewhat conical in form, of fair size and firm; color yellow; flavor sub-acid, of good quality; keeps until spring. It is not profitable.

W. R. HONEY.—I have five trees planted ten years; they are bearing fine large fruit of excellent quality. It is a good keeper; I have kept them till May. I do not consider the tree very hardy.

Yellow Transparent.—C. GIBB.—This is a variety of great value. I have but 3 trees of it, received from Dr. Hoskins, Newport, Vt. They bore two crops before the other varieties in the same row had borne any, and have had 3 crops of uniformly good sized yellowish apples which have been eatable and fit for picking as early as July 26th. It is not a quickly perishable fruit like White Astrachan or Tetofsky. Owing to its hardiness and bearing, the even size of its fruit, its fair quality and its extreme earliness, I expect this to be planted very largely in this province.

J. M. FISK.—This variety has been on trial here for the last six years; is hardy both in nursery and orchard; is an early and abundant bearer, being ready for market several days before any other variety. Fruit medium in size and resembles the Peach but better in quality. I consider it one of our best early varieties for general cultivation.

In conclusion we would draw attention to this plain, unvarnished statement of our failures and successes, with 77 varieties of apples, which vary to a great extent according to soil and exposure. And now that the work is finished, and can be looked upon as a whole, we feel that our experiences have often been too hastily given, and in bringing into notice the faults of many varieties, we have often failed to note their points of special merit. Thus the picture seems to lack warmth of color, and does not show the extent to which apple-growing is a success at Abotsford. Still such reports have their value, especially so to growers in our immediate vicinity. Soil and exposure so affect the apple, that but few varieties are adapted to general cultivation in the Province; hence the need of further organization and like reports from different districts, giving their failures and successes, as a guide to growers. We hope that our sister societies (would that there were more of them) will soon join in this good work and place on record their experience for the benefit of their fellow fruit growers.

J. M. FISK,
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EXPERIMENTAL WORK OF THE IOWA AGRICULTURAL COLLEGE.

By John Craig, of Abbotsford, Que.

A detailed report of the work on experimental horticulture which has been going on under direction of Prof. Budd since his return from Russia in 1882, would embrace a great variety of experiments, all of interest to the horticulturist, but of varied degrees of value, especially to residents of the Province of Quebec.

The wholesale destruction of fruit trees of the old list west of Lake Michigan within the last few years has been a terrible blow to the horticultural interests of the West; but it has also been the means of directing attention to the principle on which the experimental and trial stations of the civilized world are founded, viz: that Nature's distribution of economic trees and plants *has been a thing of chance*. Fruit growers of the West now look for the fruits of the future to come to them while working along two principal lines. 1. Introduction of fruits from like climates. 2. Systematic plant breeding.

The first of these lines is by no means new, and has been brought into greater prominence latterly through the united efforts of Prof. Budd, of Iowa Agricultural College, and Mr. Chas. Gibb, of Abbotsford, Canada. Although the second has been practised extensively in the propagation of small fruits and flowers, yet in the case of the apple, plum and cherry, new varieties have arisen more generally from chance seedling production than any other source. During the spring of 1886 an extended series of experiments in systematic crossing of the apple, plum and cherry were conducted under direction of Prof. Budd. In order to illustrate the lines of thought underlying work of this kind, I will give a few examples of experiments tried. In a general way the object in crossing is to effect a combination of the desirable points of two varieties. As instances the Speer plum and De Soto are both hardy enough, hence the object in crossing was to combine the fruitfulness of the De Soto, with the excellent quality of fruit of the Speer. Again, the Maquoketa plum is the best of the Chickasaws in quality of fruit, a fair bearer but not an ironclad. In crossing it with De Soto Prof. Budd hoped to retain its habit of bearing and quality of fruit, with increased hardiness of tree. With the cherries in some cases the object was to increase natural size of tree, for instance, Schatten Amarelle is a hardy fruit, fair in size and quality, but the tree never attains large size. In crossing it with the sweet cherries of Orel, the result looked for is increased size and quality of fruit, and increased size of tree. With the apple the main thought has been to secure absolute hardiness of tree, which characteristic is supposed to follow the female side of the cross, with the highest attainable quality of fruit on the other side. As an instance, Silken (75 m.) has proven hardy wherever tried. The fruit is large, nicely colored, keeps fairly well, but in quality and texture is only fit for cooking. This has been fertilized with Grimes' Golden and Roman Stem. The cross resulting from these is expected to approach the mother in hardiness of tree, size and color of fruit, and the male parent in quality and keeping. In this connection I will give in brief an account of the manner in which this simple operation—usually considered so

difficult—is performed. In the case where the Roman Stem was used as the male parent the blossoms were closely watched, and soon after opening the stamens were picked out and placed in a bright tin vessel or crockery bowl. Care must be taken to collect the stamens before the anthers burst, allowing the pollen to escape. In the case of apple, cherry and plum this method is quite satisfactory, as the stamens from these ripen their pollen as well in a warm room as on the tree. In this manner it can be preserved, and is good for use for two or three weeks. Having the pollen on hand, the tree with which the cross is to be effected is chosen, and just before the blossoms open, by the aid of a pair of forceps, the stamens are removed. The blossoms are covered immediately with muslin sacks to prevent natural fertilization. In about two days the sacks are removed, the stigmas being in a receptive condition, the pollen is applied with a small camel's hair brush. The blossoms are again covered, and this part of the work is done. The seeds are carefully collected and planted, the scions from the trees resulting are top-worked as soon as practicable, in order to get results as speedily as possible.

To return to the first line of work, the introduction of fruit and ornamental trees from like climates. As is generally known this has led to large importations from the dry plains of East Europe. This stock has been propagated and distributed to trial stations from the Rocky Mountains to Maine and Vermont. There are now about eight hundred men engaged in this work. In the Horticultural Museum of the Iowa Agricultural College there are plates and casts of more than one hundred of these new varieties, which have fruited within the last few years, many of them since these severe winters began. These station reports are received regularly, tabulated and arranged in a ledger kept for the purpose. In the words of Prof. Budd "We have over three hundred varieties of the different fruit, and forest trees, and shrubs in these stations, and we expect to tell the story within the next ten years; not our story but the story of the hundreds who are trying them." The Bulletin published by Prof. Budd and Mr. Gibb last year, 1886, gives a clear idea of the relative value of these Russian, Polish, Silesian and East German fruits, as far as known up to that date. I will here note a few whose uniformly good behavior under varied conditions renders them specially promising, at the same time stating that some of the *most promising* of the Russian winter apples of the newer importations from the black soil sections of the interior, selected at Kursk, Orel, Voronesh and other points have not yet fruited; but the trees have proven iron clad over wide areas of the cold north and west. A number of the following list have already attained a wide reputation.

SUMMER APPLES.

1. *Yellow Transparent*.—This needs no commendation. The fruit is a favorite wherever tried. Tree is a fine grower; has had a splendid record up to the last year, when it blighted in the College orchard.
2. *Thaler*.—Very like the former. Fruit fully equal. Tree has a clear record.
3. *Red Duck*.—Belongs to the Transparent family. Prof. Budd says as good in fruit and better in tree than No. 1.
4. *Grand Sultan*.—Good reports have been received of this tree wherever located. No case of blight or winter killing has been reported.

AUTUMN APPLES.

1. *Gipsy Girl*.—No. 1227 of the new importations, is reported as doing exceptionally well. A very desirable September apple, both for dessert and cooking. Handsome and of good size.

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2. *Garden*.—Sweet, productive to a fault. Season, September. This tree was one of the few that showed clear white wood all through in the exhibits of sections of apple stems, by A. C. Tuttle, Baraboo, Wis., at the meeting of the Illinois Horticulturists, in January last.

3. *Noble Red Streak*.—Continued good reports are being received of this as to hardiness of tree, fruitfulness and quality of fruit. Description as per bulletin: Fruit medium; slightly oblate; yellow, with crimson splashes and stripes. . Flesh white, tender and sweet. Season, September here, and late fall further north.

4. *Hibernal*.—This tree is a true iron clad, and would make a fine stock for top working. Fruit, late autumn at Ames, early winter farther north.

EARLY WINTER APPLES.

1. *Longfield*.—This represents, as in many other cases, a family of apples rather than an individual. They are early bearers, very productive, mid winter, and said to be of as good quality as Fameuse.

2. *Good Peasant*.—Tree said to be hardier than Longfield. Fruit larger, with less color. This apple is rising in favor.

3. *Switzer*.—A very fine flavored apple. Keeps till January when fruited in the north.

LATE WINTER APPLES.

1. *Cross*.—From Moscow. An iron clad, a regular bearer, fruit like R. I. Greening and keeps till spring.

2. *Ostrekoﬀ* (4 m).—A large winter apple of the Willow Twig type keeping till March.

3. *Bogdanoff*.—This is an apple which struck Mr. Budd very favorably while in Russia; described by him as a "glorified Dominic." Without exception reports have been specially favorable from all quarters, and very high hopes are entertained with regard to its ultimate success.

4. *Arabka*.—This gives every promise of being what it is in Russia, a famous winter apple. Bulletin says "Fruit large and with the general weight and appearance of Blue Pearmain. Quality about like Willow Twig but with more acidity until fully ripe, season mid-winter here and very late at the north."

PEARS.

Gakovska.—The hardiest of all the pears on trial, and one that will succeed under most varied circumstances and positions. Bulletin says "This is a good specimen of the larger cooking pears of Russia. Fruit of large size; pyriform; green and yellow in color; very long stem." Is a remarkably strong grower. Bears cutting back for scions well.

Bessemianka—Continued favorable reports* are also being received of this variety.

CHERRIES.

Struss Weichsel.—One of the Ostheim family. Tree hardy and foliage good. Fruit as large as English Morello; nearly black, pit small; much grape sugar. Much used to border country streets in North Silesia.

Fraendorfer Weichsel.—There appears to be two forms of this; that from North Silesia seems perfectly hardy, while that from Metz, Germany, is far less so. Flesh firm, juice colored; when fully ripe nearly sweet.

Griotte de Osthejm.—From Poland. Is a fine tree, of pendulous habit, and a bountiful bearer of excellent fruit for dessert.

Vladimir.—In noting these cherries I will follow description as given in Bulletin. This is beyond doubt the hardiest variety of really good cherry in the world. Fruit about the size of Richmond, flesh purplish red color, when ripe nearly black, pit very small. When fully ripe nearly sweet.

Bessarabian.—Is a fine grower, with perfect foliage. Fruit large, dark red, firm textured, mildly sub-acid, and pits very small. The tree is reported hardy from Northern Iowa. Prof. Budd thinks highly of this.

A selection of cherries were imported from Orel, Central Russia, and sent out by number. They are all large sweet cherries, varying more in shape and color than in quality. Nos. 23, 24 and 27 Orel are specially recommended.

Brusseller Braune.—Is worthy of special note. Fruit very large, richly colored, rich acid.

Schatten Amarelle.—Is a low growing tree, or rather bush, bearing fruit large, red and fine fleshed, firm and good.

PLUMS.

In noting these I will only speak of a few natives which seem to be specially promising. There is a grand field for work in cross fertilizing our native plums with foreign varieties. Also the facts which are being brought out at the various horticultural meetings in Iowa and neighboring states, all bear upon one point as the most important factor in successful plum culture; that is, to *mix varieties* and *plant in groups*, for the purpose of natural cross fertilization.

De Soto.—An improved form of the wild plum of the Northern States, (*Prunus Americana*.) This, as seen in the College orchard, is a low, round topped tree with the fruit borne under the shelter of the leaves. We are not apt to find burned specimens. Fruit even in size and ripening uniformly. It is one of the few varieties having its pollen ripe and stigmas in a receptive condition at the same time, thus ensuring self fertilization.

Maquoketa.—Of the chickasaw tribe. Compared with Miner, is found to be closer in habit of growth, with much healthier foliage, is a better bearer, and in quality of fruit is one of the best, not as large as De Soto.

Wolf.—Is upright in habit, rather close round top. Fruit is well sheltered, even and uniform in size, rather rounder than De Soto, about same size; foliage good. Should be planted with other varieties to ensure fertilization.

Rollingstone.—A low spreading tree; leaves coarsely notched, stood the drouth of past summer well. Fruit dark red with bloom, firm and fine textured. Ripe last year Augut 20. Nearly sure to self fertilize.

Speer.—Open headed fruit set on spurs and is thus more liable to sunburn. This tree could be much benefited by pruning with a view to forming a closer top. When planted with other varieties bears freely. Is later than De Soto or Rollingstone.

Wyant.—Nearly as large as Wolf, and like it a free-stone. The flesh is firm and sweet, and free from any acerbity. The trees bear young and regularly.

None of the foreign plums have as yet fruited, but their hardiness is already assured, and it is hoped that they will be free from attacks of the curculio. Very useful results are expected from this line of experimental work.

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FOREST AND ORNAMENTAL TREES.

Prof. Budd has done a grand work in importing from the east plain of Europe a number of "rapid growing species of poplars and willows with thick foliage, and in quality of timber for economic uses superior to our native species." These are being disseminated in the form of plants and cuttings, and are taking the place of the cottonwood, which at best is a very short-lived tree, and is now generally failing from leaf rust.

Populus alba argentea.—A variety of the white poplar of East Europe; is practically non-sprouting. Leaves woolly and silvery. Most, or one of the most ornamental and valuable of all. Would make a fine tree top-worked.

Pop. Petrovsky.—Runs into several varieties. The timber of this species is quite valuable for building purposes. *Certinensis*, *Berolensis* and *Semonovi* are varieties of Petrovsky, very upright in form; valuable timber trees, and succeeding remarkably well in upland situations.

Pop. Bolleana.—Is one of the most beautiful trees on the College grounds, upright, with a finely rounded top. Leaves silvery and cut-leaved. Can be grown from calloused cuttings.

Salix fragilis.—This is a famous timber willow in Eastern Europe. The wood is used in a variety of ways, and the bark in tanning upper leather. Should be planted on low lands. Easily propagated from cuttings.

S. Napoleonis.—Is a peculiar ornamental weeping willow. Should be top-worked on some straight growing stock.

The length of this paper forbids me speaking in detail of the large collection of hardy, ornamental shrubs for the garden and lawn, which the College is scattering widely for trial. Many of them are proving true ironclads, and are meeting the demand for hardy shrubs to beautify the homes of the settler in the cold North and West.

POPULUS ALBA PYRAMIDALIS.

(BUNGE.)

POPULUS ALBA BOLLEANA.

(LAUCHE.)

By Heinrich Goegginger, Riga, Russia.



Of all the new ornamental trees which have spread from our commercial nurseries into general cultivation during the last few years, one of the very best is the pyradimal silver poplar (*populus alba pyramidalis*). It is one of the most successful of all the recent importations which enrich our arboretums. We have not only to admire its delicate outline and perfectly pyramidal shape, but its leaf alone would make it a favourite: silver white below, dark green above, challenging attention by its frequent changes of color as it moves and flutters with the slightest breath of wind. Moreover it is a surprisingly quick grower, and stands our cold climate bravely,

while the common poplar of our nurseries is frequently winter killed. It has survived a winter here in Livland which killed the common Juniper (*Juniperus communis*). The one represented in the engraving I send you is 7 years old, height about 15 feet, circumference of stem just above the ground 12 inches. It was severely pruned every year, or it would be 3 or 4 feet higher. The well known nursery of Mr. Peter Hoser, in Warsaw, has the oldest specimen of this tree. It is about ten years old, diameter of trunk nearly 6 inches, circumference 18 inches. Dr. E. Regel kindly pointed out to me the description of this tree by Mr. Alex. Bunge, in his addenda to the account of Flora of Russia and the Steppes of Central Asia, in page 322 of the St. Petersburg edition of 1851. It is there described under the name of *Populus alba pyramidalis*. They were found on September 14th, 1841, forming a little grove on the left bank of a little brook on the north side of the Karataw Mountains, looking towards the steppe, and between Bokara and Samarcand. On March 5th, 1842, he found in Bokhara itself this pyramidal silver poplar called in Persian, *Ssofidar*, and in Usbeckian, *Terak*. In 1872 Mr. Peter Hoser obtained from the Botanical Garden of Warsaw a scion of this tree not much bigger than a cabbage seedling, said to have come from one originally sent to Warsaw by Colonel Karalkoff. Mr. Hoser at once saw the value of this novelty. He propagated it rapidly and

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was enabled to send me some young trees a few years afterwards. The engraving enclose is one of a tree grown by him. I have succeeded since then in obtaining a considerable number of young trees, chiefly through the kindness of the wife of Colonel Fowitzky, of Vierny, who for some years kept sending me seedlings, not only of this pyramidal silver poplar but also of the *Populus diversi folia* or *Euppratrica*, which had not hitherto been introduced here. Hence now in 1878 I am able to show a considerable number of young trees in my nursery.

In August, 1878, in number 32 of Huttig's "German Garden" appeared an article from the pen of Mr. Lauche entitled "A new silver poplar from Turkestan.—*Populus Bolleana* Lauche." It contained a description of the pyramidal silver poplar and I at once recognized its identity with the tree which I had got from Mr. Hoser and from Vierny. Mr. Lauche further states, in his account of the tree, that he obtained it for the Horticultural Academy of Potsdam, from his friend Colonel Karalkov in 1875, three years before Mr. W. Lauche named this tree in honour of his friend Dr. C. Bolle, who well deserved the compliment for the great services he had rendered to horticulture and dendrology. He speaks in his article of the interesting nature of this new arrival and its importance as a novelty which ought to be universally known for its beautiful appearance and power of enduring our climate. He then describes the original tree as follows:—It was planted two years since near the little lake in the garden which I have under my care. It stands in soil which is favourable to it, being neither too dry nor too wet, and is about 6 feet high. Another which has not thriven so well is now (in July) three feet high, and yet another in a pot measures 4 feet. The foliage, when wind tossed, changes from dark green to silver white. The branches diverge from the trunk at a very sharp angle and are somewhat bow like in shape. The colour of the bark reminds me of the light silver hue of the common silver poplar. Suckers have not hitherto appeared, and its power of enduring our climate is now shown to be all that can be desired. It surpasses all hitherto known improved modifications of the common *Populus alba*. I do not think it desirable to try to graft this tree on the *Populus alba*, which, as is well known, sends up so many suckers, but I do think it would be well to root graft it, so as to advance its rapid propagation. Dr. Lauche's statements are perfectly correct.

Dr. C. Bolle writes me, in a private letter dated October 16th 1882, as follows:— "The poplar under discussion came to us almost at the same time from different parts of the East, certainly as much as seven or eight years ago. I could not give the exact date." He adds that Mr. Spath was the first to place the tree on our commercial lists, but in this he is mistaken, for Mr. Peter Hoser introduced it in 1874. Mr. Spath received it, he adds, from Tiflis, where there are two large trees of this variety which are a great ornament to the city. They came to Mr. Spath through the hands of Mr. Scharrer, who stated at the time that the trees came from Persia and were originally planted in Tiflis by a Persian prince who had lived in exile there. The largest tree in Germany is in Mr. Leichtbu's garden in Baden-Baden and is about 17 feet high. Two trees in my garden in Scharfenberg Island, in Lake Tegeler, near Humboldt's grove, are about 11 and 13 feet in height respectively. Mr. Lauche's original tree in the palace garden at Sans Souci, near Potsdam which had likewise attained a considerable height, suddenly died a short time ago, but not before a number of young trees had been obtained from it. The ample propagation of the trees is therefore pro-

vided for. It has been introduced through me into North America as I have sent living specimens to Professor Sargent, and I am now sending some to Norway at the request of Professor Schubeler. Colonel Karalkoff has already sent many different kinds of trees from Turkestan to France. This is possibly how it came there. But there was no specimen of it in Lavallée's famous Arboretum Segrexianum in 1878.

In the accounts of his travels in Turkestan given by the famous Dr. A. Regel, he mentions the pyramidal silver poplar as a planted tree in Turkestan in 1879, and Mr. Edward Regel, in a *Floral Annual* of 1880, pointed out the priority of Bunge's description of the tree in 1851, to that given by Lauche in 1878. Scharrer mentions the pyramidal silver poplar as growing in Tiflis more thriftily and to a greater height than the common green pyramidal poplar, and this appears more than probable. It is deserving of notice that it does not send up suckers, and it is this that increases its value so highly. As to its propagation we know only what we learn from Dr. C. Bolle's letter, viz: that it bids fair soon to find its way to all our colder as well as more temperate climates. In Russia it is already distributed over all the larger arboretums, and this year I seized an opportunity of sending it to Portugal. In the East it is often found in private gardens, and everywhere is a favorite and an object of interest.

In conclusion I must thank Dr. Ed. Regel, Mr. Peter Hoser and Dr. C. Bolle, for the information I have obtained from them in writing this, and express my conviction that the Pyramidal Silver Poplar will, by its own merits alone, soon acquire many admirers and propagators.

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PRIZES AWARDED.

Fall Exhibition Held 14th, 15th, 16th, 17th September, 1886.

PRIZE LIST—Class A.

PLANTS.

1. For the best group of stove and greenhouse plants, at least one-half in bloom, not less than 15 nor more than 25 specimens, arranged for effect, and all distinct species. The winner of the first prize in this section may, if preferred, receive a medal or a piece of plate suitably inscribed, of the value of thirty dollars instead of the money—1, J. Betrix, gardener to Mr. Andrew Allan; 2, Wm. Bell, gardener to Mr. Mackay.
2. Stove and greenhouse plants, best 12 distinct species, at least one-half in bloom—1, J. Stanford, gardener to Sir George Stephen; 2, S. Ward, gardener to Jas. Burnett.
3. Stove and greenhouse plants, best 6 distinct species in bloom—1, J. Stanford; 2, J. Betrix; 3, W. Sprigings, Mount Royal Cemetery.
4. Stove plants, best 6 in bloom, distinct species—1, S. Ward; 2, W. Sprigings.
5. Stove plants, best 6 foliage, distinct species—1, J. Stanford; 2, S. Ward.
7. Begonias, best group of foliage, not less than 12 varieties—1, J. Betrix; 2, W. Sprigings.
8. Begonias, best group of Tuberous in bloom, 12 specimens—1, W. Sprigings.
9. Geraniums Zonale, single, best 9 distinct varieties, in bloom—1, Geo. Trussell, gardener to J. H. R. Molson; 2, W. Sprigings.
10. Geraniums, double, best 9 distinct varieties, in bloom—1, Geo. Trussell; 2, H. Meyer, gardener to A. A. Ayer.
13. Fuchsias, best 6 distinct varieties, in bloom—1, J. Betrix; 2, W. Sprigings.
14. Fuchsias, best 3 distinct varieties, in bloom—1, Geo. Trussell; 2, W. Sprigings.
15. Foreign Ferns, best 15 distinct species—1, J. Betrix; 2, J. Stanford; 3, S. Ward.
16. Foreign Ferns, best 10 distinct species—1, J. Stanford; 2, W. Sprigings.
17. Foreign Ferns, best 6 distinct species—1, S. Ward; 2, J. Stanford.
18. Tree Fern, best specimen—1, W. Bell; 2, J. Betrix.
19. Native Ferns, best collection in pots—1, W. Sprigings; 2, T. W. Burdon.
20. *Lygodium Scandens*, best specimen—1, J. Stanford; 2, W. Bell.
21. *Selaginella* (*Lycopodium*), best 4 pots, distinct species—1, W. Sprigings.
22. *Asparagus Tenuissimus*, best specimen—1, S. Ward; 2, P. McKenna & Sons, Cote des Neiges.

23. Palms, best collection, not less than 6 distinct varieties—2, J. Stanford.
24. Cycas, best specimen—2, J. Stanford.
28. Gloxinias, best 6—1, W. Sprigings; 2, S. Ward.
29. Bouvardias, best 6, at least 3 varieties, in bloom—2, J. Stanford.
30. Bouvardias, best 3 distinct varieties, in bloom—2, S. Ward.
31. Coleus, best 6 distinct varieties—1, J. Stanford; 2, S. Ward.
32. Coleus, best 3 distinct varieties—1, J. Stanford; 2, S. Ward.
33. Caladiums, best 6, fancy—1, J. Betrix; 2, O. Dandurand, gardener to William Notman.
34. Caladiums, best 3, fancy—1, J. Betrix; 2, O. Dandurand.
35. Carnations, best 6 pots, distinct varieties, in bloom—2, W. B. Davidson, Cote St. Paul.
36. Carnations, best 3 pots, distinct varieties, in bloom—2, J. Betrix.
37. Hanging baskets; frame of basket not to exceed 14 inches in diameter—1, W. B. Davidson; 2, W. Sprigings.
38. Vase of plants, best, not to exceed 16 inches in diameter—1, W. Sprigings; 2, W. B. Davidson.
39. For the best 6 plants for table decoration; size of pots not to exceed 6 inches. Ferns and soft wood plants excluded—1, J. Stanford; 2, W. Sprigings.
- CUT BLOOM.
40. Gladioli, best 12 spikes—1, James Day, Outremont; 2, O. Dandurand; 3, D. F. Bell, Quebec.
41. Gladioli, best 6 spikes—1, O. Dandurand; 2, George Trussell.
42. Hollyhocks, best 6 blooms, dissimilar—1, George Trussell; 2, R. Jack, Chateauguay Basin.
43. Dahlias, best 24 distinct varieties—1, D. F. Bell; 2, W. Bell, Quebec.
44. Dahlias, best 12 distinct varieties—1, D. F. Bell; 2, W. Sprigings.
45. Dahlias, Pompon, best 12 distinct varieties—1, D. F. Bell; 2, James Day.
46. Dahlias, single, best 6 blooms, dissimilar—2, Mrs. F. M. Girdwood, St. Anns.
47. Asters, best 24 blooms, dissimilar—1, W. Sprigings; 2, Jas. Day.
48. Asters, best 12 blooms, dissimilar—2, D. F. Bell.
49. Zinnias, best collection, not to exceed 24 varieties—1, James Day; 2, W. Bell.
50. Zinnias, best 12 blooms, 1, W. Bell; 2, George Trussell.
51. Dianthus, best collection—1, W. Sprigings, 2, Jas. Day.
52. Phlox. Drummondii, best collection, 3 trusses of each—1, Mrs. F. M. Girdwood; 2, J. B. Goode, Cote St. Antoine.
53. Perennial Phlox, best collection—1, W. Sprigings; 2, R. Jack.
54. Verbenas, best 12 blooms, dissimilar—1, J. B. Goode; 2, W. Sprigings.
55. Verbenas, best 6 blooms, dissimilar—1, J. B. Goode; 2, T. W. Burdon.
56. Pansies, best 12 blooms, dissimilar—1, Jas. Day; 2, E. J. Maxwell, St. Catherine street, West.

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57. Pansies, best 6 blooms, dissimilar—1, E. J. Maxwell; 2, Geo. Trussell.
 58. Petunias, best collection, single, not more than 18 distinct varieties—1, W. Sprigings; 2, G. Trussell.
 59. Petunias, best collection, double, not more than 12 distinct varieties—1, Jas. Day; 2, W. Sprigings.
 60. Annuals, best collection—1, R. Jack; 2, Geo. Trussell.
 61. Immortelles, best collection, growth of 1886—1, R. Jack; 2, O. Dandurand.
 62. Roses, hybrid, perpetual, best 6 blooms, named, dissimilar—1, R. Jack.
 63. Roses, tea or noisette, best 6 blooms, named—2, R. Jack.

SPECIAL PRIZES.

- 64.—Best growing model of a flower bed, not to exceed 4½ feet in diameter—1, P. McKenna & Sons.
 65. Best collection native tree seeds, named—1, R. Jack.

FLORAL DESIGNS.

66. For the best floral design for dinner or supper, no fruit to be used in its construction—1, Geo. Hooten, foreman to Colin Campbell, florist.

BOUQUETS.

67. Bouquets, best 4, party—1, Geo. Hooten; 2, P. McKenna.
 68. Bouquets, best 4, corsage—1, Geo. Hooten; 2, R. Jack.
 69. Bouquet, best table—1, George Hooten; 2, P. McKenna; 3, W. B. Davidson.

Only gentlemen's gardeners or amateurs allowed to compete in the two following sections:—

70. Bouquet, best table—1, P. Halley; 2, O. Dandurand; 3, George Trussell.
 71. Bouquet, best hand—1, P. A. Somerville; 2, Geo. Trussell; 3, P. Halley.

CLASS B.—Amateur Department.

PLANTS.

72. Plants, best 6, in bloom—1, T. Gardiner, St. Paul's Church; 2, T. W. Burdon, Park Avenue.
 73. Plants, best 4, in bloom—1, T. W. Burdon; 2, T. Gardiner.
 74. Plants, best two in bloom—1, T. Gardiner; 2, T. W. Burdon.
 75. Plant, best single specimen—1, T. Gardiner; 2, T. W. Burdon.
 76. Begonias, best 2, in bloom—1, T. Gardiner; 2, T. W. Burdon.
 77. Begonia, best, in bloom—1, T. W. Burdon; 2, John Smith.
 78. Coleus, best 2—1, T. Gardiner.
 79. Coleus, best 1—1, T. Gardiner.
 80. Fuchsias, best 3, in bloom—1, T. W. Burdon; 2, Mrs. E. Scott.
 81. Fuchsias, best 2, in bloom—1, T. Gardiner; 2, T. W. Burdon.
 82. Fuchsias, best 1, in bloom—1, T. Gardiner; 2, T. W. Burdon.
 83. Geraniums, best 4, in bloom—1, T. W. Burdon; 2, T. Gardiner.
 84. Geraniums, best 2, in bloom—1, T. Gardiner; 2, T. W. Burdon.

86. Roses, best 1, in bloom—1, John Smith; 2, Mrs. E. Scott.
 87. Ferns, best collection, foreign—1, T. Gardiner; 2, T. W. Burdon.
 88. Ferns, best collection, native—1, T. W. Burdon; 2, R. Jack.
 89. Selaginella [*Lycopodium*], best 2—1, T. Gardiner; 3, P. A. Somerville.
 90. Foliage plants, best 4 dissimilar [*Coleus* excluded]—1, T. Gardiner; 2, T. W. Burdon.
 91. Hydrangea, best, in bloom—1, T. Gardiner; 2, Mrs. E. Scott.
 92. Oleander, best, in bloom—1, T. Gardiner; 2, Mrs. E. Scott.
 93. Abutilon, best, in bloom—1, T. W. Burdon; 2, Mrs. E. Scott.
 94. Heliotrope, best, in bloom—1, T. W. Burdon; 2, John Smith.
 95. Plants, best vase of—1, T. W. Burdon; 2, Miss Lizzie Irving.
 96. Hanging basket, best, frame of basket not to exceed 14 inches in diameter—1, Mrs. E. Scott; 2, T. W. Burdon.
 97. Carnations, best three in pots, in bloom—1, John Smith; 2, T. W. Burdon.
 98. Carnations, best two in pots, in bloom—1, T. W. Burdon; 2, John Smith.
 99. Carnations, best one in pots, in bloom—2, T. W. Burdon.
 100. Bouvardia, best, in bloom—1, T. W. Burdon; 2, T. Gardiner.
 101. Petunias, best two, in pots, in bloom, double—1, Mrs. E. Scott; 2, John Smith.
 102. Petunias, best two, in pots, in bloom, single—1, Mrs. Scott; 2, T. W. Burdon.
 103. Mignonette, best two, in pot, in bloom—1, Mrs. E. Scott.
 104. Balsams, best two, in pots, in blossom—1, T. W. Burdon; 2, John Smith.
 105. Cockscombs, best two pots—1, E. J. Maxwell; 2, John Smith.
 106. Ivy, best—1, T. Gardner; 2, P. A. Somerville, Mayor street.

CUT BLOOM, BOUQUETS, ETC.

107. Cut flowers, best selection of—1, R. Jack; 2, T. W. Burdon.
 108. Dahlias, best six blooms, dissimilar—1, W. Bell; 2, D. F. Bell.
 109. Gladioli, best 6 spikes—1, R. Harvie, Cote St. Antoine; 2, P. A. Somerville.
 110. Pansies, best 6 blooms, dissimilar—1, E. J. Maxwell; 2, Mrs. E. Scott.
 111. Pansies, best 12 blooms, dissimilar—1, E. J. Maxwell; 2, W. Bell.
 113. Verbenas, best 6 blooms, dissimilar—1, T. W. Burdon; 2, L. Irving.
 116. Zinnias, best 12 blooms, dissimilar—2, R. Harvie.
 117. Asters, best collection—1, T. W. Burdon; 2, W. Bell.
 119. Bouquet, best hand—1, R. Jack; 2, P. A. Somerville.
 120. Bouquet, best table—1, P. A. Somerville; 2, R. Jack.
 121. Best and most tastefully arranged basket of cut flowers, not more than 12 inches in diameter—1, P. A. Somerville; 2, T. W. Burdon.

CLASS C.—Fruits.

SPECIAL COUNTY PRIZE.

122. For the best collection of apples, exhibited by and grown within the limits of the county competing (open to any county in the Province of Quebec), 5 specimens of each variety—1, Fruit Growers' Association of Abbotsford.
 123. Apples, best collection, open to the Province of Quebec; must be exhibited by the grower; 5 specimens of each variety—1, R. W. Shepherd, jr., Como; 2, R. Brodie, Cote St. Pierre.

124.
 Coll, St. J.
 125.
 Cannon Fu
 126.
 Graves, C
 127.
 128.
 McColl; 3
 129.
 Shepherd,
 130.
 Evans, Co
 131.
 Smith; 3
 132.
 2, H. McC
 133.
 Jas. C. A
 134.
 Fisk, Abb
 135.
 3, R. W. S
 136.
 Canon Fu
 137.
 Dunn; 3,
 138.
 140.
 Canon Fu
 141.
 Abbotsfor
 142.
 3, Canon
 143.
 2, J. M. I
 144.
 3, R. W. S
 145.
 Shepherd
 146.
 Mrs. E. C

124. Apples, best 12 varieties, 5 of each, named—1, R. Brodie ; 2, Hugh McColl, St. Joseph du Lac ; 3, R. W. Shepherd, jr.
125. Apples, best 6 varieties, 5 of each, named—1, Hugh McColl ; 2, Rev. Cannon Fulton, Maritana , 3, P. Harrigan, Outremont.
126. Apples, best 3 varieties, 5 of each, named—1, P. Harrigan ; 2, Edward Graves, Cote St. Antoine ; 3, R. W. Shepherd, jr.
127. Apples, 5 heaviest—No first ; 2, W. B. Davidson.
128. Apples, best plate of Alexander, 5 specimens—1, P. Harrigan ; 2, H. McColl ; 3, Rev. Canon Fulton.
129. Apples, best plate Duchess, 5 specimens—1, Rev. Canon Fulton ; 2, R. W. Shepherd, jr. ; 3, D. Dunn, Lachine Rapids.
130. Apples, best plate of St. Lawrence, 5 specimens—1, W. Ross ; 2, F. W. Evans, Cote St. Antoine ; 3, John Smith.
131. Apples, best plate of Fameuse, 5 specimens—1, P. Harrigan ; 2, John Smith ; 3, Rev. Canon Fulton.
132. Apples, best plate of Strawberry of Montreal, 5 specimens—1, P. Harrigan ; 2, H. McColl.
133. Apples, best plate of Peach of Montreal, 5 specimens—1, H. Meyer ; 2, Jas. C. Ansley, Durocher street ; 3, R. Harvie.
134. Apples, best plate Canada Baldwin, 5 specimens—1, John Smith ; 2, J. M. Fisk, Abbotsford ; 3, Rev. Canon Fulton.
135. Apples, best plate Wealthy, 5 specimens—1, J. M. Fisk ; 2, H. McColl ; 3, R. W. Shepherd, jr.
136. Apples, best plate of Golden Russet, 5 specimens—1, Ed. Graves ; 2, Rev. Canon Fulton ; 3, John Smith.
137. Apples, best plate Pomme Grise, 5 specimens—1, Geo. Trussell ; 2, D. Dunn ; 3, John Smith.
138. Apples, best plate Decarie, 5 specimens—1, R. W. Shepherd, jr.
140. Apples, best plate Winter St. Lawrence, 5 specimens—1, H. McColl ; 2, Canon Fulton ; 3, J. M. Fisk.
141. Apples, best plate of Yellow Transparent, 5 specimens—1, C. Gibb, Abbotsford.
142. Apples, best plate of Ben Davis, 5 specimens—1, S. Martin ; 2, H. Meyer ; 3, Canon Fulton.
143. Crab apples, best collection, 10 of each, named—1, R. W. Shepherd, jr. ; 2, J. M. Fisk ; 3, Canon Fulton.
144. Crab apples, best 4 varieties, 10 of each, named—1, C. Gibb ; 2, J. M. Fisk ; 3, R. W. Shepherd, jr.
145. Crab apples, best plate of any variety, 10 specimens—1, C. Gibb ; 2, R. W. Shepherd, jr. ; 3, J. M. Fisk.
146. Pears, best collection, 6 varieties, 5 of each, named—1, Jules Betrix ; 2, Mrs. E. Caverhill.

147. Pears, best 3 varieties, 5 specimens of each, named—1, George Trussell ; 2, Jules Betrix.

148. Pears, best plate Flemish Beauty, 5 specimens—1, Rev. Canon Ellegood ; 2, Jas. C. Ansley ; 3, A. Armour, gardener to Miss Orkney.

149. Pears, best plate any other variety, 5 specimens—1, Canon Ellegood ; 2, O. Dandurand ; 3, R. Brodie.

150. Plums, best collection, not less than 6 specimens each variety, quality to be first consideration—1, Jas. Brown ; 2, D. Dunn ; 3, Ed. Graves.

151. Plums, best 2 varieties, not less than 6 specimens—1, Ed. Graves ; 2, Canon Ellegood ; 3, Jas. Brown.

152. Plums, best plate of one variety only—1, J. Betrix ; 2, S. Martin ; 3, Jas. Brown.

153. Cranberries, best gallon, domestic—1, M. Fisk.

BASKETS OF FRUITS.

154. For the best and most tastefully arranged basket of fruit for dessert, size of basket not to be less than one foot and not to exceed two feet in any part—1 J. Betrix.

155. For the best and most tastefully arranged basket of out-door grown fruits, size of basket to be not less than 1 foot and not to exceed 2 feet in any part—1, R. Jack ; 2, Jas. Brown.

OUT-DOOR GRAPES.

156. Grapes, best collection, named, 2 bunches of each—1, W. Mead Pattison, Clarenceville ; 2, Wm. Smith ; 3, D. Dunn.

157. Grapes.—Best 3 varieties, white, 2 bunches of each—1, R. Jack ; 2, W. M. Pattison ; 3, W. Smith, gardener to G. H. Ryland.

158. Grapes, best 3 varieties, black, two bunches of each—1, W. M. Pattison ; 2, R. Jack ; 3, A. Armour.

159. Grapes, best 3 varieties, red, 2 bunches of each—1, W. M. Pattison ; 2, W. Smith ; 3, R. Jack.

160. Grapes, heaviest single bunch, white—1, R. Jack ; 2, Wm. Smith ; 3, W. M. Pattison.

161. Grapes, heaviest single bunch, black—1, W. M. Pattison ; 2, R. Jack ; 3, H. McColl.

162. Grapes, heaviest single bunch, red—1, W. M. Pattison ; 2, R. Jack ; 3, P. Halley.

GRAPES GROWN UNDER GLASS.

Must be correctly named and fully ripened.

The varieties known as the White Nice and Assyrian are excluded from all competition.

163. Grapes, best collection, 1 bunch of each—1, O. Dandurand ; 2, J. Betrix ; 3, J. Walsh, gardener to W. W. Ogilvie.

164. Grapes, best 5 bunches, 1 bunch of each—1, J. Betrix ; 2, O. Dandurand.

165.
3, O. Dandurand

166.
3, J. Betrix

168.

169.

170.

171.

Trussell.

172.

173.

174.

175.

176.

177.

Davidson

178.

W. Ross.

179.

Geo. Trussell

180.

B. Davidson

181.

George T.

182.

Farm ; 3,

183.

184.

Ward.

185.

186.

J. Walsh

187.

Ross.

188.

Irving.

189.

190.

W. Bell.

Trussell ;
165. Grapes, best 4 bunches, 2 white and 2 black—1, A. Armour ; 2, J. Betrix ;
3, O. Dandurand.

Ellegood ;
166. Grapes, best 2 bunches, Black Hamburg—1, O. Dandurand ; 2, A. Armour ;
3, J. Betrix.

NECTARINES AND OTHER FRUITS.

168. Peaches, best collection, 3 of each variety—1, J. Betrix.

169. Peaches, best plate of—1, J. Betrix.

170. Peach tree, best, bearing fruit, in pot—1, J. Betrix.

171. Grapes, best bearing vine, growing in pot—1, J. Betrix ; 2, George
Trussell.

172. Melon, best water—1, H. Meyer ; 2, R. Brodie.

173. Melon, best musk—1, W. Ross ; 2, Geo. Trussell ; 3, John Smith.

174. Melon, musk, best new variety—1, Geo. Trussell.

VEGETABLES.

175. Cauliflowers, best three—1, P. McKenna ; 2, W. B. Davidson.

176. Cauliflowers, best head—1, P. McKenna ; 2, W. B. Davidson.

177. Cucumbers, best collection, three varieties, two of each—1, W. B.
Davidson.

178. Cabbages, summer, best three, for table—1, Geo. Trussell ; 2, D. Dunn ; 3,
W. Ross.

179. Cabbages, winter, best three, for table—1, W. Ross, 2, W. B. Davidson ; 3,
Geo. Trussell.

180. Cabbages, red, best three, for table—1, P. McKenna ; 2, W. Ross ; 3, W.
B. Davidson.

181. Cabbages, Savoy, best three, for table—1, W. B. Davidson ; 2, W. Ross ; 3,
George Trussell.

182. Brussels sprouts, best two stalks— 1, I. Marand ; 2, L. Irving, Logan's
Farm ; 3, W. B. Davidson.

183. Borecole, [kale], best two stalks—1, I. Marand ; 2, H. Meyer ; 3, P. Halley.

184. Celery, white, best six heads—1, I. Marand ; 2, W. B. Davidson ; 3, S.
Ward.

185. Celery, red, best six heads—1, I. Marand ; 2, S. Ward ; 3, Geo. Trussell.

186. Beets, turnip, blood, best six for table—1, W. Ross ; 2, W. B. Davidson ; 3,
J. Walsh.

187. Beets, long, blood, best six for table—1, H. Meyer ; 2, John Smith ; 3, W.
Ross.

188. Turnips, white, best six for table—1, I. Marand ; 2, W. B. Davidson ; 3, L.
Irving.

189. Turnips, yellow, best six for table—1, Geo. Trussell ; 2, L. Irving.

190. Turnips, Swedish best six for table—1, W. B. Davidson ; 2, D. F. Bell ; 3,
W. Bell.

191. Carrots, early, best six for table—1, I. Marand; 2, W. Ross; 3, W. B. Davidson.
192. Carrots, late, best six for table—1, D. F. Bell; 2, George Trussell; 3, W. Ross.
193. Parsnips, best six for table—1, D. F. Bell; 2, W. Bell; 3, Geo. Trussell.
194. Onions, white, best six for table—1, J. Betrix; 2, P. McKenna; 3, W. Ross.
195. Onions, red, best six for table—1, I. Marand; 2, Mrs. F. M. Girdwood; 3, J. Betrix.
196. Onions, yellow, best six for table—1, J. Betrix; 2, P. McKenna; 3, W. Ross.
198. Leeks, best bunch of 1 dozen—1, I. Marand; 2, W. Ross.
199. Tomatoes, red, best plate, 6 specimens, named—1, P. Halley; 2, J. M. Fisk; 3, S. Ward.
200. Tomatoes, red, best 3 varieties, 6 specimens, named—1, John Smith; 2, P. Halley; 3, D. Dunn.
201. Tomatoes, yellow, best plate, 6 specimens named—1, J. Walsh; 2, W. B. Davidson; 3, R. Jack.
202. Egg plants, best three, purple—1, W. Smith; 2, S. Ward.
203. Egg plants, best three, white—1, P. Halley; 2, A. Armour.
204. Egg plants, best assorted collection—1, W. B. Davidson; 2, S. Ward.
205. Peppers, best collection—1, George Trussell; 2, W. B. Davidson.
206. Vegetable marrows, best 2—1, P. McKenna; 2, L. Irving; 3, W. B. Davidson.
207. Table squashes, best 2 varieties [Mammoth varieties excluded], 2 of each—1, I. Marand; 2, P. Halley; 3, Geo. Trussell.
208. Mammoth squash, best specimen—1, I. Marand; 2, L. Irving.
210. Sweet corn, best collection, named—1, George Trussell; 2, W. B. Davidson; 3, John Walsh.
211. Sweet corn, best 12 ears, named—1, Geo. Trussell; 2, John Walsh; 3, D. Dunn.
213. Beans, best plate of green—1, John Smith; 2, John Walsh; 3, Mrs. F. M. Girdwood.
214. Beans, best plate of butter—1, John Smith; 2, John Walsh; 3, I. Marand.
215. Salsify, best 12 roots—1, George Trussell; 2, I. Marand and Henry Meyer.
216. Potatoes, best collection of 8 varieties, not less than 6 of each variety, named—1, George Trussell; 2, L. Irving.
217. Potatoes, best of 4 varieties, named—1, Geo. Trussell; 2, R. Jack; 3, L. Irving.
218. Potatoes, best basket, red, 1 peck—1, George Trussell; 2, D. Dunn; 3, L. Irving.

219.
3, D. Dun
220.
Harrigan.
221.
222.
Davidson.
223.
B. Davids
224.
2. George
225.
Evans; 3
226.
3, L. Irvin
227.
good; 3,
228.
James Br
229.
Smith; 2,
230.
231.
234.
235.
237.
Ansley.
238.
240.
prize pres
241.
prize pres
242.
presented
society;
durand;

219. Potatoes, best basket, white, 1 peck—1, George Trussell ; 2, John Smith ; 3, D. Dunn.
220. Jerusalem artichokes, best plate—1, W. Ross ; 2, P. Halley ; 3, P. Harrigan.
221. Globe artichokes, best plate—1, Jules Betrix.
222. Pot of sweet herbs, best collection, named—1, W. Ross ; 2, W. B. Davidson.
223. Vegetables, best basket of assorted, must be contained in basket—1, W. B. Davidson ; 2, I. Marand.
224. For the best six varieties of vegetables for table use 1, W. B. Davidson ; 2, George Trussell ; 3, I. Marand.

CLASS D—Amateur Department.

FRUITS AND VEGETABLES.

225. Apples, best 3 varieties, dessert, 5 of each—1, J. B. Goode ; 2, F. W. Evans ; 3, L. Irving.
226. Pears, best plate of 5 specimens—1, Jas. C. Ansley ; 2, Canon Ellegood ; 3, L. Irving.
227. Plums, best plate of, one variety only—1, J. B. Goode ; 2, Canon Ellegood ; 3, James Brown.
228. Grapes, best 3 varieties, out-door, 2 bunches each—1, P. A. Somerville ; 2, James Brown ; 3, James Smith.
229. Grapes, best 2 bunches of any kind, grapes must be fully ripened—1, Jas. Smith ; 2, R. Harvie ; 3, P. A. Somerville.
230. Melon, best water—1, R. W. Shepherd, jr., 2, L. Irving.
231. Melon, best musk, green or red fleshed—1, L. Irving.
234. Vegetables, 6 varieties, 3 of each named—1, Lizzie Irving.
235. Potatoes, best plate of, 6 specimens—1, L. Irving.
237. Tomatoes, best plate, named, 1, T. W. Burdon ; 2, L. Irving ; 3, Jas. C. Ansley.
238. Sweet corn, best 12 ears, 1, L. Irving.

Special Prizes Offered by Members.

240. Dracenas, collection, a first prize presented by J. H. Joseph ; a second prize presented by E. J. Maxwell, 1, J. Stanford ; 2, S. Ward.
241. Crotons, collection, a first prize presented by J. H. Joseph, a second prize presented by E. J. Maxwell, 1, J. Stanford ; 2, S. Ward.
242. For the best and heaviest bunch of grapes grown under glass, a first prize presented by G. Cheney ; for the second best bunch, a second prize offered by the society ; for the third best bunch, a third prize, offered by the society. 1, O. Dandurand ; 2, J. Betrix ; 3, E. P. Hannaford.

Extra Entries.

- Collection of Geraniums, table 24x3 feet, Geo. Trussell, extra prize.
 One *Ficus elastica*, T. W. Burdon, extra prize.
 One do, grown in house (2 years), Jas. Gardner, prize.
 Two orange trees, P. Harrigan, highly commended.
 Collection of apples and collection of dried grasses, Miss Ethel Claxton, highly commended.
Coleus, 25 pots and cut bloom, W. B. Davidson, commended.
 Table decoration, Miss Maxwell, diploma.

Chrysanthemum Show, held 11th, 12th, 13th November, 1886.

SECTION I.

Chrysanthemums, 12 distinct varieties, to be shown in pots not more than 10 inches in diameter. A first prize, presented by S. S. Bain, \$20; a second prize, presented by Dr. T. Sterry Hunt, \$10; a third prize, presented by C. S. J. Phillips, \$5. [Competitors for the above prizes must furnish in writing a description of the mode of cultivation pursued by them, properly signed, for the information of the society, to be published or not, as deemed advisable. Special preference will be given to new varieties in awarding the above prizes]. 1st prize, Geo. Trussell, gardener to J. H. R. Molson; 2nd prize, J. Stanford, gardener to Sir Geo. Stephen; 3rd prize, S. Ward, gardener to James Burnett.

SECTION II.

Chrysanthemums, 12 varieties—1st prize, J. Stanford, gardener to Sir George Stephen; 2nd prize, A. C. Wilshire, florist; 3rd prize, George Trussell, gardener to J. H. R. Molson.

SECTION III.

Chrysanthemums, 6 Japanese—1st prize, A. C. Wilshire, florist; 2nd prize, J. Stanford, gardener to Sir Geo. Stephen; 3rd prize, Geo. Trussell, gardener to J. H. R. Molson.

SECTION IV.

Chrysanthemums, 6 Pompon—1st prize, J. Stanford, gardener to Sir Geo. Stephen; 2nd prize, J. Doyle, gardener to W. R. Elmenhorst; 3rd prize, S. Ward, gardener to James Burnett.

SECTION V.

[Open only to Amateurs.] Chrysanthemums, any variety—1st prize, E. J. Maxwell, St. Catherine Street; 2nd prize, P. A. Somerville, Mayor Street.

SECTION VI.

Display of cut Chrysanthemums—1st prize, A. C. Wilshire, florist; 2nd prize, S. Ward, gardener to Jas. Burnett; 3rd prize, W. B. Davidson, florist.
 The judges were Professor Penhallow, Mr. Gorman, florist; Mr. S. Martin, florist;

Mid-Winter Grape Exhibit, January 15th, 1887.

Special Prize, offered by Mr. W. R. Elmenhorst, for the best preserved bunch of grapes, any variety, grown in a cold vinery (so called), in or around Montreal, the bunch to weigh not less than one pound when exhibited; and to have been preserved by the grower on his own premises, a First Prize of \$15.

For the second best bunch grown and exhibited under the same conditions, and not to weigh less than half a pound, a Second Prize of \$10.

1st prize, Jules Betrix, gardener to Andrew Allan.

2nd prize, A. Armour, gardener to Miss Orkney.

Conservatories.

Class A.

Conservatories having a superficial area of over 700 feet. 1st prize, J. Stanford, gardener to Sir George Stephen, 2nd prize, W. Wilshire, gardener to Hon. J. J. C. Abbott.

Class B.

Conservatories having a superficial area of not over 700 feet. 1st prize, J. Eddy, gardener to Mrs. Redpath; 2nd prize, W. J. Wilshire, gardener to John McDougall,

JUDGES REPORT.

The judges appointed by the M. H. Society made their inspection of the conservatories entered for competition in the winter prize classes, and found ample evidence of the severity of the present winter in the backwardness of bloom in several of the largest and most exposed conservatories, proving the unsuitableness of lofty exposed houses for this climate,

Cleanliness and good cultivation were everywhere apparent, and many additions had been made to the various collections in the way of orchids and other rare plants, notably in the Hon. J. J. C. Abbott's conservatory.

J. B. GOODE.

JAMES NAIRN.

FRANK ROY.

February 25th, 1887.

REPORTS OF LOCAL SOCIETIES.

Second Annual Report Montreal Botanic Garden.

To the President and Corporation :

GENTLEMEN,—As Director, I am called upon to present to you this evening, the second annual report of the Montreal Botanic Garden Association, and I do so with mingled feelings of regret and satisfaction. It is with regret that we have noted the continued hostility to our plans, manifested from the very outset of our efforts, and before sufficient facts were before the public for an unprejudiced judgment, by some of those from whom we had every reason to expect cordial sympathy and support. So far have they proved successful in their efforts to thwart us, that all our plans have been brought to a condition of suspense, pending the all-important decision relative to the land we are to occupy.

On the other hand, we are justified in a certain degree of satisfaction with the work of the past year, since it has clearly demonstrated that we have the cordial sympathy and support of every intelligent person in this community; that our scheme has fully commended itself to intelligent communities, not only throughout the Dominion, but in other countries as well; that there is a realizing sense of the necessity for such a garden as is contemplated, and that it only requires intelligent and generous co-operation on the part of the City, to place our institution in a position to avail itself of the numerous offers of bountiful assistance which have spontaneously sprung from all the principal gardens of the world.

Public expectation has been held in suspense for so long a time that it is only just to those who stand ready to give substantial assistance, to clearly set forth the circumstances which have combined to produce the present condition of affairs, and this it becomes my duty to do this evening.

GROUNDS.

Although strong and persistent efforts have been made during the past year to have the terms of the lease from the City Council definitely settled, nothing has yet been reached in that direction, it having been found impossible up to the present time, to bring the question to a vote. It having been found that much opposition might be overcome by recasting the report presented by the Park Commissioners, a new bill was drafted, and as this is now before the Council it is hoped a decision may be reached without unreasonable delay.

It has been felt by the management, however, that while the city should guard its interests by all reasonable and proper measures, it will be impossible for this Corporation to accept any lease which imposes such conditions as will be likely to

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unduly restrict freedom of action by the management or Corporation in promoting the highest interests involved, and thereby destroy the special object for which the Association is formed. This view has received confirmation and support from those of our wealthy citizens who, desirous of giving financial support, hesitate to do so until fully assured that the management will not be unduly hampered by restrictive conditions.

In the meantime, however, the question of land for temporary use became a most important one in view of the large amount of material on hand in the shape of seeds and plants. It was necessary to provide for the proper preservation of all these, or else sacrifice absolutely a large amount of valuable material. In this emergency, the Park Commissioners considerably granted a lease of the Hall Orchard for one year, with rights of proprietorship in the material crops therein, this provided the means of tiding over the past summer, but a similar difficulty again arises, since in the event of failure to secure a passage of the bill now before the City Council, during the present winter, all of the material now on hand must be sacrificed, as it cannot well be moved with any assurance of success.

NURSERY.

The stock on hand at the time of our last report, has been largely increased during the past summer. The trees and shrubs imported from Russia, were subject to but small loss, and those which lived have been brought into such condition that another year will render them available for planting out. The herbaceous plants raised from Russian seed the previous year have nearly all flowered. They are, without exception, hardy here, and embrace a few plants of special interest for ornamental culture, aside from their general botanical value in such a collection. Many seeds, both of native and foreign trees, were planted in beds and have yielded a large supply of valuable seedlings which will be available for ornamental planting in a few years. Cuttings from Mr. Gibb, as also seeds from the Botanic Gardens of Kew and St. Petersburg, have produced a large amount of valuable material. Such of these seeds as required hot-house culture, have been distributed to such growers as will properly care for them and return plants when we are prepared to receive them. A valuable collection of Central American Orchids was also distributed under similar conditions.

The material thus represented is worth, at a moderate estimate, one thousand dollars, and if made available in the directions originally contemplated, its value is much greater. It is most urgent that such provision shall be made, as will avoid any sacrifice of this material at the opening of next spring.

DONATIONS AND EXCHANGES.

Donations from kindred institutions have continued to be received during the past year, and ample evidence has been received from all parts of the world, that the garden will never be embarrassed for want of material, when it is once in a position to receive and properly care for it. It is, however, with feelings of the keenest disappointment that I am obliged to report the fact of having to refuse several valuable donations, on account of the very unpleasant situation in which we have been placed through want of land. Professor C. S. Sargent, of the Arnold Arboretum, wrote under date of October 23:

"I shall be very glad to send you this autumn a selection of such things as will probably succeed in your climate. The plants will probably represent several hundred species and varieties." As these plants embrace trees and shrubs of great ornamental and economic value, it is not difficult to realize the great value of such donations as materially affecting the future welfare of the Province from an economic point of view. Nevertheless, it was found necessary to refuse this and similar offers, for the reason that occupation of our present grounds is involved in too great uncertainty.

We have received from Dr. Wolfred Nelson, of Panama, through McGill College, a collection of 63 living orchids. These have been distributed and will be available for future use in the garden.

Several requests have been received for seeds of native trees and plants. These have been met as far as possible, though in some cases the difficulty of getting reliable collectors to produce seeds from localities remote from lines of regular travel, has prevented such requests from being filled. Nor will it be possible for the Board to undertake such work upon a satisfactory and systematic scale, until some local habitation, with suitable buildings and other facilities, are permanently secured. The following will exhibit the institutions, and parties with whom exchanges have been made, and from whom donations have been received:

Royal Gardens, Kew.....	Seeds and reports.
Imperial Botanic Gardens, St. Petersburg.....	Seeds and seed lists.
Arnold Arboretum, Brookline, Mass	Seeds and reports.
Botanic Gardens, Coimbra, Portugal.....	Reports and seed lists.
“ “ Natal, S. A	Reports.
“ “ Antwerp.....	Seed lists.
“ “ Kiev, Russia.....	“ “
“ “ Darmstadt, Germany.....	“ “
“ “ Upsala, Sweden.....	“ “
“ “ Glasnevin, Dublin.....	“ “
“ “ Heidelberg, Germany.....	“ “
“ “ Dresden	“ “
“ “ Hamburg.....	“ “
“ “ Erlangen.....	“ “
Jardin des Plantes.....	Reports.
Botanic Garden, Madrid	Seed lists.
“ “ Saharanpur, India.....	Seeds and reports.
“ “ Adelaide, S. Australia.....	Reports.
“ “ Portici, Italy.....	Reports.
“ “ Trieste, Austro-Hungary.....	Seed lists.
“ “ Brunswick, Germany.....	“ “
“ “ Berne, Switzerland.....	“ “
“ “ Utrecht, Germany.....	“ “
“ “ Berlin.....	“ “
“ “ Kolozsvar, Hungary.....	“ “
Mich. Horticultural Society.....	Reports.
Dr. Wolfred Nelson, Panama.....	Plants.
Wm. S. Lyon, Los Angeles, Cal... ..	Seeds.
Charles Gibb, Esq.....	Seeds, reports and plants.
Wm. Evans, Esq.....	Seeds and plants.

Many of the reports above noted are of an important nature, and all constitute a valuable contribution to the foundation of a working library in connection with the garden.

CORRESPONDENCE.

The range of correspondence during the past year has shown a sensible increase in several important directions. In addition to that already opened with the various Gardens of the world, much has been done in the way of answering numerous requests for information of a varied character. Parties desiring connections in this country, through which to effect interchange of seeds and plants with European Centers, requests for information bearing upon the names of plants or their diseases and others of a similar character, have all received due attention. Communication was also held with the Commissioner of Crown Lands, relative to the destruction in the Eastern Townships, of large areas of spruce growth, through the action of borers.

It will thus be seen that, without any special effort, the usefulness of the Association is extending each year, in just those directions of practical utility which are among its principal functions, and it is hoped that those who desire special information, will not hesitate to make any reasonable request.

The annual report has been widely sought after from all parts of the world, and many copies, in addition to those regularly distributed to other gardens, have been sent out. The following corrections and additions should be made to the list of gardens as already given :

Australia : Brisbane, Dis. and Col. Bot.

Germany : Gottingen, Unio Bot. Gardens, Prof. H. G. M. Solms, Laubach, Director; Kiel, Dr. J. Rienke, Director.

Great Britain and Ireland : Dublin, Trinity Coll. Bot. Garden, F. N. Burbridge, Director.

Turkestan : Pishpek, M. Fetissof, Director.

United States : Washington, D. C., Govt. Bot. Garden, Wm. Saunders, Supt.

This adds three gardens to the previous list, making a total of 200 in all parts of the world. It should also be noted that, among other connections that have been established, is an important one with Fladivastock, E. Siberia, which is likely to prove of great value in the introduction of choice, hardy trees and plants from that district.

Although several important projects bearing upon matters of public interest have been in contemplation for some time, no special effort has been made in this direction, in view of the special circumstances in which we are at present placed. It is desirable to note, however, that such questions as the tree planting of this city have more than once been brought to our notice through letters from citizens, asking that some steps be taken to remedy the manifest and glaring defects at present existing in the planting and care of our shade trees. Whatever influence the Association can exert in such a direction falls within the scope of its legitimate functions, and it is gratifying to state that such arrangements with the City Surveyor are contemplated as will tend to remove many of the objections now existing. There is also much material now in nursery, which will be available in the spring for planting the squares and streets, and this it is proposed to utilize so far as may be practicable.

During the last session of the Provincial Legislature a grant of \$1,000 was made to this Association, upon condition of their obtaining at least fifty acres of land from

the city. This offers substantial evidence of the esteem in which the efforts now being made are held by the Province, and it should certainly serve as a stimulus to the city fathers to take advantage of the opportunities thus offering for the advancement of the interests of this city.

During the past year the Association has sustained a serious loss in the death of our late Secretary and Treasurer, Mr. H. S. Evans. Mr. Evans was one of the earliest and warmest supporters of the Association, and he devoted much time and thought to the advancement of its interests. The Board of Management offered the following testimonial to the family of the deceased, in recognition of their respect and remembrance.

"*Resolved*, that the Board of Management of the Montreal Botanic Garden Association desire to place on record their strong appreciation of the valuable services rendered to the Association by Mr. H. S. Evans, late Secretary and Treasurer, and their deep regret at his sudden decease. Mr. Evans took an active part in the formation of the Association, and from its earliest inception, was one of its warmest and most energetic supporters. The Board of Management desire, also, to express their sincere sympathy with the family and relatives of the late Mr. H. S. Evans in their recent and most heavy bereavement, and beg respectfully to transmit, herewith, a copy of the foregoing resolution to Mrs. Evans."

The position and policy of this Association have been defined upon so many occasions within the last two years, that it seems altogether superfluous to say more in that respect. Nevertheless, it does appear necessary to refute certain statements that have been made, and once more offer a protest against efforts directed in opposition to the welfare and work of this Association. In February last a letter was received from the Secretary of the Board of Trade, requesting information relative to our organization and plans. This request was cheerfully and fully complied with, and nothing more was heard of the matter until it transpired that the Council of the Board of Trade had submitted a resolution to the City Council adverse to our interests. I shall not undertake to call in question the sincerity of the motives which prompted this action, or the means and influences by which it was taken, but attention should be called to the fact that the resolution did not express the views of the Board of Trade, but of the Council; and there is also some ground for the belief that the entire Council did not concur in it.

In order to give the citizens of Montreal an opportunity to express their views, which might serve in a measure to determine the future course of this Association, a public meeting was called last April, which proved of great interest through the discussions which took place. The proceedings were of such a nature as to lead us to believe that there is a strong public feeling favorable to the project advocated by us, and a well pronounced public sentiment, if boldly uttered, would do much towards bringing about an early realization of the object in view by this Association.

In closing, I would acknowledge the many courtesies extended to us by the press, and the services of Mr. J. M. M. Duff, who has kindly continued to act as Auditor.

Respectfully submitted,

D. P. PENHALLOW,

Director.

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Montreal Botanic Garden Association.

IN ACCOUNT WITH D. P. PENHALLOW, *Treasurer Pro-tem.*

1886—Dr.

To Cash Balance Current Account	\$ 372 41	
“ “ “ Permanent Fund.....	530 05	
“ Interest on Permanent Fund, 30th Nov.....	16 04	
		\$ 918 50
To Cash from sale of natural crops ..		250 00
To unrepresented cheque.....	1 00	
“ Cash advanced by late H. S. Evans.....	1 25	
“ “ “ “ Wm. Evans.....	8 00	
		10 25
		\$1178 75

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By expenditure Garden Account.....	\$ 119 50	
“ Rent, Fraser Institute.....	37 50	
		157 00
“ Printing and Advertising. ..		87 64
“ Clerical Work.....	30 25	
“ Stationery and stamps.....	27 50	
“ Sundry expenses	14 13	
“ Telephone rent	25 00	
		96 88
“ Balance at credit of current account deposited in Merchants Bank.....	291 14	
“ Balance at credit of Permanent Fund, Savings Department of Merchants Bank.....	546 09	837 23
		\$1178 75
Total Balance.....		\$1178 75

J. M. M. DUFF, *Auditor.*

L'ISLET HORTICULTURAL SOCIETY.

This society, impressed with the importance of introducing Russian fruits in this part of the Province, resolved to purchase trees of the varieties recommended by Charles Gibb, Esq., of Abbotsford, instead of holding an exhibition this year.

The members feel that they would fail in their duty if they did not make experimental plantations of Russian trees producing good fruits, which Mr. Gibb found growing with vigor in the cold climate of the Russian Empire.

If Mr. Gibb at his personal expense imposed upon himself the enormous work of visiting the Russian orchards and noting what varieties of fruits were profitably cultivated there; if he has published the results of his careful study, with the patriotic motive of benefitting the orchardists of Canada, should we not profit by his disinterested efforts on our behalf and make plantations of the varieties he recommends?

APPLES.

The apple crop of 1886 was abundant in this county. Windfalls and common apples sold at \$1.50 to \$1.80 per barrel, Fameuse and winter apples at \$2.50 to \$3.00.

Fameuse were generally spotted, still I remarked that they were fine and free from spots in a young orchard of 50 trees (13 years old). The trees were in soil and very luxuriant in growth, which condition was due to the treatment given to them.

Around each tree a ditch had been opened (in the spring 1884) at seven feet from the trunk and a liberal quantity of barn yard manure and ashes thrown in, upon which the sod and soil had been replaced and clover sown on top.

I believe this treatment of the trees had the effect of making them produce fine unspotted fruit, because all the Fameuse apples in the vicinity were badly spotted.

PLUMS

were abundant in this county. Blue and white Orleans delivered at railway stations sold at \$7 per barrel. One bushel crates delivered at Quebec sold at \$3 to \$4. The quantity shipped from this county must have been very great. I was on the market train I. C. Railway on Friday, September 10th, and learned from the conductor that they had taken on board 220 barrels and 64 crates of plums at St. Roch des Aulnaies, St. Jean, Port Joli and L'Islet stations.

The next day I ascertained on the Quebec market that about two-thirds of these plums had been brought there; many barrels had heated and were worthless; the crates were in the very best order and sold fast.

The producers and dealers in fruit observed that it was more profitable to both to have the plums packed in clean, new crates than in barrels.

For the last four years the Society has offered prizes for the best and most economical crates and boxes for carrying and selling fruits. Different kinds of packages brought from the States were exhibited; orchardists compared their merits, and some were induced to make plum crates like the models exhibited, in consequence of which they realized over one dollar more per bushel for plums than did their neighbors who packed theirs in barrels.

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were abundant, and sold at 90 cts. to \$1.25 per bushel. In baskets they sold at 25 cts. a gallon. We sent on trial, baskets of cherries as far as St. Pierre Miquelon, *via* Halifax, a distance of 900 miles; they were packed between layers of moss, and were delivered in good condition to the French firm, Riotheau & Fils.

To the members of the Society residing out of the County of L'Islet a premium was sent in plants: 10 Wealthy apples, or 10 Orleans' plums, or 10 Early Richmond cherries. The same inducement to join the Society is offered this year.

We sent the plants safely by mail as far as Lake Temiscamingue.

AUGUSTE DUPUIS,

Corresponding Secretary.

VILLAGE DES AULNAIES, L'Islet, Co., P. Que.

ABBOTSFORD FRUIT GROWERS' ASSOCIATION.

C. GIBB, *President.*

A. N. FISK, *Sec.-Treasurer.*

The work of our association becomes more varied in its character year by year.

We held our 9th annual exhibition at Abbotsford on 22nd September. The collection of apples consisted of 410 plates, inclusive of 55 plates of Hybrid Siberians. Many new apples fruited for the first time, *e. g.* Arabka, Steklianaka Ostrokovskaya, Longfield, Furstlicher taffelapfel, &c., &c. The season was a peculiar one; the spring unusually early, the autumn fruits unusually backward in coloring and ripening. Fameuse, St. Lawrence and apples of that type spotted very badly, and were in fact the widest failure throughout the province for many years, while Duchess, Alexander and the Russets did remarkably well; and strange to say Alexander, owing to the cool summer, was by no means the inferior eating apple it usually is, but more nearly answered the description given to it by Dr. Hogg, of London, and by the German authorities.

Of out-door grapes 96 plates were exhibited. They looked well, but few were sweet and good. When St. Lawrence apples can be left upon the tree until October 2nd, one can scarcely expect ripe grapes. After the Exhibition some varieties ripened, and yet we consider this the worst season we have had since grapes were grown at Abbotsford.

The Society also carried to Montreal a collection of 100 plates, and obtained the prize for "best county collection."

At the request of the Department of Agriculture, at Ottawa, the Society in October of 1885 sent to Montreal a collection of fruits to be preserved in liquid in glass jars, for the Colonial and Indian Exhibition in London.

At the close of the September Exhibition our best samples of apples were selected, packed and shipped to the Colonial and Indian Exhibition, and varieties not

then properly colored were sent later. From letters afterwards received we find that these samples were greatly admired in England.

The most important work of the past year was the distribution to our members of new varieties of apples, pears, plums and cherries, from Eastern Europe, an account of which is given in a paper on our experimental work read at the meeting of fruit growers at Granby on January 18th.

Shefford Fruit Growers' Association.

The Sixth Annual Exhibition of the above Association was held on the 20th and 21st of September last, and, as has so often happened on the occasion of our exhibitions in the past, we met with very unfavorable weather, the rain falling incessantly all the first day, which doubtless prevented many from a distance from bringing in their exhibits. Notwithstanding a large and very fine display was made. The Association, owing to the ever increasing size of its Exhibition, this year provided a large tent for the display of vegetables, the large hall being entirely filled with fruit and flowers. The display of vegetables and flowers was exceptionally large, and in fruit quite equal to former years, and but for the unfavorable weather already alluded to would have doubtless far surpassed any previous occasion.

Prizes to the amount of \$200 were given. In apples, the Duchess, St. Lawrence, Fameuse and Baldwin were most numerous, about forty entries in each being exhibited. The Wealthy apple is being rapidly introduced among our fruit growers, and is meeting with general favor. The Red Astrachan is generally too early for the date of our Exhibition, and the trees in this section have not proved hardy.

The Montreal Horticultural Society held their annual convention for the discussion of fruits in our town in February last, and had a very successful, interesting and instructive meeting, which cannot help but very much advance the interest of fruit growing in our community. We trust we shall again have the pleasure and profit of their meeting in this place, and if the discussion of plants and flowers could be coupled with that of fruits, I am sure it would be highly appreciated by our citizens.

J. A. TOMKINS,
Secretary Treasurer.

Missisquoi Horticultural and Fruit Growers' Association.

HON. THOS. WOOD, *President.* J. W. FERRIS, *Vice-President.*
DAVID WESTOVER, *Secretary and Treasurer.*

The proceedings of this Society have been much the same as those of previous years. The Annual Exhibition was held on September 15th and 16th. Each class of fruit, flowers and vegetables was well represented, and every section fully competed for. The season, however, was not altogether favorable, as the apple crop was less than an average one, badly affected with the "black spot," as well as considerably

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infected with the codling moth (or worm.) The aphid made its appearance in larger numbers than ever before seen upon the ends of growing twigs, more particularly, however, upon young nursery trees. The grape crop (except in favored locations) was nipped by frost a few days before it would have been ripe.

The care, culture and pruning of our orchards are subjects upon which very much is being constantly written; yet, if we may judge by the appearance of nearly every farmer's orchard, to very little purpose. To remedy this our Horticultural Societies have a good field to make their usefulness a source of profit and improvement wherever fruit growing can be followed. Nearly every part of this county is more or less adapted to fruit growing. To do it successfully as much attention and care are required as in the growing of any other crop. The location should be carefully selected, near by the house if possible, for many reasons. If the site is naturally drained much is gained, if not it should be thoroughly under-drained. Prepare the ground by deep plowing and cultivate as for any good hoed crop. Plant in rows twenty five (25) or thirty feet each way, as it will help in after cultivation. There is little difference whether planting for profit or for family use, as the one object sought for in both cases is success. A judicious selection of varieties often materially affects results. A look through adjoining orchards will often guide one in making a good choice of varieties. Do not plant too largely at first, but tend and care for what you have planted with all the intelligence you can bring to bear. Know all your trees by name each and every one of them, and learn which are best. Then if any fail, plant of those kinds that prove the best with you. Experiment with new kinds when you have good evidence that they will be an acquisition. But adherence to the course above will give good results if it is possible to grow apple trees at all. A good list of 100 trees for this county would be about as follows: 10 Red Astrachan, 10 Duchess, 10 Alexander, 15 Ben Davis, 25 Golden Russet, 25 Wealthy, 5 Fameuse, other varieties might be added after trial of these, but too many kinds are not desirable.

CATALOGUE OF THE LIBRARY

—OF THE—

MONTREAL HORTICULTURAL SOCIETY

—AND—

Fruit Growers' Association of the Province of Quebec.

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E 7	*BUIST, ROBT. American Flower Garden Directory. New York, 1854.....	D 6
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Transactions of Iowa State Hort. Soc. for 1879, '80, '82, '83, '84.
- MR. W. R. DUDLEY, Ithaca, N. Y.
Phænogamia of Cayuga Lake Basin.
- MR. W. EVANS, Montreal.
Vilmorin's Illustrirte Blumengartnerei, 1872, 1873.
- MR. CHAS. W. GARFIELD, Sec., Grand Rapids, Mich.
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- MR. CHAS. GIBB, Abbotsford, P. Q.
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- MR. S. D. HILLMAN, Sec., Minneapolis.
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- MR. S. W. JOHNSON, Director, New Haven, Conn.
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MR. J. A. LINTNER, Albany.

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MR. ROBT. MANNING, Sec., Boston.

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MR. JAS. MORGAN, JR., Montreal.

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Monographia generis eremostachys. St. Petersburg, 1886.

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Strawberries. St. Petersburg, 1878.

Currants. St. Petersburg, 1883.

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 Encyclopædia of Plants, by J. C. Loudon. London, 1829.

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METEOROLOGICAL ABSTRACT FOR THE YEAR 1886.

Observations made at McGill College Observatory, Montreal, Canada.—Height above sea level
187 ft. Latitude N. 45° 30' 17". Longitude 4^h 54^m 18^s 55 W.

C. H. McLEOD, Superintendent.

MONTH.	THERMOMETER.					* BAROMETER.				Mean pressure of vapour. †	Mean relative humidity. ‡	Mean dew point.
	Mean.	¶ Deviation from 12 year means.	Max.	Min.	Mean daily range.	Mean.	Max.	Min.	Mean daily range.			
January.....	12.18	+ 0.33	46.8	-23.6	15.5	30.0685	30.780	29.901	.355	.0797	84.1	8.1
February.....	12.22	- 3.74	44.1	-21.0	18.0	30.0850	30.638	29.187	.364	.0788	81.0	7.3
March.....	23.15	- 0.51	53.0	-15.3	13.1	29.9018	30.639	29.299	.207	.1055	76.5	16.6
April.....	44.24	+ 4.40	74.6	15.8	17.9	30.0794	30.621	29.396	.171	.2065	68.0	33.5
May.....	54.58	+ 0.40	74.2	37.3	18.5	29.8514	30.242	29.461	.193	.2953	69.7	44.0
June.....	63.28	+ 1.04	80.1	48.3	16.2	29.8846	30.216	29.296	.170	.4208	73.2	53.5
July.....	66.67	- 1.08	87.3	48.4	16.7	29.8740	30.162	29.602	.115	.4977	73.1	57.2
August.....	66.67	- 0.95	86.3	48.6	17.7	29.9043	30.297	29.533	.148	.4780	75.9	49.3
September.....	57.33	+ 1.55	82.7	34.5	15.9	30.0690	30.469	29.622	.187	.3678	75.7	39.0
October.....	46.65	+ 0.64	72.7	11.5	11.7	30.1142	30.586	24.415	.243	.2517	78.9	27.3
November.....	33.42	+ 0.63	63.3	11.5	14.7	29.9183	30.457	29.007	.310	.1500	81.6	9.4
December.....	14.21	- 4.32	41.0	-20.7	14.7	30.0616	30.713	29.176	.310	.0818	81.6	9.4
Means for 1886.....	41.31	- 0.49	.....	.....	16.0	29.9804	.....	.....	.226	.2518	75.8	33.6
Means for 13 years ending Dec. 31st, 1886.....	41.80	.....	.....	.....	.....	29.9734	.....	.....	.....	.2510	74.4	.....

MONTH.	WIND.		Sky clouded per cent.	Bright sunshine per cent.	Inches of rain.	Number of days on which rain fell.	Inches of snow.	Number of days on which snow fell.	Inches of rain and snow melted.	No. of days on which rain and snow fell.	No. of days on which rain or snow fell.
	Resultant direction.	Mean velocity in miles per hour.									
January.....	N. 74° W.	12.35	68.7	29.2	1.95	4	17.4	19	3.54	1	22
February.....	S. 69° W.	13.47	62.1	31.3	0.70	6	10.3	17	1.77	3	20
March.....	S. 80° W.	13.81	70.7	39.0	0.80	5	26.5	13	3.43	2	16
April.....	N. 82° W.	10.74	53.2	59.9	0.47	9	2.8	4	0.76	0	13
May.....	S. 67° W.	11.25	66.1	45.7	2.92	15	0.0	0	2.72	0	18
June.....	S. 46° W.	9.13	63.4	45.9	3.71	13	0.0	0	4.79	0	13
July.....	S. 51° W.	13.80	53.1	61.4	4.79	16	0.0	0	3.85	0	14
August.....	S. 83° W.	14.70	66.4	55.5	3.85	14	0.0	2	1.84	2	10
September.....	S. 60° W.	14.95	46.8	55.8	1.79	10	0.5	18	5.82	5	22
October.....	S. 60° W.	16.43	51.5	25.8	2.22	9	36.1	17	3.05	3	17
November.....	S. 65° W.	20.47	71.5	65.6	0.96	3	22.4	.....	.....	.....	.....
December.....	S. 65° W.	16.32	65.6	32.6	0.96	3	22.4	.....	.....	.....	.....
Means for 1886.....	.....	13.95	60.8	45.4	.....	122	116.0	90	38.25	16	196
Sums for 1886.....	.....	.....	.....	.....	.....	26.88	.....	.....	.....	.....	.....
Means for 12 years ending Dec. 31, 1886.....	.....	.....	60.9	46.5	27.86	133	121.6	85	39.45	16	202

* Barometer readings reduced to 32° Fah., and to sea level. † Inches of mercury. ‡ Saturation 100. § For five years only. ¶ "+" indicates that the temperature has been higher; "-" that it has been lower than the average for 12 years, inclusive of 1886. The monthly means are derived from readings taken every 4th hour, beginning with 3h. 0m., Eastern Standard time. The anemometer and wind vane are on the summit of Mount Royal. To obtain better exposure, their position was changed on June 30th. The new position is 29 feet N. E. of the old one; 57 feet above the ground and 810 feet above sea level. The old position was 30 feet above the ground, and since August, 1882, it has been somewhat sheltered from N. E. winds.

The greatest heat was 87.3 on July 5th; greatest cold 23.6 below zero on Jan. 12th; extreme range of temperature was therefore 110.9. Greatest range of the thermometer in one day was 43.8 on Jan. 25th; least range was 3.4 on Nov. 13th. The warmest day was July 5th, mean temperature 77.0. The coldest day was Jan. 12th, mean temperature 17.6 below zero. The highest barometer reading was 30.780 on Jan. 14th, the lowest 29.901 on Jan. 9th, giving a range of 1.879 for the month and year. The lowest relative humidity was 25, on Nov. 18th. The total mileage of wind recorded in one hour was 54 on Dec. 25th, and the greatest velocity in gusts was at the rate of 80 m. p. h. on Nov. 18th. The total mileage of wind during the first six months of the year, was 51,233, which is equal to an average hourly velocity of 11.3 m.; and during the last six months of the year, was 11,85, and in the last half 9.95. The increase in the wind's velocity, due to the change in exposure, noted above, is on the supposition that the average wind for the past six months has been normal—therefore 62 per cent. The resultant direction of the wind for the year—for mileage—is S. 85° W., and the resultant mileage 56,300. Auroras were observed on 42 nights. Fogs on 19 days. Hoarfrost on 8 days. Thunderstorms on 15 days and lightning on 2 days. The sleighing of the winter closed on April 8th. The first appreciable snowfall of the autumn was on Oct. 17th. The first sleighing of the winter was on Nov. 7.