

SIXTH REPORT
— OF THE —
MONTREAL
HORTICULTURAL SOCIETY

— AND —
FRUIT GROWERS' ASSOCIATION OF THE
PROVINCE OF QUEBEC,

— FOR THE —
YEAR 1880.

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CONTENTS.

	PAGE
Annual Report.....	5
The Timber Question, by James Little, Cote St. Antoine, Montreal.....	14
Forest Tree Culture, by Hon. H. G. Joly.....	20
Forestry in Canada, by A. T. Drummond.....	30
Native Plants of the Province of Quebec, by J. B. McConnell, M.D.....	37
The Export Apple Trade, by Vipond, McBride & Co.....	47
Hardy Dessert Apples, by T. H. Hoskins, M.D., Newport, Vermont.....	49
On the Maltreatment of Apple Trees, by Prof. E. W. Claypole, Antioch College, Ohio.....	53
Shipping Fameuse, by Annie L. Jack, Chateauguay Basin.....	61
Letter on Pomological Needs, by J. M. Fisk, Abbotsford.....	62
Grape Culture, by Jas. M. Hayes, Dover, New Hampshire.....	64
The Plum, by D. Harrigan.....	68
Growing Plums from seed, by Richard Spriggins.....	70
On Small Fruits, by P. E. Bucke, Ottawa.....	71
Perennial Flowers, by Annie L. Jack, Chateauguay Basin.....	81
The Cauliflower, by John Doyle.....	83
Report of Judges on Green Houses and Window Gardens.....	85
Report of Committee on Fruits for Exhibition only.....	88
L'Islet County Horticultural Society, Auguste Dupuis, Village aux Aulnais, Sec.....	91
Missisquoi County Fruit Growers' Association, David Westover, Freleighs- burg, Sec.....	94
Apples in the County of Huntingdon, by J. Scriver, M.P., Hemmingford...	95
Abbotsford Fruit Growers' Association.....	99

INDEX.

	PAGE
Abbottsford Fruit Growers' Association.....	99
Annual Report of Secretary.....	5
Arbor Day in Minnesota.....	35
APPLES :—	
Alexander.....	97
Dora (Arnold's).....	100
Duchess of Oldenberg.....	97
Fameuse.....	61
Fameuse Sucrée.....	50
McIntosh Red.....	51
Northern Spy.....	97
Northfield Beauty.....	51, 89
Ontario (Arnold's).....	100
St. Lawrence.....	97
Seedling from Grenville.....	51
Svitzer.....	50
Red Astrachan.....	97
Wealthy.....	50, 63, 89
Yellow Transparent.....	50
CRAB APPLES :—	
Bailey's Crimson.....	90
Meeder's Winter.....	52
Arnold's Seedlings.....	100
Dessert.....	49
Export Trade.....	47, 61
Maltreatment of Trees.....	53
In Huntingdon Co.....	95
Bucke, P. E., on Small Fruits....	71
Claypole, Prof. E. W., on Maltreatment of Apple Trees.....	53
Currant Culture, by P. E. Bucke..	71
Doyle, J., on Cauliflower.....	83
Drummond, on Forestry.....	30
Dupuis, Aug., Report l'Islet Co. Horticultural Society.....	91
Exhibition of the Society.....	8
Flowering Native Plants, by J. B. McConnell, M.D.....	37
Forestry in Canada, by A. T. Drummond.....	30
Forest Tree Culture, by Hon. H. G. Joly.....	20

FOREST TREES :—

	PAGE
Ash.....	27
Black Walnut.....	23
Butternut.....	25
Maple.....	26
Russian Pine.....	27
Poplar.....	28
White Elm.....	26
White Oak.....	26
Gooseberry.....	73

GRAPE, *White* :—

Allen's Hybrid.....	105, 107
Blanc d'Ambre.....	111
Bonne damme de Vignala.....	110
Chasselas (of Aylmer).....	108
Chasselas de Fontainbleau.....	109, 110
Chasselas (?).....	111
Duchess.....	104
Dempsey, No. 25.....	105
Croton.....	107
Lady Washington.....	67, 105
Martha.....	106
Niagara.....	89, 102
Palmer's Seedlings.....	106
Perl de Venise.....	110
Pocklington.....	103
Prentiss.....	89, 104
Rebecca.....	107
Ste. Marie d'Italie.....	111
St. Sulpice (so called).....	109
Sweetwater.....	110
European Varieties.....	107

Red :—

Agawam.....	116
Brighton.....	114
Catawba.....	117
Delaware.....	67, 114
Gaertner (Roger's No. 14).....	117
Iona.....	117
Jefferson.....	67, 119
Lindley.....	116

INDEX.

Red — (Continued).

	PAGE		PAGE
Massasoit	116	Harrigan, D., on the Plum	68
Northern Muscadine	64, 114	Jack, Mrs. Annie L., on Shipping Fameuse	61
Red Poughkeepsie	113	Jack, Mrs. Annie L., on Perennial Flowers	81
Salem	116	Library of the Society	120
<i>Black :</i>		L'Islet Co. Horticultural Society	91
Bailey's Seedlings	88	Little, J., on the Timber Question	14
Champion	67	Raspberries	77, 78
Clinton	64	Scriven, J., M. P., Apples in Co. of Huntingdon	95
Concord	64, 67	Secretary, Report of	5
Florence	67	Side Saddle Plant	40
Hartford Prolific	67	Spriggins, R., on Plum Growing from Seed	70
Moore's Early	88	Strawberry, Their Culture	78
Grape Culture, by Jas. M. Hayes, Dover, N. H.	64	Treasurer's Statement	13
Hoskins, Dr. T. H., on Dessert Apples	49	Westover, D., Report of Missisquoi Horticultural Society	94



MONTREAL HORTICULTURAL SOCIETY.

ANNUAL MEETING.

The annual meeting of the Montreal Horticultural Society and Fruit Growers' Association, of the Province of Quebec, was held on the 7th December last, in the Natural History Society's Rooms, the President, Mr. Cheney, in the chair.

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

The Secretary, Mr. H. S. Evans, then read the following

REPORT.

As is usual at this season, I beg to submit the following report of the Society's operations during the past year. The usual Annual Exhibition of the Society took place in the Victoria Rink on the 14th, 15th, 16th and 17th of September last, and though the financial success of the Society's show has, on two or three occasions, been greater, the Exhibition was, on the whole, a very great success, and much the largest ever held in Montreal. The number of entries this year was 1,365, against 1,061 last year, thus showing from year to year a steady and rapid increase. The amount of table-room occupied was about 6,000 square feet, against 4,000 last year. If entries continue to grow in the same ratio from year to year, the Rink, large as it is, will not be able to hold the Society's exhibits without an annex. Such a condition of affairs has been only brought about by close and continuous effort on the part of the officers of the Association for some years past.

The tables occupied by pot plants were about 900 feet long, cut bloom 100 feet, vegetables 372 feet, apples and pears 342 feet, and grapes, plums, peaches, apricots, &c., 56 feet; total 1,771

feet of table, averaging $3\frac{1}{2}$ feet wide. The handsome prizes offered by the Society for the best tables of plants drew forth three very fine ones, and as they were different in size and shape, were very attractive features in the exhibition. Mr. S. S. Bain also showed a very handsome stand of plants, but not for competition. Mr. Wm. McGibbon also showed a magnificent collection of Coleus, and both these exhibits were considered so highly commendable that special prizes were awarded by the Society. I think it will be to the interest of the Society to encourage in every way such exhibits. It is impossible for such a large building not to present a somewhat bare appearance unless there are tables of large and showy plants interspersed here and there. The decorating of the building this year, of course, helped very much to lessen the appearance of bareness; but the roof, being of such a dark colour, prevents the plants from showing out to so much advantage, as if it was white or a very pale pink. The number of plants shown by amateurs was larger than ever before. They reflected not a little credit on the growers, and in some cases carried off the prizes from professional gardeners. The department for second-class amateurs promises to be a great success, and the probabilities are that there will be a much larger number of exhibitors in that department another year. The idea was an exceedingly good one, and deserves to be enlarged upon.

The collection of cut bloom shown was not as large as might have been expected; but this was largely owing to the excessively dry weather. Of all the cut bloom shown the Petunias were probably the finest. In fact, for the quality of the flowers, they have probably never been equalled at any exhibition in this city. The show of Dahlias was poor, and the absence of our Quebec friends was very noticeable in the Dahlia sections. Trays and vials have been now provided for this department of the Exhibition, and the improved appearance of the cut bloom tables was very noticeable. The show of vegetables was magnificent, and was probably on the whole never before equalled here, either in quality or quantity. The baskets of mixed vegetables were particularly fine, and greatly admired. The competition in some of the classes was particularly keen, and the Judges stated that in some

instances, those who were not awarded any prizes at all were almost as good as those taking first prize.

Probably no feature in the Exhibition attracted more attention than the display of fruit, particularly the apples. About 1,400 plates of apples and pears were shown, grown principally in the counties of Hochelaga, Rouville, Huntingdon and Vaudreuil, though some were shown grown in the valley of the river St. Francis, near Richmond, and were fortunate enough to obtain a prize. The County of Huntingdon, however, represented by Mr. George B. Edwards, of Covey Hill, carried off both first prizes in County collections—beating Hochelaga. The collection shown was a fine one, and reflected credit on the County in which they were produced; but Hochelaga can show a larger collection than that shown this year. However, all this competition does good, and probably more has been learned of the capabilities of this Province to produce fruit within the last five or six years, not only by outsiders but by our own people, than was ever known before in the history of the country. The matter has now taken tangible shape, and though others concerned have taken up the work, this Society has been the mainspring in starting it, aided not a little by the Abbotsford Fruit Growers' Association. Some magnificent specimens of in-door grapes were exhibited by different growers, and attracted the attention of all. Two or three of the varieties, however, shown in this class did not seem to meet with general approval, on account of their poor flavor. A fine collection of out-door grapes was shown, and it is the opinion of many that more encouragement should be given to this branch of the exhibition in the shape of prizes. Persons with very limited space at their command can often grow a few out-door grapes; while to grow hot-house grapes would be altogether beyond their ability. A very fine collection of out-door grapes was exhibited by J. W. Bayley, of Plattsburgh, N. Y., and specimens of the new Niagara, Prentiss and Moores' Early grape were also shown. These are particularly referred to in the report of the Committee appointed to examine into their merits, and need not be touched upon by me further than to say that the thanks of the Society are due the senders of the fruit for

giving growers here an opportunity of seeing what it is like. The Rink was secured this year for one day longer than former years, and if the entries continue to increase from year to year, as they have done lately, it will be necessary to secure the building not only for a still longer time, but to close the entries at an earlier date. Nearly half of the entries come in on the last day, and though the Exhibition opened to the public at the time specified to the minute, with everything in perfect order, unless improved facilities are provided, it may be impossible to do so another year. The success or non-success of the Show is dependent on the smallest details being provided for. Exhibits were put in their places at the rate of about three a minute, on the morning of the day the Exhibition opened, but this would not be possible were it not for the desire, on the part of the exhibitors, to second the Secretary's efforts, and to give no unnecessary trouble.

Many of the tables at present in use are of the roughest kind, and, besides, are insufficient in number. It is imperative that, say, 1,000 running feet of tables be provided, planed, and so made that they will fit on the trestles without being nailed. A truck also wants to be provided, capable of carrying five or six of them, thereby doing away with the slow and laborious process of carrying them one by one. If this is done, and the entries closed two or three days earlier, I think it is possible to decrease the carpenter's bill one-half. There will also be a considerable diminution in the amount expended for labour, and at least one day's saving in the rental of the Rink. The bill for gas will also be much reduced, as owing to the shortness of the time between the closing of the entries and the opening of the show very much work has had to be done at nights. An ample supply of proper tables and trestles will greatly aid in this respect.

The Society's Exhibition took place during the first week of the Dominion Exhibition, and it is partly owing to this fact that the receipts at the door were so satisfactory, though falling \$433 short of the receipts during the last Provincial Exhibition, and nearly \$900 short of the amount taken in the year 1865. Two causes have contributed to this. The most attractive part of the

Dominion Exhibition was only opened during the second week, and visitors to the city were not very numerous till then, but to have deferred the Horticultural Exhibition so long would have made it too late. The Society did not receive any money from the Citizen's Committee in aid of their Exhibition, though it was certainly the most important of the minor attractions. The Association, however, incurred additional expense in decorating the building very handsomely, being fully determined that the show should be in every way creditable to Montreal. Contrary to most experiences of the Society the receipts at the door the third day were larger than on the second, which I attribute more to the excellence of the Show than anything else. The receipts the fourth day, up to the evening, were fully up to those of the third day, but having a free display of fireworks on Dominion Square; alongside the Exhibition, reduced the receipts for the evening between \$150 and \$200. If anything of this sort is done again the Society should have a couple of representatives on the Citizens' Committee, to arrange the amusements, so that the Society's interests may not suffer.

Some have suggested that the Horticultural Show should be held at the Mile-End with the other Exhibition. This, in my opinion, would completely break up the Society's large membership. People will not be at the expense of going out with their families for our show alone, and if they can see our show with the General Exhibition they will certainly not continue to subscribe to this Association. At the Toronto Industrial Exhibition there is a Horticultural display, and, of course, as far as vegetables and fruit are concerned it would be simple enough; but to move large plants in such numbers such a distance, would shake them very much, and entail large expense. More money is offered in prizes for fruit by the Toronto Association; but for plants the figures are: Toronto, \$175; Montreal, \$490; cut bloom: Toronto, \$215; Montreal, \$230. In Toronto, consequently, the show of plants cannot be a leading feature, as it is here.

While on the subject of prizes, I may state that the amount of prize-money paid this year is 50 per cent. more than the amount paid in 1865, when the Society was under different management.

The year when the largest sum was paid in prizes has been chosen for comparison. The amount of money expended by this Society in prizes for the last six years was \$5,695.25, and for the previous six years, \$4,227, being an average increase of about $37\frac{1}{2}$ per cent. for six years. Owing to the impoverished state of the Society's affairs, no prizes were offered in 1874, and none to speak of were paid in 1870.

The fifth of the series of the Society's reports has just been issued, and the Society is again greatly indebted to the Report Committee and the contributors for such a valuable addition to pomological literature, treating of fruits suited to a Northern climate. It is a matter of regret that there was so much delay in issuing it, but the \$200 due by the Provincial Government in aid of publishing the last one was only paid to the Society recently. The moment the Society were in funds to meet their other engagements, the work of publishing this one was proceeded with. Only \$25 of the expense connected with its issue has been paid so far, and it will be the duty of the Board, for the coming year, to place our claim for the \$200 before the Commissioner in such a way that there will be no difficulty in the future in obtaining it when due. A small but very good library is now owned by the Society, and, though opened to the members on two evenings of each week during the winter, very little interest was manifested in it. The expenses incurred in connection with it were \$25, beside the rent of the room.

The Society again obtained most of their Judges from a distance, and their awards were in the main very satisfactory. They were, however, unable to complete their duties till about noon of the second day. The exhibitors are so late in getting their things all placed, that the Judges are always later in commencing to make their awards than the time specified. To meet this, I would suggest that the doors of the building be locked at 1 o'clock sharp; and no plants be admitted after that time. Exhibitors should be then allowed one hour in which to put the balance of their things in their places, at the expiration of which time they should be obliged to leave the building. Two or three complaints were made of exhibits and tickets being changed after the owners had placed them; and one case was so glaring that a reward of \$25 was offered to

discover the party, or parties, concerned in it, but without success. Such proceedings are very dishonourable, and should be stamped out.

The greatest care is necessary in preparing the prize list, in order that there may be no vagueness in the wording, as to what is meant. Some general rule should also be adopted as to what shall constitute an amateur, for the guidance of the Secretary. I would also suggest that the prizes offered for large table bouquets be done away with, and the money offered for the best laid out dinner table, or something of that kind. Something novel in the Exhibition every year is required. The Society have offered prizes for the best kept green houses and window gardens, the present winter, which new departure will, I think, be very popular with the members, some entries having already been made. The fact of no gentleman's greenhouse having been opened to the members last winter has been the cause of losing several subscribers, but this will be remedied this winter. The Society should have a greenhouse of its own, and I would suggest that if the Corporation would give Dominion Square into the Society's care for a term of years, with permission to erect a greenhouse upon it, it would be greatly appreciated by the members, and the Square would be kept in a manner creditable to the city and worthy of its name. Such an enterprise as this though could only be attempted when a considerable sum of money had been raised by means of life memberships or some such scheme.

It is gratifying to be able to state that the membership of the Society has increased this year to 747, being the third largest number in its history. The receipts at the door, and for members fees, has been \$2,474.20. This amount has never been equalled before, except in 1876, when the amount from these two sources was \$3,063.14. The Society is indebted to the President Mr. Cheney, Dr. Andres, Dr. Barnes, and Messrs. Adams, Duff, Morgan and Gunning, for assistance rendered the Secretary in obtaining new members. The collection of the members' fees is the most important as well as the least agreeable and tedious part of the Secretary's work, and if more assistance was rendered by the members the labor would be much lightened, and the Society benefited.

The Society's affairs are in a good condition, in fact in such a condition that it would be able to meet all its engagements honorably, even in the face of a bad year. The financial statement accompanying this report shows a balance in hand of about \$891.31, besides which there is the plant valued at about \$800; and actually costing more than \$1,000; also the bank stock, which cost \$1,119. Two hundred dollars is due the Society for publishing the last report, which will nearly cover all indebtedness. It has been decided to hold either a Provincial or Dominion Exhibition here next year, and with proper management there is every reason to hope for the continued success and prosperity of the Association.

HENRY S. EVANS,

Secretary-Treasurer.

Moved by Dr. Andres, seconded by Mr. Whitney, that the report be adopted. Carried.

The old Board of Directors were re-elected, as follows:—Messrs. G. Cheney, Hon. L. Beaubien, Dr. Barnes, R. W. Shepherd, jr., William Evans, N. S. Whitney, Dr. Andres, Alex. Duff, and John Doyle.

THE TREASURER'S STATEMENT.

THE MONTREAL HORTICULTURAL SOCIETY AND FRUIT GROWERS' ASSOCIATION OF THE PROVINCE
OF QUEBEC, IN ACCOUNT WITH HENRY S. EVANS, SECRETARY AND TREASURER, FOR THE YEAR ENDING
30TH NOVEMBER, 1880.

CR.

To balance cash on hand, November 30th, 1879,.....	\$ 14.03	By paid Secretary's Salary for 1879,.....	\$500.00
" Government grant for 1879,.....	\$1,000.00	Secretary Cash advanced to pay prizes.....	100.00
" Government grant for Fruit Report.....	200.00		\$ 600.00
" Sundries—Loan of Coops.....	\$10.00	Witness Publishing Co., for Report of 1879.....	206.50
" " Joselyn Bros. for selling in building.....	18.00	J. Lesperance, editing Report of 1880.....	25.00
" " Old lumber sold.....	1.50		
" " Fruit Reports sold.....	70	Prizes due for 1879.....	231.50
" Admission to the Exhibition.....	30.20	Library expenses.....	11.50
" Members' fees, 725 at two dollars.....	1,450.00	Postage and delivering dodgers.....	24.90
" Members' fees, 22 at one dollar.....	22.00	Sundry Rents, Rink, Rooms, &c.....	30.00
" Government grant for 1880.....	1,472.00	Music and Decorating Rink.....	277.55
" Dividend on Bank Stock.....	1,000.00	Carpenter's Bill, Labour, Clerks, &c.....	250.00
" G. Cheney for special prize.....	48.00	Stationery, Printing, Advertising, &c.....	215.00
	25.00	Trays, Palmiting Cards, &c., (Plant).....	282.12
		Judges' Expenses and Lunch.....	66.25
		Secretary's Salary for 1880.....	91.95
		Prizes for 1880 to 30th November.....	500.00
		Sundry Accounts.....	1,245.00
		By balance cash in hand and deposited in Merchants Bank.....	74.35
			891.31
	\$4,791.43		\$4,791.43
The Society also owns three shares Bank of Montreal stock, cost.....	\$1,119.00		
Value of plant, about.....	800.00		
Cash in hand.....	891.31		
Total assets.....	\$2,810.31		

THE TIMBER QUESTION.

BY JAS. LITTLE, MONTREAL.

To R. W. Shepherd, Junior, Esq., Secretary Report Committee Montreal Horticultural Society:

SIR:—Witnessing, as I did, while engaged in the business of lumbering, in the western part of the Province of Ontario, how rapidly one extensive timber section after another was stripped of its commercial wood, my attention was necessarily drawn to an investigation of the extent and sources of supply, both in the United States and Canada, of a material so indispensable in the industries which minister to the wants and well-being of every individual, rich and poor, of our whole people, and fully realizing that the question was beyond dispute one of the most momentous that could engage the attention of our authorities and statesmen, I have been laboring, for years, through the papers and in pamphlets, to impress upon them the necessity of adopting all possible measures for the preservation of our forests from waste, destruction by fire, the vandalism of the lumberers, and, by withholding from market such portions of our timber territory as remained unsold, keeping off, as long as possible, the terrible calamity of a timber famine in the country, but without effect. On the contrary, the Governments of both Ontario and Quebec, through their Crown Timber officials, who are generally lawyers, and consequently totally ignorant of the duties they are appointed to administer, have been doing all in their power to hasten the stripping of the country of its invaluable timber resources, by throwing them on the market, year after year, without any reference whatever to the requirements of the trade, until a clean sweep has been made of every patch of timber held by both Provinces. No less than thirty-four townships in Ontario—the last the Province possessed—were put on the market some three years ago,

neither the officials nor the purchasers being, at the same time, aware that nine-tenths of the territory contained no timber of any commercial value, and the last limit held by our own Province of Quebec was disposed of but a few months ago; and this reprehensible course has been the means of stimulating production to such an extent, by bringing new operators into the field, that the foreign markets have been kept constantly glutted—the manufacturers, for several years prior to 1880, not realizing the cost of production.

Instead of being obligated, as they should have been, to cut the timber clean out of a place, the lumberers were all along allowed to run over their limits and cull out the best trees, out of which one or two logs, as the case might be, that would saw out clear lumber were taken out of each, while the greater part was left to rot in the woods, or furnish fuel to burn up the remaining timber—and thus the most shameful waste and destruction were permitted to run riot. The officials at the head of the Crown Timber Department, in both provinces, gave themselves no further trouble in the matter than that of collecting all the dues they could, their chief object appearing to be to show which party official, for the time being, could make the largest exhibit in his budget speech; while timber, of as much value—if standing to-day in the forest—as would pay off our national debt, has been lost to the country.

Referring now to the extent and condition of our timber supply of commercial value, we find that a clean sweep has been made of our oak and elm, which I had often heard spoken of as inexhaustible. That of both kinds, now reaching and shipped at Quebec, is the product of Ohio and Michigan. Our remaining supply of pine may now be said to be confined to the valley of the Ottawa, and the St. Maurice and Muskoka districts, and the question of their condition to supply our home consumption and respond to the foreign demand is one that we should look squarely in the face. We should try to arrive, as near as possible, at its actual state, and not deceive ourselves, as I fear we are doing, with regard to the amount of our forest wealth. I have no doubt many of your readers will be surprised to learn from the statement which

I here make, and that without fear of contradiction, that we have not as much pine timber, fit for market, in Muskoka and the St. Maurice together, as is cut in a single year in Michigan alone—nor is there now remaining in the valley of the Ottawa as much merchantable pine as is got out in Michigan, Wisconsin and Minnesota in two seasons' cutting. Every stream on the Ontario side has been lumbered on to its source, and, with the exception of the limits recently sold, the same may be said as respects the Quebec side of the Ottawa, and the whole territory, with the exception above referred to, has been culled over to such an extent for clear logs and square timber, that its production of the latter, which averaged, a few years ago, from 80 to 100 feet to the stick, is now brought down to from 40 to 50 feet, and to secure a raft of the latter dimensions necessitates the culling over of a large extent of territory. The larger square timber shipped from Quebec to the British markets is now got out on the south shore of Lake Superior, in the upper peninsula of Michigan, which also supplies nearly all the board-wood logs for the same market.

Our Government gives us no information with regard to the amount of lumber manufactured in the country, or of the industries in which it is consumed. They think a statement of the amount yearly shipped out of the country is all that is worth while submitting to the people. But we may, in some measure, form an estimate of its requirements in the industries of our own community, apart from that of house building and the like, by consulting the census returns of the United States, which furnish valuable and highly interesting statistics on the subject relating to their consumption. The census of 1870 reports 63,938 establishments manufacturing articles made entirely from wood, and employing 393,387 persons, and using material worth \$309,921,401. There were besides 109,512 industries in which wood is an important part, for example carriages, furniture, bridges, ships, &c., employing 700,915 persons, and using material worth \$488,530,844; 250,000 cubic of the best pine were consumed in making 20,000,000,000 matches. At least 125,000 miles of fencing were required to enclose the railways of the country, which, says Professor Sargent, could not cost less, on

an average, than \$700 a mile, one-half of which would barely represent the wood employed, or \$43,000,000, while they must take annually to the value of \$10,000,000 to keep them in repair. It required the stripping of 36,000 acres, principally pine, to burn the bricks of that year. The value of pine packing boxes in 1850 was \$1,000,000, while in 1870 they were valued at \$8,200,000, and in 1874 at \$12,000,000. The value of lumber converted into agricultural implements, in 1850, was \$8,000,000, while their total value in 1870 had reached the enormous sum of \$73,000,000, of which the forest must have furnished \$20,000,000; 34,000,000 sleepers, or thirty years' growth on 68,000 acres of the best natural wood land, or, if the sleeper is artificially raised, some 700,000 acres would be required, planted with trees solely adapted to the purpose, regularly cropped and scientifically managed to supply the railways already constructed. The census of 1872 shows 63,000 miles of telegraph, which required for their construction 1,600,000 trees, for poles; while the annual repairs call for 250,000 more. The manufacture of shoe pegs consumes annually 100,000 cords of white birch, worth \$1,000,000.

Now, when we add fifty percent to the foregoing exhibit of the partial uses of wood and its value at the present time, can we, with the utmost stretch of imagination, conceive the consequences to the community when the supplies for those industries alone, with their vast yearly increasing requirements, are cut off? The terribleness of the calamity cannot be grasped by the mind, and will only be realized when a dearth of timber takes place—a calamity which, in a comparative degree, we must share with our neighbors across the line, and although it is certain to reach us in a few short years, not the slightest thought has yet been given to the subject by those having control of our affairs—whether of one political party or the other—and our lumbermen are now in the woods, with double force, slashing away as if timber was some noxious product which it was necessary to extirpate and rid the country of as rapidly as possible. The United States Government, awake, at last, to the necessity of endeavoring to make provision against the evil day of a timber famine, have established a department and schools of forestry, and set apart a large portion

of their domain for tree planting—giving the settler a free deed of the lot he may select, on condition that he plants a certain number of acres of it in trees—and I find that over 2,000,000 acres have been taken up for settlement, on such terms, within the past year alone. But they have commenced too late. It takes a century to grow a standard pine saw log, and the expert they employed to estimate pine timber in Michigan, Wisconsin and Minnesota, which contain all they have from here to the Rocky Mountains, gives them a supply but for one-tenth part of that time, and, when we take into account that a million and a half of consumers will be yearly added to the population—their whole stock, at their own excessive estimate, will be swept away before their plantations afford timber for a hoe handle.

I have watched the course pursued by the lumberers of both the United States and Canada, and it has been reckless in the extreme. A Mr. Ward, of Michigan, is the only one among them who, it appears, is able to take a common-sense view of the question of supply and demand. While others have been slaughtering away their timber and laboring hard to get rid of it, as if of no value, he has been quietly picking up the most valuable lots, and has now secured in Michigan, Wisconsin and Minnesota, some 2,500,000,000 of feet, from which he is sure of realizing, as it stands in the woods, \$25,000,000 in five years, and double that sum within a decade, should he keep it so long. He is, besides, now turning his attention to the timber lands of Washington Territory and the South, and certain it is he will run both Jay Gould and Vanderbilt, the railway kings, a close race in the millions, and that at a comparatively insignificant outlay and with but little trouble or anxiety to himself.

The Western papers inform us that a 100 acre lot of pine was recently sold, in Western Ontario, for \$22,000, or about as much as would purchase half a dozen of farms with their buildings and improvements in the same neighborhood, and near Guelph, where pine timber on a farm lot was looked upon, a few years ago, as an eye-sore, \$1,000 were recently refused for ten trees which would not occupy half an acre of ground. Our lumberers might surely learn a lesson from these facts. It is evident that the owner of

timber land who sat quietly by without lifting an axe has been making more money than if he had been at work in the most productive gold mine. His bonanza is secured, and he will be able to realize its full value in the near future, when, from the falling off of supplies from the West, our lumberers will be called on to furnish the consumption of both white pine and spruce of New York and the Eastern States, requiring them to double their present manufacturing capacity, and enabling them to fix both terms and price.

Our average exportation of forest products for the five fiscal years from 1871 to 1875, inclusive, amounted to \$25,246,781 a year, and was largely in excess of our exportation of cereals for the same time. From 1875 to 1880 the exportation of wood goods largely fell off, which was one of the chief causes of the depression which overspread the country during that time. But when this source of revenue totally ceases, and we are necessitated to import wood for our own home consumption, and when, besides, our foreign markets are at the same time flooded with wheat and cattle from the Northwestern Provinces, reducing the price of our farm products to the lowest point, a condition in which the statesmen of both our political parties, by rushing the country into ruinous debt in the interests of the Northwest, have been laboring to place us—your readers will, I think, find but little trouble in figuring out for themselves the state of things that must then exist in both Ontario and Quebec, from such adverse circumstances.

FOREST TREE CULTURE.

BY HON. H. G. JOLY.

The European traveller who visits only the settled parts of this Province, is invariably disappointed at the scarcity and meanness of our trees. Of course, if he leaves the beaten tracks of travellers, and goes far enough into the wilderness, up the Ottawa and the St. Maurice, he will see fine timber, but, in our settlements, we can only show him, here and there, at long intervals, one solitary elm, model of grace and beauty, and the traveller will feel, as we do, grateful to the man who spared that tree.

On a warm summer's day, the Desert of Sahara, with its lovely oasis, would be suggestive of coolness, compared with our country. No trees to shade the dusty roads, to shelter the panting cattle, to set off the neat white-washed houses; only far away, hidden nearly out of sight, the patch of small neglected timber which the farmer is compelled by our stern winters, to spare from the general slaughter, as he will die, without fuel.

If every acre of ground were covered with valuable crops, one would try and get reconciled to the absence of trees, and bow to the iron rule of our age which converts everything into cash. But what a small proportion of all that ground is used profitably! We can find plenty of spare room for growing forest trees; they are not only the most beautiful ornaments to a country and the most useful product of nature, giving fuel, timber, shade, shelter, retaining moisture and a protection against droughts, &c., &c., but, considering the question from a *strictly money-making* point of view, the culture of forest trees is perhaps the *best and safest investment* that can be made.

It is rather difficult, I admit, to induce people to plant forest trees in this Province, where, for generations, they have been brought up to look upon the forest tree as their natural enemy, to

be got rid of at any cost, hacked down, burnt out of the way (for want of a better mode of disposing of it), and still troubling the settler for years with its everlasting stump, an obstacle to thorough cultivation. The children and grandchildren of the old settlers remember too well; they cannot be expected to love the forest tree, but self-interest ought to conquer instinct and prejudice. With us, land is not too valuable for forest tree culture. In Europe, where land is scarcer and more valuable than here, they plant, every year, thousands and thousands of acres in forest trees.

To those who say that our country is *too new* to think of that, I will answer that New Zealand, the Australian Colonies, India (so far as the settlement of the land by Europeans is concerned), are newer countries than ours, and they are all taking active steps towards the planting of forest trees on a large scale. In the United States, the Federal as well as the States' Governments encourage the culture of forest trees by grants of land, and money, and exemption from taxation, and powerful societies are co-operating with energy and liberality. The Government of Canada has begun by offering free grants to those who undertake the planting of a certain number of trees on the Western prairies, but I will here observe that it will require more active measures to set the people in motion, and especially the establishment of nurseries, where the people can buy young trees and seed, and the beginning of some large plantations, as an example, to show to the people, by practical results, that the culture of forest trees is within the reach of every one.

We see in the papers that the Western railways have started the culture of trees on their own account; the St. Paul, Minneapolis and Manitoba Railway is reported as having appointed a superintendent of tree culture, who has just contracted for three hundred thousand trees, and most of the roads west of the Mississippi and Missouri rivers have also begun to raise trees, in order to insure a supply of ties, and for other purposes.

How many give as their reason for not planting forest trees, that they will not live long enough to get any profit out of them. You do not hear that in Europe. Are people more selfish in

America than they are in Europe? Or is the feeling of self-reliance so much more developed in America that the people here expect the next generation to take care of itself as they have taken care of themselves? Then leave them some timber, if you wish them to have the same chance that you had. It was but a heathen who wrote, more than eighteen hundred years ago: "*Arbores serit diligens agricola quorum fructus numquam videbit.*" "The good husbandman plants trees whose fruits he will never see." But I must not drift away from my subject into philosophical considerations; it will be more to the point to show that the profits of forest tree culture are not only enormous, but that their realization is far from being delayed to an indefinite future.

I do not pretend that the whole of our farms should be planted in forest trees; that would be too absurd. Our farms are generally too large for the small number of hands we employ; there are always some odd corners, idle strips, stony or damp patches which it does not pay to cultivate; begin and plant forest trees there, suiting the tree to the nature of the soil—you will find some for every kind of soil. Once planted and fairly started, they will take care of themselves, give no trouble and increase yearly in value, in a wonderful ratio, so well expressed by the Honorable F. B. Hough, chief of the Forestry Division of the United States Agricultural Department, in the address lately delivered by him at Columbus, Ohio.

For years past, I have sought the best and cheapest mode of re-wooding our denuded lands, and have made some experiments; they have not yet been carried over a great many years and are, so far, most encouraging notwithstanding my numerous mistakes and enforced absence at the best seasons, and they satisfy me as to the correctness of the statements made by the leading advocates of forest tree culture. I trust not to be charged with egotism if I now give the results of some of those personal experiments, rather than copy or condense what has been written by others, and it will be a great satisfaction if I can induce a few to try for themselves.

In selecting forest trees for planting, the first consideration ought to be the nature of the soil where they are to be planted;

if the soil is not favorable to one kind of tree, do not waste your time in planting it there; you will find another tree that will suit the soil. After paying all due deference to soil and climate, you must be guided in your selection of a particular kind of tree: 1st. By the value of the timber. 2nd. The greater or lesser ease and certainty with which the tree can be grown. 3rd. The rate of growth.

I have tried principally black walnut, oak, elm, maple, ash, tamarack, Russian pine, and fir and poplar, and will now give some of the results:

BLACK WALNUT.—The value of that wood is so considerable (a dollar a cubic foot at the present time), and it is getting so scarce that it struck me as the most worthy of being introduced and cultivated here. True it did not grow spontaneously anywhere in the Province of Quebec, but this appeared to me no conclusive reason why it should not grow and flourish here. The lilac comes all the way from Persia, and it spreads out its leaves earlier and keeps them unchanged later than our typical tree, the maple. I did not fear our great colds, for in the West, the natural home of the black walnut, the thermometer often ranges as low as here, though for a shorter period at a time. It was well worth trying.

I procured a bag of black walnut nuts from the West in the fall of 1874, and sowed them at once; it was late in November; we had to remove the snow and break the frozen ground, but I thought the earth the safest place to winter them. They began to come up about the tenth of June following; not five per cent. failed, and they have never been artificially sheltered in any way. It would not be worth while introducing them here if they could not take care of themselves.

Of those left undisturbed where they were sown, I have not lost one; they have now had six summers' growth. I have just had some of them measured, so as to be certain of their size; the height of the four largest is as follows: fifteen feet and a half, fourteen feet and a half, fourteen feet and twelve feet, and thick in proportion. Those have not been transplanted; now notice the difference between them and those that have been moved.

In the fall of 1875, when they were only one year old, one lot were transplanted, but the soil was not favorable and they have not done well, so far; however, they are beginning to recover. In the spring of 1876 I transplanted another lot; the best are about eight feet high; and another lot last spring, the tallest of which are about ten or eleven feet. All those trees are the same age as the fifteen and fourteen feet trees; the difference in size results from the transplanting, wherefore it is much better to sow them at once where they are to remain. Plant them thick, as the wood of the young tree is rather soft, like that of our native butternut.

It is contrary to all preconceived ideas, even among those who handle timber every day, but nevertheless true, that the black walnut (*juglans nigra*) and the Canadian oak (*quercus alba*) as a rule increase much more rapidly in girth than our pine and white spruce. I conclude, from counting the rings on the trees after they are cut down, and from watching the growth of the living trees, that black walnut and Canadian oak generally gain one inch in diameter in about three years and a half, while our spruce and pine take about double that time to accomplish the same result; this can easily be ascertained by counting and measuring the rings. Of course there will be exceptions, and it would not be fair to judge by those only; I speak of the average.

It is now time to say something of the profits, and I must be careful to avoid exaggeration. Judging by the growth of the living trees and the rings of the timber, when cut, I do not hesitate to say that a black walnut, under ordinary circumstances, at the age of seventy-five years, will have attained twenty-one inches in diameter and will contain at least fifty cubic feet of timber, the actual value of which is about one dollar per cubic foot. (See for prices the *Lumberman's Gazette*, published at Bay City, Michigan, the numbers of the 26th January, 2nd February, and 2nd March of this year.)

For how many such trees, judiciously planted, will there be comfortable room on one superficial acre? It is difficult to find a regular plantation of any kind of trees of that diameter here, to help us toward a solution of the question, and the way in which

trees are scattered in the forest and their irregular size leave but a vague impression on the mind, varying according to the personal experience of each. I am not ready to answer the question at present for want of full information, and will not venture a guess, but I do not feel the same hesitation where trees standing in one single row, with plenty of room on two sides, are concerned ; in that case, trees twenty-one inches diameter would not be too close, standing at eighteen feet from one another. Take a farm three acres wide, with a road across the width and a row of black walnuts of an average diameter of twenty-one inches on each side of the road, the trees eighteen feet distant from one another, you get sixty trees containing fifty cubic feet each, three thousand cubic feet, worth, at the present price, three thousand dollars.

But it will be safer to sow the black walnut in clumps, pretty close. They will protect one another when young, and, as they grow, they can be thinned gradually. Their culture will entail little trouble, apart from the preparation of the soil, and the sowing of the nut ; the work of thinning will soon repay itself with the timber removed. The better the soil, the quicker the growth. Such a valuable tree as the black walnut deserves to be well treated. If possible, find some shelter against the strongest prevailing winds for the young plantation, a belt of older trees, or a hill. They are rather soft, like our butternut ; it is the only drawback I have found out so far, but not fatal. Even the youngest trees will get several branches torn off and very ugly wounds without dying ; they are wonderfully hardy.

The value of these plantations will increase steadily from the day when they have taken root ; they represent an ever-increasing marketable value long before the expiration of that period of seventy-five years which I have indicated—not as the limit of their growth ; they will grow for centuries, but—as the period necessary to attain a profitable size, when they can be cut down without waste.

THE BUTTERNUT grows spontaneously here ; its beautiful timber can be worked with as much ease as the softest pine ; it ranks immediately after the black walnut, and is inferior to it only in the color of the wood, which is lighter. Rubbed with linseed oil, it takes the soft, rich hue of sandal wood, and if judiciously sawn,

shows wonderful marks. I recommend strongly its culture, and will be glad to send nuts to those who will plant them, next fall, as we gather a large crop of them.

WHITE OAK.—The acorn ought to be sown as soon as possible after it drops, in the fall, as it loses its vitality rapidly, and to avoid the great check resulting from transplanting, it ought to be sown at once, if possible, where the tree is destined to remain. Its wood is tougher, and not so liable to break when young. I think it ought to grow with at least as much ease and rapidity as the black walnut; ours are rather behind, as they have been transplanted twice. The oak is so useful and valuable, and its culture so easy, that every plantation of trees ought to contain a good proportion of oak, provided the soil be not too poor for it.

WHITE ELM.—This splendid tree recommends itself sufficiently by its beauty and usefulness to dispense me from dwelling at any length upon it; it grows rapidly in a deep, damp soil. I have not grown it from seed, but by taking up young trees from a low island, where they grow in abundance. It appears to bear transplanting better than the oak, walnut or maple, and can be moved safely of a much larger size than any of those trees.

MAPLE.—If you wish to raise a maple sugary with the smallest amount of expense and trouble, go to an old maple grove in the fall; the ground is covered with a thick carpet of seedlings. After rain, you can pull them up by hand with the greatest ease, without breaking any of their small roots, if you are moderately careful. Plant them at once in a corner of your garden, about two feet apart each way; weed during the first two summers with a light hoe. We found, after four years, the trees fit for transplanting, about five feet high, and the thickness of a man's thumb. As the ground was mellow and free, we took them up with little damage. Of course, there is still the objection of transplanting, but in a less degree than when you seek your maples in the woods, where their roots are mixed up with those of other trees, stumps and stones, and must be more or less torn up with violence. There is an immense difference in the comparative cost of the two processes, which will tell upon the hundreds of trees required to make a

sugary worth working. Those small trees never fail (at all events, none of those we transplanted did), while much larger trees, more injured in the moving from the forest, die in great numbers, and the survivors are seriously checked. I have been told that the seedlings would overtake them, but have not yet had time to verify that statement. Maples will begin to yield a reasonable quantity of sap for sugar, when about twenty to twenty-five years old.

THE ASH.—It is well known, and its different varieties are found very useful, especially the white ash, which recommends itself for its elasticity; its wood is beautifully marked, and is largely employed in the making of furniture, panels, &c. It will thrive where the walnut, oak and maple refuse to grow, or only linger miserably. I remember part of a maple avenue, where, year after year, the maples had been replaced over and over and failed; at last, we had recourse to white and black ash; none failed, and they are progressing most satisfactorily.

TAMARACK will grow in damp, wet ground; we have succeeded with them where even willows had failed; the value of its timber and knees is too well known to require any comment from me.

RUSSIAN PINE (*Pinus Sylvestris*).—In making new plantations, especially from seed, it is no more trouble to try foreign than Canadian seed, and, however strange it may appear, I find it easier to procure the seed of the Russian and the Himalaya than of the Canadian Pine. One may find among foreign trees valuable additions to our plantations; such as, I think, the Russian Pine, native of the north of Russia. Our climate suits it admirably, and it appears a more vigorous grower than our Canadian White Pine. I cannot give any opinion as to the quality of the timber, as they have only been sown in the spring of 1873. They started rather slowly; and their height and thickness are less than those of the black walnuts sown two summers later, in November, 1874; but they are now beginning to take more rapid strides. I measured the season's growth of one of them last year, on the third day of July. It showed twenty-six inches in length, gained in about thirty days, as the buds of the coniferæ do not open much before the

beginning of June ; the year's growth was already over, and from that moment it only thickened and hardened into wood.

Since the growing season of our trees is so short, we ought to lose no time if we wish to help them along, by thinning, removing useless branches, mellowing the ground, or otherwise ; all that ought to be done before June, so as to afford them every chance during the growing month. I think the *Abies Nobilis* or White Fir of Washington Territory is the fastest grower among the Coniferae.

POPLAR.—I must beg the indulgent reader to listen to my plea in favor of this tree and not condemn it unheard. I speak of the kind known as Cotton Wood or *Populus Canadensis* (not to be confounded with the Balsam Poplar and the Aspen). Its growth is wonderfully rapid ; twenty-three years ago, in November, 1858, I stuck in the ground three cuttings ; it was my first trial at tree culture. They are now over sixty feet high, one is twenty-five inches in diameter, the second twenty-four inches, and the third twenty-two inches, an average of one inch a year in diameter. In every new plantation, in a country completely denuded of forest trees, and especially in re-wooding our Western Prairies, I would recommend, at the start, a plentiful use of this Poplar, without neglecting, of course, more valuable trees. It strikes at once from cuttings, which can be procured and transported anywhere with the greatest ease. Thanks to its rapid growth, it will soon enliven the scenery (as it is a handsome tree), afford shade, shelter the other trees in the plantation and supply timber, not of the first quality, but better than none, until the slower growing trees are ready with their more valuable contributions, and it can easily be cut down when the room it occupies is wanted for better trees. This poplar has been introduced from Canada into France, where it is designated as the "Peuplier du Canada," and considered as a useful and profitable tree.

I must now close this long article. The results of my experiments are nothing to boast of ; practical men would have done much better. If I had chosen the soil for the different kinds of trees more judiciously, had not left them much too long without thinning them, and been able to attend to them in the proper

seasons, I am convinced that, as a whole, they would be much finer. At all events, it shows that any one who will take the trouble, can begin the culture of forest trees without previous training. I do not speak of orchards here. Having no School of Forestry in Canada, we must educate ourselves; we have got books written on the subject by eminent and practical men, and we have got, always opened before our eyes, the great book of Nature.



FORESTRY IN CANADA.

BY A. T. DRUMMOND.

Perhaps no trade question has around it at the present time so much interest as that of the conservation of our forests with a view to the continuance of the lumber industry. This industry has once more revived, and very large demands are now being made on our timber supplies. Public attention cannot, however, be too strongly directed to the fact that these timber supplies are not unlimited. The drain which has been going on for thirty years past on the resources of our forests, has been so vast and so continued that the questions are now being forced on us—for how long a time CAN these resources be depended on, and what efforts are being made to provide for that supply being continuous? It is perfectly clear that under the present system of farming out the public lands, the time is near at hand when the supply of merchantable standing timber will not equal the demands made upon it, and it is imperative that at once means should be adopted to preserve and recuperate these timber lands. Those who are familiar with the localities—each year extending farther northward and westward—where the lumbermen obtain their logs, cannot be blind to the fact that the area in which the pine may be expected to be found of merchantable size and in fair abundance, is not so extensive but that another few years of working the timber limits to the extent done in the past, must result in a marked diminution in our exports of white pine. It is not with timber as with other agricultural products. Reproduction cannot take place in a year or a decade. It must be recollected that not until the pine is from seventy-five to one hundred years old is it of good merchantable size for square timber, and that thus at least three-quarters of a century would be required to make these timber

limits what they were. And what has been the experience in Maine and Michigan? The pine forests of both these States were thought to be inexhaustible, and gave employment to many thousands of men. Bangor, on the Penobscot, was one of the busiest spots in New England—so many mills lined the river banks, and so many vessels frequented the port for lumber. Now the scene is largely changed. The pine lumber manufactured there has fallen from 102,000,000 ft. in 1856 to 63,000,000 ft. in 1866, and to 14,000,000 ft. in 1877, whilst the total production of pine, spruce and hemlock boards was not in 1877 one-half in amount what it was in 1866. Again, in Michigan, the Saginaw Valley is being rapidly depleted, and to supplement the supply to its numerous mills, whose capacity is 600,000,000 ft., logs have to be brought from other large rivers long distances away. But most important of all is the fact that the lumber journals of the Western States admit that in the three States of Michigan, Wisconsin and Minnesota—the main sources of lumber supply in the West—there does not, with the present demand, remain of standing pine timber sufficient for ten years to come.

Even greater destruction has resulted from forest fires, not only by reason of the immense areas through which the fires sweep, but because both large and small trees are alike destroyed. Another incidental but most important result arises in the fact that after forest fires, the first growth always consists of poplar, birch and other trees, though whether the pine, which is of slower growth, gradually in the course of long years, asserts its position and overshadowing these, in turn replaces them, is a question which observation has not yet had time to settle.

Tree planting has not yet impressed itself on the people of Ontario and Quebec as an idea necessary to carry out. Hitherto, the ambition of most farmers appears to have been to clear the land as soon as possible, and to be content if enough of wood suitable for fuel and farm use is left. Whilst lumber was cheap and the supply appeared almost inexhaustible, it would not appear necessary to most land owners to provide for the future. Besides, men are selfish, and are disinclined to go to labor and expense in regard to what does not promise immediate results, the advant-

age of which they will not themselves reap. And yet if we revert to the condition of the Ontario peninsula, as it was fifty years ago, abounding in splendid walnut, whitewood, pine and oak trees, nearly all of which have been cut down long since, and when we remember the greatly increased value which, especially walnut, lumber now has, we cannot help seeing of what immense benefit to the rising generation it would be had the trees, as cut down, been at once replaced by young trees of the same species. Already many of these young trees would have been of fair marketable size. The Maine Board of Agriculture in a memorial presented to the State Legislature, very pointedly refers to the duties of individuals on this question. "Men need to be taught," says the memorial, "that we have no moral right to follow blindly an instinct that leads only to present personal advantage, regardless of widespread future evils as a consequence; that we are but tenants of this earth, not owners in perpetuity; and that we have no right to injure the inheritance of those who succeed us, but rather a duty to leave it better for our having occupied it the allotted time. Men need to be taught to plant trees and their children to plant and love them. Owners of good lands in Maine or elsewhere will in the future learn that their bleak fields, if judiciously planted with wood to the extent of 40 per cent. of area, will produce on the remaining 60 per cent. more in all kinds of crops than the whole now does or can be made to do under any other possible course of treatment. Lands well sheltered can and do produce winter wheat in Maine as well as in New England or on the new lands at the West." In accordance with this memorial, the State Legislature provided for exemption for twenty years from taxation of all cleared lands on which forest trees had been successfully cultivated for three years, and maintained in a thriving condition thereafter. Nearly all of the Northern and Western United States have in this way statutes to encourage the planting and growth of timber trees, and the effect of encouragement in this respect has in the Western States been most valuable.

Prof. Sargent, of Harvard University, tells us that "as moderators of the extremes of heat and cold, the benefits derived from extensive forests are undoubted, and that our climate is

gradually changing through their destruction, is apparent to the most casual observer. Our springs are later; our summers are drier, and every year becoming more so; our autumns are carried forward into winter, while our winter climate is subject to far greater changes of temperature than formerly. The total average of snowfall is perhaps as great as ever, but it is certainly less regular and covers the ground for a shorter period than formerly. Twenty years ago peaches were a profitable crop in Massachusetts; now we must depend on New Jersey and Delaware for our supply; and our apples and other orchard fruits now come from beyond the limits of New England. The failure of these and other crops in the older States is generally ascribed to the exhaustion of the soil; but with greater reason it can be referred to the destruction of the forests which sheltered us from the cold winds of the north and west, and which, keeping the soil under their shade cool in summer and warm in winter, acted at once as material barriers, and reservoirs of moisture."

The influence of belts of trees on local climate is, in fact, very marked. They form obstructions to and ward off, on the one hand, the cold winds from the north which would lower the temperature and, on the other hand, the parching winds which would unduly raise the temperature and equally injure vegetation; they break the effects of storms, and in the winter time cause the snow to be equally distributed over the fields, forming thus a uniform protective covering to the ground; and if generally distributed over the western prairies they will promote the more equal distribution of the rainfall, and will prevent the streams from being dried up, as they usually become after midsummer. Observing agriculturists have found that fields protected by belts' of trees yield crops much more prolific than those not so sheltered.

In our timber regions the replanting of the pines can be to some extent left to nature, but there is every reason, since the timber limits belong to the Government, and a large annual revenue is derived from them, why the Government should, especially in the lands which have been burned over by forest fires, institute a regular system of tree planting. There is all the

greater reason for this because of the fact that, after a forest fire, trees of different species from those which were previously there, usually spring up. The expense would be comparatively trifling, and certainly insignificant, when placed beside the results which posterity would derive from it. To individuals there may seem little inducement to plant pineries which may not be available to the fullest extent for towards three-quarters of a century, but governments can have no such feeling, considering that what would be done by them would be for the future benefit of the country and a source of revenue in that future as well. What the governments can and should also do is to, as far as possible, by legislation and the insertion of clauses in their leases of timber limits, prevent the occurrence of forest fires and preserve the younger trees from injury at the hands of the lumbermen. The experience which we are yearly realizing of gradually diminishing areas of timber supply and the now nearly exhausted condition of the United States pineries, make this matter a subject of pressing national importance which, if our legislators do not now take up, they will probably find twenty years hence that it is too late.

The question of tree planting must arise in our Northwest, and the sooner it is grappled with, the better for the welfare of the future millions who are expecting to people the vast prairies west of Winnipeg. In the matter of fuel alone, its importance may be estimated from the fact that there are extensive tracts of western territory where the farmers journey from ten to twenty miles by waggon or sleigh in order to obtain fuel, or where they have to rely solely on the wood train which at intervals supplies them; and such farmers are often exposed to positive suffering when extensive snow blockades take place. The prairie farmer, indeed, very soon understands the value of a belt of trees on his farm, not merely as a source of fuel and fencing, but even more as a wind-break warding off the fierce blizzards in winter, and in summer sheltering his growing crops, fruit trees and stock from the strong prairie winds which, developing into storms, cause almost every season vast injury.

It is not at all improbable that the planting of forests on the prairies in Manitoba, Dakota and Iowa, will be the solution of

that most embarrassing problem—the grasshoppers—by affording obstructions to the high winds which bring these insects from their habitats farther west, and by furnishing suitable homes for myriads of birds which would keep the increase of the grasshoppers in check.

The planting of forests will also probably solve the question of the successful growth of fruits in Manitoba and the Northwest. Fruit trees need protection alike from storms and from parching winds, and especially in our western prairie country is this necessary. It has been laid down as almost an axiom in the Western States, that the forest trees must precede the fruit trees in order to afford such protection.

In Minnesota an earnest effort has been made to encourage the planting of trees. A State Forestry Association has been organized, and annually offers premiums for the largest number of trees planted on a day in May denominated Arbor Day. It is estimated that in the spring of 1877 there were 5,290,000 trees planted in Minnesota, and of these over half a million were put in on Arbor Day. During the entire planting season of that year it is believed that about ten millions of trees were planted, and of these, that about seventy per cent. have lived.

The question of tree planting is one which should be actively taken up at once in our Northwest. The Government of Manitoba could not grapple with a more pressing subject for legislation, unless it be drainage. The greatest drawbacks against which the Northwest has to contend, from an agricultural point of view, are wet lands, scarcity of timber, and liability to high winds, and, in some localities, to summer frosts. Dakota and Minnesota have equally these drawbacks. The Manitoba Legislature has taken up the question of drainage, and active efforts are now being made in some parts of the country to reclaim the wet lands. To cope with storms and frosts seems hopeless, and yet experience has found the great value of belts of trees around each farm as affording effective shields against these. What the Government there should do is to promote Forestry Associations, and to, in every way, encourage tree planting by exemptions from taxation or by direct premiums or bonuses. Any such encouragement

successfully followed up will be returned one hundred fold in the larger and more certain crops, the store of wood for lumber and fuel created by the growing timber, the relief from the monotony of the prairie landscape through the belts of trees dotting the scene on every side, and not least, in a more contented and prosperous community of farmers.



NATIVE PLANTS OF THE PROVINCE OF QUEBEC.

BY J. B. MCCONNELL, M.D.,

PROFESSOR OF BOTANY, UNIVERSITY OF BISHOP'S COLLEGE, MONTREAL.

In compliance with a request from the Secretary of the Horticultural Society to contribute to their annual report an article on the "Native Plants of the Province of Quebec," this short paper is presented. It would detract from the interest of the subject were I to attempt to bring before you any approach to a comprehensive view of the entire flora of the Province in one paper. The consideration of the (over) three thousand species known to exist here would give scope for a number of essays under such headings as its "trees," "ferns," "grasses," "mosses," "algæ," "fungi," "lichens," &c. I propose in this instance noticing a few orders of the higher class of plants which contain some of the more remarkable flowering species. My own investigations have been confined to the district within a radius of fifty miles around Montreal; it, however, fairly represents the flora of the Province.

Many of our indigenous plants produce flowers of surpassing beauty, vieing in the richness of their hues and fragrance with the exotics that we find so much prized in our conservatories and gardens. We have the brilliant shades of violet and blue, and other tints of the cyanic series, which are characteristic of subtropical regions, while the yellow series of colored flowers found so abundantly in the tropics have here numerous representatives. White flowers increase in proportion to the other colors as we approach the Arctic regions, hence in our latitude we expect to find a large proportion of this class. Many of the more beautiful flowering species may be found in great abundance

and scattered over varied localities at the flowering period ; while others are few in number, and only discovered after much search in fields or woods. We must seek for them in diverse places; some are peculiar to marshes, pools or sluggish streams, others to dry situations and open fields. Some luxuriate in the shelter of the forest, while others reveal themselves only after patient search on the mountain's side or top. Each season of the period of vegetation has its own peculiar array of wild flowers: in April nearly all our native trees open their blossoms; we may then also find the little *hepatica* or liverwort, one of the earliest harbingers of spring, pushing its elegant blue, white, or flesh-colored flowers up through the dead leaves at the root of some tree, or even beside some lingering snowbank. May and June furnish a numerous galaxy of tender plants, which unfurl their delicate flower-buds, transforming the hitherto barren aspect of fields and woods into delightful scenes of beauty, and scenting the vernal zephyrs with their fragrance. Many require the stimulating influence of the more powerful rays of July and August ere they perfect their blossoms, while in the autumn the surface of the country is enlivened by the varied members of the order *compositae*.

The order *Ranunculaceæ* or crowfoots, which furnishes a large number of ornamental cultivated plants, has numerous indigenous representatives, a few of which may be briefly noticed.

Most of the plants of this family possess an acrid sap which is poisonous to animal life; boiling in water deprives them of their pernicious qualities; the process of drying also destroys the poisonous principle.

The genus *Clematis* is altogether ornamental and of easy culture, requiring only an ordinary soil; the plants are propagated by layers, cuttings or from the seed. We have two beautiful members, *C. Virginiana* or Virgin's Bower, and *C. Verticillaris*, Whorl leaved Virgin's Bower. The latter is a handsome climber, growing over fifteen feet in length, clinging to shrubs and trees by means of its twisted leaf-stalks; it is found in highland woods and on mountain sides. I have found it on the mountains near Lachute and on Mount Royal. It flowers in May and June; each node

has a whorl of three foliate leaves, and two large purple flowers an inch and a half in length. The other one flowers in August ; it is more common than the preceding ; it is found in hedges and thickets, climbing over fences and brush-wood ; its flowers are smaller and very numerous, arranged in clusters or panicles, and white in color ; the fruit is furnished with long feathery tails, and appears in large downy tufts resembling masses of wool. Of the genus *Ranunculus* we have some eight or ten species, all having yellow flowers, a good example of which is the common buttercup. Marsh Marigold or Cowslip, *Caltha Palustris*, is a somewhat striking plant, with large golden yellow flowers, which if gathered before they expand, are said to be a good substitute for capers ; it flowers in May, and is found in wet meadows and beside ponds and brooks, and other humid places ; it has large, smooth, roundish leaves, which in spring are in great request for greens. Wild Columbine, *Aquilegia Canadensis* has large nodding flowers, which open in May ; it grows about a foot high. The pendulous flowers at the end of the branches have their petals extended into long spurred nectaries ; they are scarlet without and yellow within, and are much embellished by the numerous descending stamens and styles ; it is found in dry soils on mountain sides, or on the sunny side of rocks. It is cultivated with the greatest ease, and is much more delicate in foliage and in the hues of its flowers, than the common blue Columbine.

Meadow Rue and Early Meadow Rue, *Thalictrum Carnuti* and *Dioicum* are handsome herbaceous plants, found in meadows and woods ; the former flowering in June and July, the latter in May ; their pleasing appearance depends chiefly on the decomposed leaves, which resemble those of Rue, Columbine, or some species of Maiden-hair ferns.

The order *Menispermaceæ* contains some 200 species, chiefly natives of tropical regions. We have one species here ; *Menispermum Canadense*, or Moonseed ; it is found in woods and hedges near the banks of rivers ; it is a climber, some eight to twelve feet in length ; it has very large, roundish, angular, shield-shaped leaves ; the flowers are small and yellow ; the root, which is perennial, has medicinal properties.

The order *Nymphaeaceæ* contains some beautiful plants, the most remarkable of which is the *Victoria Regia*, found in the waters of South America; it has leaves $\frac{1}{2}$ to $6\frac{1}{2}$ feet in diameter, and flowers a foot in diameter. Our common Water Lily, *Nymphaea Odorata*, found in ponds and sluggish streams, is a fair representation of this family. The flower is one of the loveliest to be found in any country, possessing beauty, delicacy and fragrance in the highest degree; its numerous petals are white, tinged with purple. The large, shining, green leaves and the flowers float on the surface of the water. The Yellow Pond Lily and Kalm's Pond Lily, *Nuphar Advena* and *Kalmiana*, are very common aquatic plants, found in sluggish streams and muddy lakes, easily recognized by their floating, shining green leaves, and yellow, globular flowers.

The most remarkable plant in this country is the Side-Saddle Flower, *Sarracenia Purpurea*, named after Dr. Sarrazin, of Quebec, who discovered the genus. The leaves are shaped like a water pitcher and formed by the hollowed out and dilated leaf-stalk; they have a wing-like appendage extending the whole length of the inside. They are evergreen, and always contain water with a number of drowned insects in it. They hold about a wineglassful, and are resorted to for drink in dry weather by birds. The flowers appear in June, on scapes a foot to a foot and a half high. They are one to two inches in diameter, purple colored, single, nodding, and of peculiar structure. This plant was thought by the Indians to be a specific for small pox; it has, however, little virtue in this respect. The Blood Root, *Sanguinaria Canadensis*, is a very interesting plant of woods and groves, belonging to the poppy family. The flowers appear early in spring before the leaves are fully developed; they are pure white, and of short duration; any part of the plant when broken exudes a blood-red fluid, especially the fleshy rhizome; it has large, smooth, roundish, kidney-shaped leaves. *Celandine Chelidonium Majus*, named after the swallow, as it is supposed to flower with the arrival of that bird and perish with its departure, another member of this family, is an interesting looking plant, found under fences and by roadsides; it has pale green, compound

leaves and yellow flowers, which appear all summer; it grows one to two feet high, and contains a bright yellow juice.

The plants of the order *Fumariaceæ* chiefly inhabit the temperate regions of the Northern Hemisphere. Several beautiful species are found here. *Dicentra Cucullaria*, or White Eardrop, is a smooth, handsome plant, 6 to 10 inches high; the leaves have numerous divisions; the flowers resemble in shape those of the Bleeding Heart, which belongs to the same genus, only they are smaller and whitish in color, with a yellow tinge at the summit. *D. Canadensis*, or Squirrel Corn, resembles the latter; the rhizome has a number of bright yellow tubers about the size of peas; both flower in May, and are common in rocky woods.

Another beautiful species is *Adlumia Cirrhosa*, or Mountain Fringe. It is a delicate, climbing vine twenty feet in length; its leaves are much divided; the flowers, which appear from June to September, are very numerous, arranged in pendulous cymes, and pale pink in color. It is found on rocky hills, hanging in festoons by means of the leaf-stalks from the branches of small trees and shrubs. This plant could hardly be surpassed in its adaptedness as an ornamental climber for porches, arbors and greenhouses. Glaucous and Golden *Carydalis* are two tender species found in mountainous woods and rocky shades; both have smooth, bipinnate leaves; the flowers appear from May to August; those of the former are beautifully colored with alternating shades of red and yellow; the other species has bright yellow flowers.

There are about 320 known species of violets; some 22 species have been found in various parts of the Dominion. The more common species which exist in the Province are the Hood-leaved Violet, *Viola Cucullaria*, found in low grassy woods; the leaves are rolled at the base into a hooded form; it has bright blue or purple flowers. Arrow-leaved Violet, *V. Sagittata*, has oblong, arrow-shaped leaves; the petals of the flowers are veiny, purplish blue, with white at base. Bland or Sweet-scented Violet, *V. Blanda*, has heart-shaped leaves on small footstalks; the flowers appear in May, and are fragrant; the petals are white, greenish at base, the upper and lateral ones marked with fine blue lines. Canadian Violet, *V. Canadensis*, is a larger and very

common species, often growing a foot in height; the flowers are large, appearing all summer; its petals are white or light blue, with yellow at the base; the upper ones are purple without, and marked with blue lines. Common Yellow Violet, *V. Pubescens*, has broad, heart-shaped leaves; the flowers are large, with yellow petals, the upper one marked with brown lines, the whole plant covered with soft hairs.

Staff-tree, *Celastrus Scandens*, is a climbing shrub found in woods and thickets, twining about trees, and often ascending to a great height; it is remarkable owing to the bright scarlet bunches of fruit which remain attached to the stem during the winter; the colored aril covers the capsule.

The order *Lobeliaceæ* contains some very fine flowering species. The Cardinal Flower, *Lobelia Cardinalis*, is a plant of superior beauty, found in meadows and along streams; it grows 2 to 4 feet in height, terminating in a superb nodding raceme; the flowers appear in July and August, are deep scarlet in color, and nearly two inches in length. Indian Tobacco, *L. Inflata*, is another common species in woods and fields, having small pale blue flowers; this plant is exceedingly poisonous, acting in small quantities as a powerful emetic, and produces the driveling often seen in horses in the autumn.

The order *Araceæ* contains some curious plants. We have two species of the genus *Arisaena* or Indian Turnip. Jack-in-the-pulpit, *A. Triphyllum*, is a somewhat common inhabitant of wet woodlands; the stem is an underground corn; there are only two leaves, each consisting of three leaflets; the floral organs consist of a spathe and spadix; the former is three inches in length, green without and variegated inside with stripes of dark purple alternating with green. Green Dragon, *A. Dracontium*, is somewhat smaller than the latter, having one leaf only, and the spathe is green; both have as fruit a bunch of red berries.

Calla Palustris, Northern Calla, is a beautiful plant found in shallow water and wet places; although more diminutive, it compares most favorably in appearance with, and is almost as worthy of cultivation, as the much-prized Ethiopian Calla so frequently seen in greenhouses. Our native calla grows about 8 inches high; it

has heart shaped leaves 2 to 3 inches in length, on long stalks. The spathe is about $1\frac{1}{2}$ inches long, flat and egg-shaped, clasping at the base; it is greenish yellow without and white within, opening in July. The Sweet Flag and Skunk Cabbage, *Symplocarpus Foetidus*, are other plants of this family found here. The latter is found in swamps, meadows and ditches, and is renowned for its offensive odor. The spathe appears early in spring; it is covered with purple spots, and contains the spadix covered with dull purple flowers; the bright green leaves appear later and become very large, often a foot and a half in length.

The order *Orchidaceae*, the *Orchis* family, contains a great many peculiar plants, having generally showy and attractive flowers; they are natives of almost all parts of the world, but abound in moist tropical regions where they are epiphytic, while in temperate climes they are terrestrial. The distinguishing feature of the family is the peculiar forms of the flowers, sometimes resembling such insects as butterflies, moths, bees, flies and spiders; or they have the appearance of doves and eagles, or snakes, lizards and frogs. Some of our prettiest native plants belong to this family. Showy Orchis, *Orchis Spectabile*, is found in shady woods and thickets; its radical leaves are 3 to 6 inches long. The scape is 4 to 6 inches high, and bears 3 to 5 large showy purplish-white colored flowers.

Habenaria Psycodis, or Purple-fringed Orchis, is a beautiful, smooth and slender plant, common in meadows, growing one to two feet in height. The showy flowers are borne on a terminal cylindric spike, and are light purple in color; the segments of the tip of the nectary and the petals are fringed. The finest plant of the genus is *H. Grandiflora*, Large Flowering Orchis; it grows 2 to 3 feet high, and has very large purple flowers arranged in a terminal raceme, which open in June; a number of other less attractive species of this genus are also found here.

Pogonia Ophioglossoides is another interesting plant of this family, found in swamps and on muddy shores; the stem is slender, over a foot in height, and has two remote leaves, one above the middle, the other smaller, near the flower; it is terminated by a single large, nodding, pale purple flower, which opens in June. *Calo-*

pogon Pulchellus is a truly beautiful plant, found also in swamps and moist meadows; it has a single long leaf 8 to 10 inches long, and half an inch wide; the stem bears at the summit 3 to 8 large purple flowers, remarkable for their inverted position.

Goodyera Repens, or Rattlesnake Plantain, is a somewhat rare plant found in woods, remarkably distinguished for its leaves, which are all radical and of a dark green, reticulated above with white veins; the flowers are white, in a terminal cylindric spike. The genus *Cypripedium* is distinguished for the large inflated lower petal or lip of the flower. *C. Acaule* or Acaulescent Ladies' Slipper is a striking plant, found in dark woods; the leaves are large, plaited and downy, and the scape, 10 to 14 inches high, bears one large solitary flower; the purple lip which forms the most showy part of the flower is two inches long. *C. Pubescens*, Large Yellow Ladies' Slipper, is found in woods and meadows; it grows a foot high, with several stems from the same root. The solitary flower has its greenish segments striped and spotted with purple, while the moccasin-shaped, inflated lip, is bright yellow and spotted inside. *C. Parviflorum* has much the same character, with smaller flowers. *C. Arietinum*, or Ram's-head, found in the eastern parts of the Province, is so named on account of the singular form of the lip.

The most superb plant of this genus is *C. Spectabile*, or Showy Ladies' Slipper, found in swamps; the thick, hairy stem is two feet or more in height; the leaves are 6 to 10 inches long, veined and plaited; there are two or three large flowers on each plant; the lip is two inches long, white, striped with purple; it flowers in July.

The order *Liliaceæ*, or the Lily family, is a very important one, containing some 1250 species. Many of the plants are showy garden flowers. Others possess medicinal properties, while some yield valuable fibres; some 60 species have been found in the Dominion, and about 25 in this Province.

The different species of *Trilliums* are found in abundance adorning the woods in spring. *Trillium Erythrocarpum*, or Smiling Wake Robin, grows 8 to 12 inches high, having a whorl of three ovate leaves at the top; the flower is nearly erect, having

white petals radiated with purple lines at the base. *T. Erectum*, or Bath Flower, is a conspicuous flower in woods of fine appearance, but of an intolerably offensive odor; it has a single nodding flower on an erect flower-stalk; the petals are of a dusky purple color. *T. Grandiflorum*, Large Flowering Trillium, is found in greater abundance than the preceding, and has much larger flowers; the petals are white, varying to rose-colored.

Erythronium Americanum, Yellow Erythronium, is a beautiful little plant among the earliest of our vernal flowers, found in rich open grounds or in thin woods; the two leaves are of equal length, one twice as wide as the other, and both clouded with brown spots. The drooping yellow flower is borne on a scape 3 or 4 inches high.

Lilium Canadense, or Yellow Lily, is a plant of much beauty, frequently adorning our meadows in summer; the stem is 2 to 4 feet high, having several remote whorls of leaves. The flowers open in July, 1 to 20 in number, pendulous, yellow or orange colored, and spotted with purple inside. *L. Philadelphicum* is another elegant and showy plant, found in dry pastures and fields; it grows 15 to 20 inches high, and has usually a solitary flower, which is of a deep orange color; the petals are spotted at the base, and $2\frac{1}{2}$ inches long. These wild lilies are highly ornamental, and well worthy of being cultivated.

Besides the families just referred to, a number of others, such as the *Rosaceæ*, *Leguminosæ*, *Compositæ*, &c., have numerous representatives here, many of which have pleasing and attractive looking floral organs as a distinguishing feature. As may be gleaned from the brief description given, many of our indigenous plants possess characters which render them worthy of being transferred from their native haunts to the refining influence of the garden or conservatory, where, under the fostering care of the horticulturist, their natural, modest beauties would be enhanced, and they would doubtless more readily respond to the promptings of his art than do many exotics which have to contend with the disadvantage of change of climate.

There is no subject more interesting and pleasing than the study of our wild plants; our fields and forests are vast natural

gardens teeming with innumerable specimens of variously constructed forms of vegetation, the consideration of which affords an endless and ever gratifying theme; while searching for them in their native retreats, one is necessarily brought into contact with the inspiring influence of nature in its varied aspects, and a taste for the beautiful and grand is cultivated; the contemplative mind will be subdued by the solemn and awe-inspiring grandeur of the forest, or be reanimated and inspirited; when climbing the mountain's rugged steep the varied scenery of the unfolding landscape is presented to the gaze, and while this most healthy recreation strengthens and invigorates the body, the mind may be agreeably and profitably exercised in discriminating between and classifying the various specimens collected.



THE EXPORT APPLE TRADE.

BY VIPOND, MACBRIDE & CO.

The export of Canadian apples has become so large an item in Canadian trade, and the difficulties in the way are so many, that we gladly respond to the request to give a few hints to growers and packers.

Exporting Canadian apples is a business that has grown up almost exclusively during the past ten years, and mainly during the past five years. It has never been a profitable business, for three reasons: Shipping unsuitable fruit, bad selection and packing, and shipping fruit out of season.

We will give a few words of advice on these three points. A first question is—What shall we ship? Certainly not our summer or early fall apples. A common idea prevails, that any apple that will hold here safely for several weeks is equally safe for export. Very few realize that the two weeks' stowage in the hold of a vessel is harder on apples than six weeks in an ordinarily ventilated store.

Many consider that our popular Fameuse should be a good apple to export, but, on the contrary, it is a very dangerous apple for that purpose. It seldom lands in England in good condition, or, if so, is always too soft there for business purposes.

We are at great disadvantage here in this Province for suitable apples to export. It, in reality, is an advantage, for we raise a better class of apples, and such as commands good prices for the home market. There is not much probability of growers raising too many Fameuse, St. Lawrence or Alexander apples, as they are certain to drive out imported fruit, but if our growers must grow apples for export, we would recommend Baldwins, Canada Reds, Greenings and Russets.

SPITZENBERGS are much appreciated when they can be got good. The question is not so much about the flavor of an apple, but whether it will land in good condition. Frequently, apples considered but of little value for this market, such as Canada Reds and Strawberry Pippins, because of their hardness, land in England in good condition and fetch the highest prices.

The second point is in the packing. Apples must be selected with great care and packed much tighter than if only intended for this market. Too great care cannot be taken in this respect; many lots of fine apples have been lost because of slack or careless packing.

The next point is in selecting the time for export. The past three years, apples have been exported during about eight months of each year. This cannot be taken as a guide to growers, for experience has taught that the open months of navigation in the fall are the only safe months to ship apples. Very many have been sent in winter and even in spring, but more frequently with disastrous results than otherwise, and, besides, the labor and loss of re-packing make it an undesirable season for exporting. The present season nearly 300,000 barrels of Canadian apples have been exported. Most of the lots sent in the fall realized fairly, while some paid well, but the winter business has been very disastrous, a great many not realizing the charges on the fruit, and at the present time (April) whole cargoes of apples are being sold in Liverpool for about the freight on them.

There can be no rule laid down when it is best to ship. Among dealers here it is—ship only when you cannot sell at home; but as the enormous quantity of apples now grown in this country must either be exported or allowed to rot, we cannot too strongly advocate the export of all surplus stock as soon as it is picked from the trees.

HARDY DESSERT APPLES.

BY T. H. HOSKINS, M.D., NEWPORT, VT.

But a small proportion of those who engage in the cultivation of fruit do it with any view to its sale when produced. Great numbers of our most enthusiastic growers of fruit never think of selling any of it. They give away their surplus product with as much pleasure as they grew it. Indeed the pleasure of sharing with their friends, with the sick and the poor, is often the greater of the two. It is this which constitutes the charm of fruit-growing with so many ladies, so many clergymen and physicians, and so many of those among the rich who regard wealth more as a trust than as a possession.

To those of us who make orcharding a business also, and yet are not "eaten up with business," there is perhaps more pleasure in our own special pets from which no profit in money is looked for, than in our long rows of market fruit which stand in the orchard as the long rows of cows stand in the dairyman's stable. A choice strawberry, like the Hooker or Lennig's White, a choice raspberry like Brincklé's Orange, a choice pear like Clapp's Favorite, or a choice apple like Fameuse Sucrée, take up much of our leisure time, and contribute greatly to our satisfaction.

It is fortunate for those who depend upon the markets for their fruit that at least a few of the "profitable market sorts" are also of a high, and, sometimes, the best quality. This is more true of tree fruits than of small fruits. Except at very high prices the choice grapes, strawberries and raspberries never find their way to market. Thousands of city buyers have never tasted such in their lives. But "very good" and sometimes "best" pears like the Seckel and Bartlett, apples like the Fameuse and Esopus Spitzen-

berg, and peaches like the Early York are often as accessible and as cheap as any. Let us be thankful that it is so.

It is a real satisfaction to those of us who are engaged in the struggle against nature which is involved in the extension of the culture of tree fruits northward, that quality does not decrease with increase of hardiness. Many have been inclined to believe this would be the outcome; and when the Duchess of Oldenburg came to them as the first real "iron clad," this discouraging view was strengthened. Here was a hardy apple, a large, handsome and productive apple, and doubtless a useful apple, but "tolerable" was the best verdict that could be rendered on its dessert quality. The Tetofsky was a little better, yet not enough so to prevent the conclusion from spreading, and finding expression even from so cautious a judge as Mr. Downing, that probably the whole class of Russian apples was deficient in dessert quality. Until, two years ago, at Montreal, my friend Charles Gibb and I shared the first "Switzer." I had taken this despondent view of the situation, though knowing that only a small part of the long list of Russian apples imported by our Agricultural Department at Washington had yet fruited. Since then I have grown and received specimens of several other Russians which go far to satisfy me that there are as large a proportion of fine dessert apples among them as among our native kinds. The Yellow Transparent, St. Peter's, Red Summer Calville, Zolotoreff and Grand Sultan are a few of these among the summer and fall kinds, and I have no doubt that among the long-keeping sorts others equally good will appear.

Among the new hardy apples of the North-Western States, the Wealthy stands so conspicuous for excellence, in every particular, that others have not received much notice. I think, however, that Edgar Red Streak will be found a very valuable kind; and other sorts will unquestionably come to the front in time from amongst the crowd of new seedlings which, in Minnesota, Wisconsin and Iowa, are now undergoing trial.

Canada is full of promising new seedlings. The Fameuse Sucrée seems to me to stand at the head of all dessert apples of its season for softness of flesh, juiciness, delicacy and piquancy of flavor, and aroma. Bourassa is hard to rival among russets, when

well grown, either for beauty or quality. Mr. J. J. Gibb, of Como, has sent me, late in February, a specimen of an apple of unknown origin of that vicinity, which reproduces almost exactly, in a winter fruit, the peculiar and highly admired flavor of the Chenango Strawberry or "Sherwood's Favorite." This apple is large, somewhat resembling Maiden's Blush in appearance, and deserves general dissemination in the cold north as a first rate dessert fruit.

The Rev. Robert Hamilton, of Grenville, Argenteuil County, has also favored me with a specimen of a new and unpropagated seedling of that County, which has borne but a few seasons, but judging from the specimen, it promises to be a great acquisition. It is of good size, form and color, (being well reddened), with, I think, the yellowest flesh of any apple I ever cut. It was perfectly firm the first of March, and had every mark of a long keeper. This firmness, which guarantees from loss in handling, was still not inconsistent with mellowness in eating. In this respect it was considerably superior to the Esopus Spitzenberg, (an apple in the first rank as a dessert fruit with that single exception) while it did not seem to me at all inferior to that variety in richness. Both these new apples deserve the attention of the members of your Society.

Among new Vermont seedlings of high merit, I will mention but one, which I never saw in perfection until the past fall, when several exhibitors had them at our State Fair. This is the Northfield Beauty, said to be a seedling of the small yellow Siberian crab. The fruit is large, beautifully striped with carmine on a rich yellow ground, and possessed of a delicate and delicious flavor which must give it the highest rank as a dessert fruit. As a keeper it will stand between Fameuse and Wealthy, I think. In hardiness I should also accord it the same position, along with the McIntosh Red, a Canadian apple which seems to have attracted more attention in Vermont than at home, and is highly spoken of by many of our orchardists who have fruited it the past season.

The members of your Society and other readers of its reports, who reside in those parts of the Province where the mercury sinks lowest in the winter, and who are limited at present to a few Russian sorts for their large apples, will, I think, thank me when

they have tried it, for recommending to their attention a Minnesota crab called Meader's Winter. It is of good size (as large as the Hyslop); like most crabs an early and profuse bearer, a good keeper, and really superior as a dessert apple to most of the market varieties. I have had it now in bearing for six or seven years, and nearly all who have tasted it in January and February agree with me that we have few better apples. It has a peculiarity rare among crabs of having a soft flesh. In this respect I find it much superior to those otherwise excellent crabs, Bailey's Crimson and Lady Elgin. It is also a better keeper. I think it requires a pretty good soil to develope its merits fully.



ON THE MALTREATMENT OF APPLE TREES.

BY PROF. E. W. CLAYPOLE, ANTIOCH COLLEGE, OHIO.

In this and some other parts of America with which I am acquainted, there is much complaint that the orchards are dying out. More than once farmers have asked me the reason; their apple trees, they said, were dying, though many were young and middle-aged trees of which they had hoped to gather, and should have gathered apples, for many years to come.

Now, in dealing with such a question as this, it is necessary to divide it at the outset into the many questions of which it really consists. Apple trees, like men, do not die from one cause alone. Even in the same orchard and at the same time, trees may be dying from several causes, and to one of these I wish to call attention; but it will be well to mention the others in passing.

1st. Unsuitable soil is a frequent cause of death, especially a wet clay. Even when drained such soils are not always good for orchards, but when in their natural wet condition, it is almost useless to expect health and long life in apple trees planted upon them. Worcestershire, Herefordshire and Devonshire, the great English apple counties, are composed of gentle hills and valleys underlain almost everywhere by the old red sandstone rocks. I never remember to have seen in the apple regions of those counties a single bed of clay.

2nd. All gravel subsoils are not favorable to the growth of the apple tree. In some parts of the valley of the Thames the apple tree is never expected to last more than a few years. The popular opinion is, that the tree grows until its roots reach the gravel and then begins to die. This may or may not be true, but certain it is that after a few years growth ceases and death begins.

3rd. Too hot a summer is not favorable. The south side of the tree becomes scorched before the limbs are large enough to shade it, the sap is overheated, the bark peels off and the tree dies.

4th. Too cold a winter is equally dangerous. All trees seem to have a limit of endurance of cold, though this limit is not altogether a thermometric one. One species dies of frost, which another can support and live. In general, the finer varieties are the more sensitive. Hence none but the very hardiest trees can bear the climate of Minnesota, Manitoba and Lower Canada; though the former are exceedingly dry and the last very moist.

5th. Insect enemies. The Canker Worm (*Anisophteryx vernata*) and the apple tree Borer (*Saperda candida*) are both exceedingly destructive to the orchard; the former by eating the leaves year after year, the latter by boring in the trunk. The apple tree Bark Louse (*Aspidiotus conchiformis*) and the Woolly Bark Louse (*Eriosoma lanigerum*) suck the juices through thousands of little beaks until the leaves, deprived of their sustenance, turn yellow and fall, and the tree often dies. Add to these the deadly fireblight, at present anonymous in scientific nomenclature, though from recent researches it appears to be or to resemble a *Bacillus* and we have a host of enemies sufficient to destroy an apple tree.

Apple trees die, however, when killed by none of these causes. The dying to which my attention has been often called is a slow one. It shows itself, it may be, at first at the outer end or at some part of a single limb. It kills that limb. The limb is cut off and the tree is restored to health, as is supposed. Nothing more is thought of it, but next year or the year after, or it may be even later, another limb begins to show the same symptoms. It gradually dies, the saw is brought and the operation is repeated; again the evil shows itself, and again the operation is performed, and again and again, until the owner comes to the conclusion that the whole tree will die. This has been the fate of many an apple tree in the experience of most farmers, and has been an important cause of the unprofitableness of orchard planting.

Now, even for this there may be more grounds than one, and in throwing out a suggestion in regard to it, I do not wish to at-

tribute the death of every apple tree, even in the manner described, to the cause of which I shall presently speak. I have examined many apple trees at different times and in different places, and while it is difficult to come to a positive conclusion without more experiments and observations than one man can carry on or make, yet the conviction has become stronger and stronger on my mind, that the farmer or the orchardist very frequently has himself to thank for much of the destruction that goes on in his orchard, and that it is due in no small degree to what he is pleased to call pruning. Pruning there is, but that which is dignified by the term, that which passes indeed under its name in most orchards, would be better called butchering. The man who has done a few days' work in the garden and who owns a saw is quite competent to start through the country and call at farmers' doors with the enquiry, "Any pruning to be done?" No apprenticeship or education seems necessary for this business; any one who can cut cordwood knows enough to cut apple trees, and in fact the apple trees he cuts often become cordwood before long. I have seen a man perched among the branches of a neighbor's apple trees sawing away at the limbs and cutting out the branches as recklessly as if he were lopping trees in a wood, and under pretence of letting in the sun and air, inflicting wounds on the tree from which it could never recover. If the same principle were adopted in pruning our own bodies, we should cut out the forefinger and the ring-finger of both hands, on the plea that they touched the fingers on both sides of them.

If we examine the places where this barbarous operation has been performed, we shall find the wood of the tree rough from the teeth of the saw, exposed to the action of the air. Its natural covering, the bark, has been removed, and often the wound is so large that it will never again be covered. The rough cut surface dies and begins to decay; the death and decay spread inward along the stem until the branch at the side of which the cut was made is thoroughly infected. That section of it dies. The supply of sap is stopped to all the parts above. They die and are cut off, but no notice is taken of the little saw-wound at the side from which all the trouble sprang. The next is larger, more wood is

exposed to the air and dies ; a still larger branch is infected and the same result ensues. In this way the main limbs of the tree are reached, and when this has once happened the death of the trunk soon follows and the tree is gone. The same result is sometimes caused by the accidental breaking of a limb, or the splitting of a tree under a load of fruit by the force of the wind. No matter how it happens, when the wood of the tree is exposed to the air, death and decay are almost sure to follow in no long time.

Not long ago I went through his orchard with a farmer who had been complaining to me that the trees were dying. I could not persuade him previously that he had been doing any of the mischief himself. We examined tree after tree with the same result. Going to that part which was dying, we found somewhere on the affected limb the marks of the fatal saw. Some trees were in the first stage of destruction, in some the main limbs were already affected, while others were almost dead. The examination of forty or fifty trees brought out no other result, excepting in the case of a few, where accidental injury had been done by a storm or some other cause. I have examined other orchards with the same result, and have reached the conclusion that the farmer in many cases is the destroyer of his own orchard, the murderer of his own apple trees.

It may be urged in reply that the first branch was cut off because it was dead, and that, consequently, even if the saw has aggravated the evil, something still earlier must have been its cause, but to those who know the habits of farmers in dealing with an orchard this will not appear certain. If a branch hangs a little too low so as to interfere with the ploughing—itsself mischievous enough—the saw is brought and the offender removed. Thus the train of mischief is started with results as described above.

If anyone will take the trouble to cut lengthwise a limb from which a branch was sawn off some years previously, he will generally see plain proof of the way in which the mischief is done. He will see a line of dead-wood commencing at the old saw cut and extending inward and downward toward the trunk. If the

evil is of long standing, this dead portion is often of considerable length and is well marked by its brown color, and its dryness and hardness in the midst of the soft, moist, and light colored living tissues.

Some will be ready to ask, What then; must we not prune the trees at all? I say, the less the better. Every branch taken away, every twig cut out leaves a wound; and the result to the tree chiefly depends on the size of this wound. If it be small so that the young bark can cover it and seal it up, as it were, before death and decay set in, the tree is not injured. If, on the other hand, a large, open, raw surface is left, which the sap cannot cover for years, the wood thus exposed begins rapidly to rot and the doom of the tree is sealed.

Everyone must have noticed the effort which a tree makes to heal or to cover up an old sore. Year by year the young bark encroaches upon the old exposed and perhaps dead surface until sometimes the two lips meet and grow together, entirely concealing it. After this has happened the growth of the tree proceeds just as if the wound did not exist; but it may, at any time, be re-discovered on sawing up the trunk. Indeed, such a wound as this, though covered up and buried in the heart of the tree, often has no small influence in its destruction. But if the wound be so extensive that all the efforts of the young bark are unable to cover it, decay, aided by the weather, continues, and the death of the tree is speedy and certain. It is evidently necessary, therefore, in pruning, to avoid inflicting large wounds on a tree. Indeed, if pruning were conducted as it ought to be, no instrument much larger than a pen-knife would be used. A good eye for the form of an apple tree can see its future growth while it is yet a sapling, and should, as it were, map out its development beforehand. When this is the case, a bud rubbed off with the finger here, a twig cut off with a pen-knife there, a shoot shortened back yonder, should be sufficient to control its growth. No saw, hatchet or jack-knife would ever be necessary, nor should such barbarous implements ever be employed on a tree whose life is valued.

If at any time, owing to previous miscalculation or neglect, it becomes necessary to remove a branch of any considerable size,

care should be taken that the cut is made as smooth as possible, and that the raw surface is protected from the air by some waterproof material until the bark has grown over it. Nor until this is completely done can the tree be said to have recovered from the operation. As well might we expect that a favorable result would follow the amputation of a limb of the human body where no pains were taken to tie the arteries and veins, and where the bone was left protruding, as that success should attend the ordinary operations of an ordinary gardener, recklessly hacking his trees with hatchet and saw. Though less sensitive and less quick to show consequences, the tree is no whit less alive and the mischief very little less certain in the latter case than the former.

It will be urged that wild trees suffer great injuries without dying, and though hacked unmercifully still live. This may be partly true, though a very few people take any minute account of them. But our apple trees are not in the same condition as these wild ones. They have been carefully bred for many years, and are therefore proportionally more tender. They are expected to produce at least every other year a crop of fruit which would exhaust the energies of any forest tree of equal size. They are expected to do this without manure, and, indeed, while their roots are carefully and studiously robbed of everything that is to be found near the surface of the ground by a crop such as oats, or barley. It is therefore useless to argue from the case of the wild forest tree to that of the domesticated apple; the difference in the conditions of the two trees destroys the analogy.

It will be said, moreover, that Mr. So and So and Mr. So and So have been accustomed to cut their apple trees for several years and they are still alive. We cannot admit the force of this argument; some apple trees are very vigorous and hardy, and will bear what will kill those that have not their vigor and hardihood. Some orchard soils are generous and enable the trees to recover from injuries which in other situations would kill them. Some men prune wisely and cautiously, and their trees repay them for their wisdom and caution. It is evident that a tree vigorous in growth and with a full supply of sap can cover a wound with fresh bark before the exposed wood has had time to decay. The same wound on

a less vigorous tree might cause its death. Some varieties of the apple grow freely, others slowly. The trees are sometimes exhausted with over-bearing; sometimes the season is favorable to growth, sometimes unfavorable. Wood will form at one time very rapidly on the north side, at another on the south side of the tree. In short, the variations of condition are so numerous and our ignorance of their modes of action is so great, that it is impossible to argue with certainty from any one case to another in which these conditions differ even slightly.

Another of the consequences of cutting out so much of the head of an apple tree is the forcing of the growth of water sprouts. Our trees would probably be less subject to this if they were allowed to grow in a more natural form. I do not suppose anything could completely prevent their growth; it is very common to see a wild crab tree literally choked like a thicket with them, but much might be done to check them by more careful, or rather by less careless pruning, especially in those varieties which are subject to them. The thinning out of the head of the tree lets in the light to the branches and stimulates into growth dormant buds, which would otherwise soon be buried in the wood. In this way, a forest of young sprouts is started, the cutting off of which only increases their number.

Probably the most effectual way of really checking the evil would be to allow those varieties of the apple which show a decided tendency to develop water sprouts to grow more upright and take the usual shape of a pear tree. Indeed, there seems no good reason why the apple tree should be so constantly headed down and made to branch while the pear is allowed to tower up at its own will.

It may be added to much that has been said above, that orchards in the old country often last very much longer than here. I believe this is true, though, perhaps, not necessarily or universally so. In the first place, much more care is taken in the planting of orchards there than here. The ground is more carefully prepared, and the holes are dug sufficiently large to enable the tree to grow, whereas it is often considered sufficient here to dig a small hole in the clay and stick the tree in with its roots in a

mass to live if it can, or die if it must. Tree planting and post setting are done in the same manner.

Again, it is much more common in England than here to let the trees alone after they are planted. The saw is absolutely forbidden in many an orchard over there, and if it is necessary at any time to remove a limb, it is taken off carefully, the scar smoothed over and covered with some protective and preservative substance. The most healthy orchard with which I am acquainted in this neighborhood is one in which neither saw nor axe has been used for more than twenty years. During that time scarcely a tree has died, and I have been told by the owner that his last dying trees followed very closely his last experiment in pruning.

Another reason may be added—the climate of England is less trying, the heat and cold are less intense. Transplanted from the equable climate of Western Europe to the extreme climate of this continent, it would not be surprising if the apple tree should require more rather than less care in its cultivation. The American varieties of apples are no whit inferior to those of Europe, but like other imported fruits, there is no reason to suppose that they can be permanently grown here without the same watchfulness and care that are bestowed on them there. And I think experience will show that the apple tree carefully raised, well planted and generously treated will live as long, and yield fruit as fine and well flavored, as it has ever done in its old European home.

In conclusion, I must again caution the reader against supposing that I am attributing all the ills to which the apple tree is heir to this one cause—reckless pruning. Far from it; what I have said above is more suggestive than conclusive, and I wish it to be so understood. I shall be glad to receive the experience of others in regard to this subject. The truth can only be discovered by comparing many observations made in different places, and I think a useful subject for a Horticultural Society to take up would be an enquiry into the effects upon apple trees of what is called pruning.

SHIPPING FAMEUSE.

BY ANNIE L. JACK.

Some years ago, allured by the promise of high prices, we decided to ship a few barrels of Fameuse to Liverpool, and although they reached their destination in good condition, and were consigned to commission men of well-known integrity, the result could not be called a success from a financial point of view.

The sales were from four to five dollars per barrel, but the expense of freight and other costs reduced this by one-half, which, counting in the *risk*, is hardly profitable. It* would be well for those interested in shipping Fameuse from Montreal and its vicinity, to consign the business of sales into the hands of some *one* dealer, and to send in separate consignments, so that this choice table apple may have all the advantages of successful sales instead of, as is often the case, going in with a mixed lot of inferior fruit. If growers would combine with this end in view, the Fameuse of this Province would soon win for itself, and retain, a name in the English market. An article from the *English Magazine of Pharmacy* was brought to my attention in the *Rural New Yorker*, and is worthy of attention. It says: "If soft tissue paper is soaked in a solution of salicylic acid and dried before using, and each apple enveloped in three or four folds of this paper, with the usual precautions to prevent bruising in packing and shipping, the salicylated paper assists in preserving the fruit and retaining its fresh, aromatic flavor. The paper is cheap, and it has only to be dipped once in the solution and dried." During the coming season, experiments on a small scale might be made, but in whatever way packed, the Fameuse should be a separate consignment.

LETTER ON POMOLOGICAL SUBJECTS.

ABBOTTSFORD, 13th Feb., 1881.

To R. W. Shepherd, Jr., Secretary Report Committee, Montreal Horticultural Society :

DEAR SIR :—In reply to your invitation of 31st December to contribute an article on the cultivation of the apple for the Society's next report, I am sorry to say I shall not be able, owing to my time being so fully occupied, to give the subject proper attention. And since I have received the Society's fifth report, I find the different articles on the apple so complete and to the point that I see but little to add. They are a credit to their authors and also to the Report Committee, and I wish they were in the hands of every fruit grower in the Province.

It is a pity that some one in Montreal, or elsewhere, would not collect statistics of the apples imported into this Province; also our exports to England and elsewhere, stating the varieties imported and exported, that apple growers might know what the trade demands both for home consumption and for export.

The weak point of the list of apples for this Province is our lack of profitable long-keepers, as shown by Dr. Hoskins' paper in the Society's last report. There are two sources from which this blank possibly might be filled. First, from our native seedlings, and now that there are several Fruit Growers' Associations organized in different parts of the Province, if each Society were to offer large prizes for the best peck of apples grown by exhibitors and shown in June, we should soon know if there were among our seedlings any late keepers worthy of propagation. Secondly, this blank might be filled by hybridizing, and if we only had a few men as persevering as Mr. Charles Arnold, of Paris, Ontario, crossing varieties with a view to the special needs of our severe climate, who knows what might be the result? Through this means a late keeping apple might be produced of good size,

color and flavor, and combining with this, hardiness and productiveness of trees, and also another point, I was going to add, which is very essential in this climate, and that is a tree that naturally requires but little pruning. It is a fault with many of our most popular apple trees, that they need much pruning. It is so with Golden Russet, Pomme Grise, Northern Spy, Jonathan, *our* Late Strawberry, Red Astrachan, and I might add Fameuse and others; while Duchess of Oldenburg, Tetofsky, Peach, Winter St. Lawrence, Alexander, Wealthy, Canada Baldwin and others will do with much less pruning, and consequently are better adapted to our climate, and as a rule will be less liable to disease, and longer lived.

I am pleased to see the Wealthy so favorably spoken of. As far as my experience goes, I endorse all that has been said of it in the last report, and have no doubt but that it will supersede Fameuse in many parts of the Province where that variety lacks hardiness, and also where it has a tendency to "spotting" of its fruit.

Here, too, is another opportunity for some scientific fruit grower to distinguish himself in a good cause, by finding the cause and providing a remedy for this "spotting," which is such a tax upon the fruit growers not only of this Province, but of the other Provinces and States as well.

I have already written a longer letter than I intended, and I hope your Committee will excuse me for not writing an article, as I am quite sure there are others who would do the subject more credit than I possibly can. Yours truly,

J. M. FISK.

GRAPE CULTURE.

BY JAMES M. HAYES, DOVER, NEW HAMPSHIRE.

I commenced the culture of grapes in the year 1865, and since that time I have purchased and planted many of the new varieties that have been introduced, that by reading and observation I could find were of any value to cultivate. At that time what is known as the "grape fever" was at its height in this country, and everybody with a square rod of land was planting grapes. The Concord, Hartford Prolific and Delaware had already become well known, and their many good qualities had produced much enthusiasm with fruit growers; so much so, that it was impossible for propagators to raise plants enough of good quality to supply the demand, and as a consequence thousands of worthless vines were set by planters which flourished poorly, and were the cause of many becoming disgusted with grape culture.

Then new varieties were introduced, and by the aid of printer's ink were puffed as having superior qualities to any previous introductions. It was about this time that Dr. Grant, of Iona Island, New York, brought out the Iona and Isabella, which made quite a sensation, each of which have failed to meet the expectations of those who have invested in them.

My first vines planted were Clinton, Concord and Northern Muscadine, each of which are fair varieties. In planting vines I followed the direction of the authorities, made a deep border for the roots, filled it with manure, bones and refuse matter, and weekly during the growing season gave them a good drenching of soap-suds or liquid manure from the barn-yard, and when autumn came gave them the *regulation* pruning, cutting the new wood back to one or two eyes. I also built a high board fence to protect the vines from the north and northwest winds. All of these methods I obtained from the best authorities on

grape culture, but in the course of fifteen years I have found that the rules laid down will need much modification owing to locality. In fact, all who write upon fruit culture should give their *latitude and longitude*; they should also state the nature of their soil, whether it be light or heavy. In the part of the State where I reside, the ocean has considerable influence over the climate, and my soil is a heavy clay, hence grape vines are subject to mildew and rot, while I should judge from what I have observed, that the climate of the Province of Quebec is not so moist, and vines would not be troubled with mildew and rot as here. Having found that all that was written and recommended in this matter could not be depended upon, I experimented for myself and found

1st. That deep borders were not required in cold countries; that the nearer we keep the roots to the top of the ground in such localities, the better it will be for the vines; planted in this manner, and annually manured from the top, they will succeed better than in a rich and deep border.

2d. That the close pruning at first recommended will not do so well for our rampant American varieties; that they are not so far removed from a state of nature as European varieties, hence they cannot be kept within so close limits. Experimenting somewhat in this direction, I found that in this locality a different system, styled the "renewal," with an *intermixture of common sense*, was the best. If I was to give a rule in the fewest words, it would be this: "Cut away all the old wood possible, and retain the new;" enough, at least, to cover the trellis, but not so thick as to exclude the air and sunlight when the foliage is on.

3d. The building of fences or setting out evergreens for wind-breaks or shelter, so that the vines will be protected from cold winds, and cause the grapes to mature earlier. Upon this point in grape culture I am not as yet fully persuaded, but in a majority of cases in this locality, I think such protection detrimental than otherwise, as the vines here require a free circulation of air to prevent mildew and rot. Farther north and in a drier climate, such protection I have no doubt would be found beneficial.

4th. The winter protection of vines with some covering, either

earth, refuse litter or evergreen boughs, I have found both beneficial and necessary here, as some seasons we have but little snow, and then if the thermometer sinks—as it often does—fifteen or twenty degrees below zero, we shall lose such varieties as Rogers' Hybrid, Delaware and Iona. I have found a covering of earth of a few inches all that was necessary, and as this is always at hand, it is the best covering to be had.

5th. Next in order is varieties to plant; the list is a long one from which to select, and will be difficult for the novice to decide from. I have at present under cultivation Allen's Hybrid, Blood's Seedling, Delaware, Iona, Creveling, Clinton, Concord, Lady Mallard, Brighton, Massasoit (Rogers No. 3), Martha, Elsinburg, Northern Muscadine, Dracut Amber, Hartford Prolific, Merrimack (Rogers 19), Perkins, Janesville, Lindley (Rogers 9), Telegraph, Worden, Adirondac, Salem, Walter, Eumelan, Black Hawk, Cottage, Champion, Florence, Ives' Seedling, Conqueror, Rogers 33, Barry (Rogers 43), Belvidere, Wilder (Rogers 4), Challenge. I did not plant this list with the expectation that they would all be profitable, but rather with the view of finally getting a variety that would combine all the qualities necessary for northern cultivators. I should not think of recommending such a long list for general cultivation, for I believe with Mr. William Graham, in his article on grape culture in the Fifth Report of the Montreal Horticultural Society, that: "It is idle growing a great number of varieties, and folly rushing heavily into every new introduction." What we should be pleased to see in this vicinity would be a grape as hardy and strong a grower as the Concord, as good as the Delaware, and as early as the Champion; when we have arrived at this point in the improvement and perfection of our native grapes, we shall have attained a position where it will be safe to plant vineyards at the North. One other point in our experience is that the hybrid grapes, or those that contain foreign blood, are more subject to mildew than native varieties. This would seem to prove that we must look for success to the native varieties. It was with surprise that I read, in the Montreal Horticultural Report, of the successful culture in the Province of Quebec of quite a number of varieties of

foreign grapes, such as Sweetwater, Chasselas, Hamburg and Muscat. I had been led to suppose that all the European varieties were a failure in North America east of the Rocky Mountains. If I were asked to furnish a list for general cultivation at the North from my standpoint, I should place Concord first on the list, because it is the most uniformly successful of any of the grapes yet introduced; its great lack is earliness. Delaware is the finest native (?) grape raised, and should be in every collection, although the vine will need more culture than Concord. Also Hartford Prolific, the chief merit of which is earliness. Of the newer sorts Brighton is fine, and the seedlings of Mr. Rickett's Lady Washington and Jefferson are good grapes, I have no doubt, but of the hardiness of the vines I cannot speak. The Champion and Florence, for extreme earliness, will prove good for northern localities.

I still have faith in grape culture, and hope that our neighbors over the border will continue in the good work, for it would seem from a perusal of their Report that they are somewhat in advance of us in vine culture.



THE PLUM.

BY D. HARRIGAN.

The poor plum, a true figure of the child of nature, will subsist on its meagre fare a whole lifetime without a murmur. It will thrive and flourish on the northern slope of Mount Royal after braving the Arctic wave during winter, just as well as in the sheltered valley of Sherbrooke street. I do not know of any fruit tree that requires less care than the plum; it will grow in moderate soil much better than in very rich soil.

The plum is very easy to propagate; it produces its own kind either by its fruit or by offshoots, commonly called suckers. Grafting is artificial. I prefer those suckers, taken from a selected seedling for planting, to grafted trees. I have always observed that grafted or budded plum trees are of short duration; whether owing to the climate or not, I cannot say. About twenty years ago I kept a small nursery; I planted several seedlings of the Green Gage variety; I sold some and planted a few myself. All my varieties of grafted trees, after the first or second crop of fruit, died off. My seedlings are bearing these five years, and look healthy. Therefore, if any effort was made to grow this fruit in any quantity, I certainly would recommend the planting of seedlings. When I say seedlings, I mean both from seed and suckers. They will produce the same identically, and sometimes in an improved state, to the fruit of the parent stock. Cherries will do the same. Some people, perhaps, will say it would be too long a time to wait for, to have fruit. I say it is better to have patience than to be disappointed. Suppose you purchase a grafted tree for seventy-five cents or one dollar, three years grafted, you will have to wait from six to nine years for a return. You get, perhaps, one gallon of plums; sometimes not half that. Your tree is gone, if not immediately, next time for certain. This is my own experience.

Others will ask, "Do plums pay?" How could they pay, when we have not a sufficient quantity to sell? Where there is a family, they want a little nursery at times. But supposing they did not pay much? It costs a mere trifle to grow them.

Perhaps there is no city in North America of the size and wealth of Montreal with so scanty a supply of this magnificent fruit. Some forty years ago there were a good many grown for the market. I sold plums from forty to eighty cents per gallon. I cannot understand why there is not a greater exertion made in behalf of this fruit. It takes but a very small space to grow a dozen of trees. They can be planted in a small garden by the boundary fence, three feet from the fence, by seven feet in the line. The ground occupied by them may be planted with beans, or sown with spinach. The only difficulty is to preserve the fruit from that mischievous insect (*curculio*); this creature plays the mischief with the fruit some years. But it should not discourage any one from planting the plum. Something may be discovered yet, that at least would retard the ravages of this troublesome insect. The hellebore was discovered to kill worms on small fruit; Paris green for the potato beetles.



GROWING PLUMS FROM SEED.

BY RICHARD SPRIGINS, MONTREAL.

Every fruit grower would find it profitable and advantageous to grow plums from seed, for it is the only method of obtaining fine varieties and hardy trees suitable for the climate, and some of the best, most prolific and hardy kinds now grown in this locality were grown from seed by a gentleman in Montreal a number of years since. In growing for fine varieties, the stones of the finest kinds only should be sown; and the stones should never be allowed to get dry, but be sown immediately after the fruit is eaten. It is advisable to have a bed prepared in the garden ready to receive the seed as the fruit is used or obtained (and never sow the stone with the flesh around it); the bed should be about 3 feet wide and any suitable length, and the seed should be sown in drills about 18 inches apart and about $2\frac{1}{2}$ inches deep; some of the plants will come up the following spring, and some will most likely be 2 years in coming up. They should be allowed to grow 3 years in the seed bed, and when they are in leaf in the summer, the plants with the finest leaves and wood should be marked, and at the proper season transplanted in rows in convenient places for fruiting; and if care has been taken in selecting fine varieties for seed, and the most likely looking plants from the seed bed for fruiting, the grower will be well paid for his trouble. The common looking plants left in the seed bed, after selecting the best for fruiting, can be used for stocks for working fine varieties upon.

ON SMALL FRUITS.


BY P. E. BUCKE, OTTAWA.

In this northerly climate, where the large fruits are either difficult or impossible of growth, it is a grand thing to be able to fall back on what are called the small fruits, and to know that with these, at all events, we are sure of a crop if we only look after the plants and bushes, so as to see that they are carefully cultivated and guarded from their insect enemies.

The fruits best adapted to our latitude are the red, white and black currant; the red, white and black raspberry; the different varieties of the strawberry, and all the early ripening varieties of the grape; that is, those which ripen earlier, or as early as the Concord. The only small fruit that is a dead failure is the blackberry. All attempts to bring several different varieties through the winter by protection have proved almost unsuccessful. The Wilson's Early is probably the best to practise upon. Some amateurs may succeed with a few plants of this variety, as they are thinner in the stem and consequently more pliant, and therefore not so apt to be broken when they are being covered with earth. Considerable experience, however, would lead us to warn parties not to have anything to do with this fruit so far from the equator.

THE CURRANT.

Of the currant there are three varieties, red, white and black, which vary considerably in foliage and fruit and the time of ripening. The best crops can only be obtained by what is called "high farming;" that is, by the application of lots of manure. Any one who wishes to make the experiment will find that it is as easy to choke a dog with melted butter as it is to kill the currant plant with stimulating and invigorating composts.

Propagation.—The usual way of multiplying plants is by cuttings; the present year's growth should be removed in the autumn after the leaves have fallen, and tied in parcels of about fifty in each, cut to the proper length of about eight inches long. These cuttings should be bound together with a wire—string is apt to rot—and buried in the ground until spring. During the winter the callous will have formed at the end of the cuttings, and this will enable them to spring into life much more rapidly than those taken off after winter has passed. To start the cutting, a line should be stretched over a well pulverized, rich piece of soil, and a trench should be opened by placing the back of the spade against the line and throwing on the earth, making a cut like a V. The cuttings should be laid along this grip about four or six inches apart, say six inches under ground and two above. The earth should then be raked in, half filling the trench; the earth should then be firmly pressed against the base of the cutting. This is usually done with a piece of slab or board five feet long and two inches thick, cut square across the lower end, and rounded up to a handle:  the rest of the

earth is then lightly raked in. The only thing to be done during the rest of the summer is to keep the ground clear of weeds; this is best done with a long toothed steel rake, which also stirs the soil and keeps it from baking; when the soil is loose, all rain is absorbed and does not run off.

When the young bushes are two years old they should be planted out into a thoroughly well enriched piece of ground six feet apart, in rows six feet from each other. In pruning currant bushes they should be kept moderately open; the red and white bear best on two and three year old wood, never on one year old; and for this reason a few suckers should be allowed to grow up each year, and the four year old stems should be removed with the knife. A stool of six bearing stems with three suckers would be about the correct thing for a model plant, but circumstances will frequently remodel the ideal in all bush and tree culture.

The Black Currant bears on last year's wood, or on young spurs produced on old bushes; in pruning, therefore, care must

be taken to cut out the old wood and keep a good supply of young stock coming forward. It is not advisable to grow either the white, red or black varieties on the single stem for many reasons, but the principal one is that, as they are often punctured by borers, the plant would be destroyed if the single cane was attacked.

The Champagne Currant is evidently a cross between the red and white; the bush and foliage resemble these, and the berry is of a pretty light pink color. There is no special excellence about this variety to recommend it.

Varieties chiefly cultivated are :

Red.—Red Dutch, Victoria, Cherry, Versailles, Prince Albert.

White.—White Grape, White Dutch.

Black.—Black Naples, Lees' Prolific.

The three largest varieties are Red Cherry, White Grape, and Lees' Prolific (black); but it is quite astonishing the difference good and clean culture has on the size of the fruit of any of the varieties mentioned. High cultivation also makes the fruit jelly much more readily than the small, half-starved berries.

THE GOOSEBERRY.

Five years ago the American varieties of this fruit were probably the most profitable of the small fruits that could be produced on any suitable piece of soil. These have the great advantage over all the other small fruits in having a long season, during which they can be disposed of, as they are not easily spoiled; if not sold immediately, they are placed on the market. Before reaching full growth, this fruit is much prized for tarts and stews; later on it is suitable for canning, and during its ripe and half ripe state it makes an excellent preserve, probably one of the richest of any fruit known; its delicate acid always giving it a palatable taste. For this reason, unlike any other of the small fruits—if, perhaps, we except the cranberry—it never turns out that dead sweet so much enjoyed by the youngsters, but not always agreeable to persons of more mature years.

It is very unfortunate that, with the exception of a small patch here and there, the European varieties, which enjoy such an enviable notoriety in their native climate, are wholly unsuited for general culture on this continent; we therefore have to forego for the present this excellent and healthy berry as a desert fruit. Probably the time may come here, as well as in Europe, when our native seedlings may rival in size those of the mother land, which have been brought to their present perfection by the greatest possible care and high culture, and by raising seedlings from the finest berries produced.

The gooseberry is usually put up in its green state in quart and half gallon glass air-tight jars, with a quarter pound of sugar to a pound of fruit, and in this way gooseberry tarts are in season whenever thick cream can be had to accompany them.

Propagation.—This may be done by cuttings similar to the plan described for currants, but the native varieties throw out long weeping branches, which root whenever they touch the ground, so that, unless a large number of plants are required, they multiply very rapidly in the above way. This plant is great on the sucker, and if the plants are earthed up these will strike root, and in this way new plants may be indefinitely produced.

Plants may also be readily raised from seed. These take three years to make a good bush, if the soil is thoroughly enriched. The berries, like all other small fruits, should be rubbed in dry sand when ripe to separate the seeds, and the sand and seeds mixed should be sown in drills in a rich seed-bed; the plants will readily make their appearance during the following spring.

The gooseberry, like the currant, should be planted six feet apart each way, and be pruned to from four to six main bearing stems; these should be trimmed quite bare to ten inches or a foot from the ground, and the plant kept free from suckers. It will require a sharp knife and a gloved hand to remove them, and the bushes should be gone over about three times each season for this purpose. A couple of young shoots should be grown each year, as age destroys the bearing capabilities of the bush, and they require to be renewed about every three years. Care should also be taken to shorten the drooping branches to prevent

their taking root. The ground should be gone over every three or four weeks with a long toothed steel rake, to kill all weeds and to keep the ground stirred to prevent any moisture that falls from running off the ground into the surface drains. An annual application of good strong manure is requisite for a full crop. The best to apply is night soil, previously mixed with dry mould or peat. This compost should lie for six months or longer in a heap, which should be turned over once or twice, so that it is thoroughly mixed. Manure made up in this way is best kept under cover. No obnoxious odor will be experienced. A wheelbarrow full of this to every four plants will give a good dressing. The gooseberry plant is perfectly hardy, and no injury from frost need be apprehended.

Varieties.—Houghton, Downing, Smith's Improved.

THE RASPBERRY.

The several varieties of this fruit now in cultivation have originated from the *Rubus Idæus* (European), *Rubus Strigosus* (Native Red), and *Rubus Occidentalis* (Black Raspberry). These have been improved by selection of plants, by seedlings, and by hybridization, either natural or artificial. It is not our intention to enter into the various modes of producing new and valuable fruits, as that would occupy too much space and would require a long chapter in itself; we will take only the results already arrived at.

A good deep loam well underdrained is the best soil for the raspberry, but either clay or sand, by being thoroughly enriched, will produce good fruit if properly cared for; but there should be no half measures, either with regard to a deep working of the soil, or a thorough manuring of the plants, if the best results are to be looked for.

The plants should be set two feet apart in the rows, and there should be six feet between these, which will give space for laying down canes in winter and going between the plants with a wheelbarrow to manure and mulch them.

The work of planting, if done on a large scale, should be performed in the spring; the canes cut down to four inches

long, so as to give a convenient handle for setting them in position. After they are planted, in which care should be taken to spread the roots naturally, the ground should have six inches of mulch—long strawy manure—spread evenly all over the ground, plants and all; and if the season is dry and water handy, no harm will be done by giving the plants an occasional drink; both the raspberry and strawberry are fond of water.

This plant is produced by suckers, and if a large piece of ground is required to be set out from a few well established bushes, the plants should be cut round with a sharp spade, say nine inches from the stool, and this will induce the growth of young plants wherever the roots are severed. The raspberry may be transplanted at any time during the year, whether in full leaf or otherwise, if a good spadeful of earth is raised with the plant, the hole in which it is to be deposited having been previously made. The writer usually fills up gaps in the row with present year's young plants during the month of August, and finds they succeed better when they have time to take hold with their roots before the season's growth has fully ended.

The black varieties do not throw up suckers further than sufficient for next year's bearing canes, but are propagated by the tips of the present year's growth heading down to the ground to where they take root. To induce rooting when a supply of plants are required the ground should be kept free from weeds and loose with the rake, and if extra precaution is necessary, the tips of the cane should be weighted down with small pieces of sod turned upside down. These root tips are severed from the parent cane and planted out in spring, and the bush from them bears fruit the next year; after planting, gardeners usually send out one year old plants, but the tips can be obtained when ordered. In no case should raspberries be allowed to bear fruit the year they are planted, as the bearing process is very exhaustive, and the young plants are not equal to giving fruit and producing suckers for next year until the plants are thoroughly established.

Pruning.—Although the root of the raspberry family is perennial, the canes are biennial; the first year they grow up, the next

year bear fruit and die. Hence, as soon as the bearing season is over, the wood which has fruited should be removed, cutting close to the ground, so that the old stumps will not interfere with the young canes which are to fruit next year. Writers on raspberry culture always make a strong point about pinching canes when from two to three feet high, so as to make them branch. The writer can see no object in this, as a close observation will show that the best bearing wood is produced from dormant eyes which start from the main cane during the spring of the fruiting season. And if the canes are pinched it induces these eyes to burst and only weak sprouts are obtained, with weak dormant eyes. Our rule is to prune after the leaves fall, leaving the canes from four to six feet long, cutting off the slender tip and *all side branches*, leaving just a *rod* to be laid down and covered with earth, or long loose litter, such as tomato stems, potato tops, &c., the tips of the canes having been previously secured to the ground by a sod about six or eight inches square having been placed on them grass side down. Attention should be given the plants during summer to see that they are kept in rows and that too many suckers are not allowed to grow; from four to six in a stool is about the thing, and any superfluous canes should be weeded out with the hand when six inches high.

Black Caps.—There is not so much necessity for mulching these as for the red varieties as they are not so impatient of drought. There is also less attention required in looking after these than the red or yellow sorts, as they do not sucker, and they are not so much attacked by insects. We find, however, they require more frequent planting, as they will not have more than about three crops in succession. The black is not so popular as the others; the berry is firmer and more seedy, and consequently not so juicy. Its place in the household is for drying and canning, and for the latter purpose it comes next the gooseberry in favor with our lady friends; being firmer than the reds it will carry a greater distance, and look better when placed on the market. When eaten fresh with cream and sugar, it is not to be despised. The Black Caps being a hardy native, without any European cross, do not require to be laid down or covered

during winter. The Mammoth Cluster we regard as the best variety.

There is an almost endless variety of raspberries on sale, and to go through the whole catalogue would weary the reader. Of the yellow too much praise can hardly be bestowed on Brinkles' Orange, which, though tender, should be in the garden of every amateur. Its high, agreeable flavor is unsurpassed by any fruit in cultivation. Red Antwerp, Fastolff and Philadelphia are three old, well tried sorts. The two former are of large size, and the latter a hardy plant and heavy bearer.

THE STRAWBERRY.

This fruit is probably the most popular, and the easiest raised of any of the small fruits; it is almost without an enemy in northern localities; it bears its fruit at an early age; it readily propagates itself, and is the first fruit to ripen after the long, hard winter; it is very productive, rich in appearance and pleasant in taste. Any one who has ten square feet of a garden, and has not a grape-vine and a strawberry bed, should be indicted by his wife or his mother-in-law as a nuisance. We should not recommend so heavy a manuring for the strawberry as for the other small fruits, as it is apt, if the ground is over rich, to run to leaves. Nevertheless, the ground should be in good heart. We prefer, if the vines are raised on our own grounds, to plant in July or early in August, having a few twelve-feet boards to shade the plants for four or five days; if the weather is dry, watering thoroughly once per day; the rows may then be further extended, and the boards moved further along. Of course this method is not suitable for field culture, but in the garden the plants will give a nice crop the following year. Another plan is to take out a spadeful of earth and transfer to the hole a spadeful of plants, neatly cut out so as to preserve the soil on the roots unshaken; if this job is carefully done in early spring, and the plants receive one or two good waterings, a fair crop may be expected at the end of June or beginning of July the same summer. There are several plants usually in the same spadeful, and these will form a good clump; all runners should be cut off, and

the ground kept free from weeds, if the best results are expected for the following year. Plants put in in this way should be two feet apart, centre to centre of each hill; of course a line should be stretched, so that the plants are set in rows of two feet apart. From two to three crops running off the same plants are quite sufficient; after this they should be turned under, and another piece of ground selected for planting; in fact, it is best to set a new bed every year, as the plants get old, or the grass springs up and chokes them in spite of the best attention. We believe the large amount of snow-fall in the Province of Quebec and Eastern Ontario makes these localities the true home for the cultivation of this fruit, and we never can understand why Oakville and Bowmanville, Belleville and other towns along the Great Western and Grand Trunk Railways should send this fruit to Ottawa and Montreal. There must be a want of enterprise amongst the strawberry cultivators of the East to enable Western men to supply more than two or three shipments. The earlier season of the West will always enable growers there to get the first berries on the Eastern markets, and thus realize the highest prices, before home grown berries from local grounds can be supplied, but the main crop should be produced at home.

The strawberry is a very perishable fruit, and soon becomes dead looking in color when carried any distance by rail or wagon. Those grown on the spot and picked ripe just before they are required for the table are always more attractive, and command the highest price.

There are a number of candidates for popular favor amongst the endless varieties of this fruit, but for a heavy cropper and a firm berry to carry, there is perhaps nothing better than the Wilson. The New Dominion, a rather late variety put on the market by A. M. Smith, of Grimsby, has proved a decided success. It is a fine, large fruit, attractive in color, and good bearer; we esteem it one of the best. Mr. Arnold's new seedlings are drawing a good deal of attention. The writer has had some experience with them, and has much pleasure in recommending them to public favor. They are advertised on the cover of the *Canadian Horticulturist*, a monthly periodical printed

by the Fruit Growers' Association of Ontario, and distributed gratuitously to each of its members who subscribe one dollar a year. The Sharpless is considered the largest berry extant, and we believe it is so, but it is not uniform in size or shape, both of which we consider grave defects.

The writer would like to have given some description of the insect enemies and the prevention of their attacks, but this paper has spread over perhaps a larger space than it should have done, and we must therefore forego any further remarks for the present.



PERENNIAL FLOWERS.

BY ANNIE L. JACK.

A dear old lady, who has gone where all flowers are supposed to be perennial, always met me in the spring with this sentence: "Gi' me floowers that dinna die i' the fall, sic as keep the groud a'winter." And in her garden the earliest and brightest Tulips grew, the pale Narcissus in profuse bunches, the sweet-scented Violet perfumed the air, and the earliest Gowan (Daisy) showed its tiny star. She had a bunch of Lilac and Snowball for every caller, and the crimson Pæony was her delight in its season. Tall blue Larkspurs reared a stately contrast to the Spiræa, and the Monks-hood and Snapdragon made mouths at the children who chose to squeeze their long tubes. The words of my friend have occurred to me often when fighting with drouth and insects to save the annuals, that were doomed at best to give only two months' bloom. Even Geraniums have a glaring sameness and newness that seem too conventional for beauty, and greenhouse pets count as so much money from the purse. Of course, in a Canadian climate we are not supposed to be able to save delicate plants out of doors, but I think even this a fallacy, for the snow of our winters is in itself a better protection than the wrappers given a little further south to prevent freezing and thawing. A little forethought in autumn will give in spring a wealth of bloom from dowering bulbs, Snowdrop, Crocus, Tulip and Hyacinthe. Then, before the Roses comes the Lily of the Valley, and, among other hardy plants, the pinky white heart-shaped bells of *Dicentra Spectabilis*. The varied members of the family *Dianthus*, which signifies "The Flower of God," are remarkable for hardiness and beauty, the China Pink especially, coming into bloom in early spring, when only a year from seed, and the old-fashioned Sweet William a little later. All the plants I have mentioned are as easily raised as vegetables, and well repay

cultivation, even in city gardens they should have a space for their sure if not fashionable beauty. Nothing can exceed the display made by a bed of Perennial Phlox, and its variety is such that bloom may be had from May till October, of every shade and color. The scarlet Sychnis is another herbaceous plant of value, and the double Hollyhocks are not to be despised. The Perennial Pea stands the most trying winter, and so do the Pansy and Forget-me-not. While I have tried and "found wanting" many so-called hardy shrubs, I have a few faithful friends that give a show of bloom: the Dentyia and Iyringa in early summer; later, the Rhus Colmus or Smoke Plant, and the Althæa while quite late in the season. The new Hyderangea Paniculata gives immense trusses of white blossoms, and has proved hardy the last three winters. It would be an improvement in our gardening if some of the old tried favorites were re-established, and less time and trouble bestowed upon new and short-lived plants that are not sufficiently superior to deserve the attention bestowed upon them.



THE CAULIFLOWER.

BY JOHN DOYLE.

The Cauliflower was first brought into England from the Island of Cyprus, where it is said to attain to high perfection, although it is not supposed to be indigenous to that place. The exact period of its introduction to English horticulture is not known. In 1619 cauliflowers were sold in London. A French writer says: Cauliflowers were imported to Paris from the Isle of Cyprus, the only place where it seeded, in 1694.

Considerable medicinal properties are ascribed to the cauliflower and cabbage. It is good for the eyes, for headache, for the spleen, the stomach, and for wounds.

There are two varieties of the cauliflower, though many names, "The Early or Erfurt," and late Asiatic or Le Normand.

The cultivation of this vegetable is generally well known. A well drained, rich loam, upon an open spot, but well sheltered from the north, suits it best.

The delicacy of the vegetable depends upon its rapid growth when once started.

The Autumn Cauliflower is brought to high perfection around Montreal, by those who grow them in the way of ordinary business. Good heads may also be grown, fit for use, by the end of April and May, by putting in seed about the New Year in a green-house, and pricking them off, keeping the plants well up to the light. About the end of February or first of March, put the plants out in a moderate hot-bed, keep the surface stirred, and a little dry mould occasionally to keep the plants from mildew or shanking. By attention to a couple of frames, the cultivator will be rewarded with a supply of this useful esculent at a time when vegetables are still scarce. Early cauliflowers, I think, in this locality, seldom

give satisfaction, as the great heat in June and July cause them to button and the flower to discolor.

The way practised in Ireland to have them a week earlier, is as soon as the heads begin to appear, take a knife and split the stem upward half-way, insert a clip in the cut, to prevent breaking, and tie the stem or draw sufficient earth round it. When a cauliflower has attained its full size, pull up the plant, as it never produces any useful sprouts, place in a cool place, and it may be preserved for a long time. Autumn cauliflowers may be taken up with as much earth as is convenient to their roots, and planted in a pit so as they can be covered with a frame, cutting off some of the large leaves. In this way they will keep through the winter, taking care that too much snow is not left on the frames, else they would heat and decay. By having the plants eighteen (18) inches under the frame there is little danger of frost while the snow is on the ground.



REPORT OF JUDGES APPOINTED TO INSPECT GREEN- HOUSES AND WINDOW GARDENS, WINTER, 1881.

We, the undersigned, duly appointed by your Society to inspect greenhouses and window gardens, according to the list supplied us and award prizes to the same, have the honor to report that, on the 27th January and 1st February last, we made our first visit of inspection, and on the 14th and 16th of the present month, March, our second; that we found as a general thing a very marked improvement in the several greenhouses and window gardens, between our first and second visit—more particularly in the greenhouses of Messrs. John Molson and Miles Williams, and in the window gardens of Miss Dunlop and Mr. J. H. Simms. Had Mr. Molson's greenhouse presented the same marked attention at our first visit that it did at the second, he probably would have been entitled to a prize. That according to the several points of excellence awarded at our first and second inspection, we find the following parties entitled to prizes, namely:—

For Best Gentlemen's Greenhouses.

Andrew Allan, Esq.,	56 points (out of a possible 60)	1st Prize.
Wm. Lunn, Esq.,	54 “	2nd “
E. P. Hannaford, Esq.,	49 “	3rd “
Mrs. Redpath,	48 “	4th “

Amateur Greenhouses.

A. F. Dunlop,	23 points (out of a possible 30)	1st Prize.
Wm. Yuile,	20 “	2nd “
Joseph Compton,	19 “	3rd “
Dr. Barnes,	18 “	4th “

Window Gardening.

Miss Dunlop (James Robinson),	28 points (out of a possible 30)	1st Prize.
J. B. Goode,	18 "	2nd "
Jonathan Brown,	16 "	3rd "
Miss Stevenson,	13 "	4th "

The undersigned have awarded these prizes strictly on the points of excellence required by your letter of the 30th November last ; but would respectfully suggest that what constitutes gentlemen's greenhouses and window gardening is not sufficiently or definitely explained in the Society's rules, and, as a consequence, the undersigned have been obliged to award prizes which possibly they would not have done had a proper definition been given under these two headings ; as, for instance, Mr. Wm. Lunn's greenhouse, which is admirably kept and whose gardener deserves the utmost credit for the healthy and flourishing state in which we found the plants there, is, nevertheless, one purely for commercial purposes, and, owing to the quantity of plants kept for the market, necessarily much greater than a private individual would require, it is thereby brought into unfair competition with private greenhouses. The undersigned are, therefore, of opinion that this class of greenhouse should not be allowed to compete with greenhouses of a purely private character.

In window gardening, the undersigned are of opinion that small Wardian cases, containing few but choice plants, should not be allowed to compete with the contents of one or more windows numerouslly filled with well kept plants, as, for instance, Mr. J. B. Goode has a small Wardian case containing a few choice plants, which for cleanliness and evident attention has entitled him to 18 points of excellence, placing him above Mr. Brown and others who cultivate plants in open windows and in small cases conjointly—which in the opinion of the undersigned is not just. They would, therefore, recommend that Wardian case culture should, for the future at all events, be classed by itself ; and likewise greenhouses kept purely for commercial purposes.

The undersigned desire to draw attention to the admirable

arrangement of the plants in Mr. Andrew Allan's greenhouse, and also to his splendid collection of cineraries, both of which are deserving of the highest commendation.

The undersigned cannot close their report without drawing attention to the choice and novel collection of plants kept by Dr. Sterry Hunt, and also to Mr. Jonathan Brown's collection of ferns, both of which are rare and very interesting, and call for some special recognition by diploma or otherwise from the Society.

All of which is respectfully submitted.

(Signed),

W. B. SIMPSON,
JAMES NAIRNE,
JOHN DOYLE,

To the Montreal Horticultural Society.



REPORT OF COMMITTEE ON FRUITS ON "EXHIBITION ONLY," AND NOT FOR COMPETITION AT EXHIBITION, 1880.

Mr. John W. Bailey, of Plattsburg, N.Y., exhibited thirty-two varieties of (out door) grapes. This collection contained no less than thirteen of Roger's Hybrids. Of Roger's Black Hybrids, Herbert, Essex and Wilder were large, fine in quality and ripe; Roger's No. 7, too, was good and quite ripe; of the Red Hybrids, Massasoit was over ripe, Lindley quite ripe. So, too, we might almost say of Salem and Agawam, all of which should be grown in favorable places here; Brighton, too, showed fine quality, combined with earliness. There were also six seedlings of Mr. Bailey's own raising, mostly crosses between Adirondac and Delaware, two of which give promise of being valuable additions to our list of early varieties. This collection gathered on Sept. 13th is particularly interesting, as showing what varieties ripened at Plattsburg on that date, from which we may infer that they will ripen in favorable localities in the Province of Quebec.

A collection of nine plates of grapes was shown by Mrs. Ferguson, very well grown.

A collection from Mr. Ascherson of five plates was also very fine.

Mr. John Beatty exhibited two bunches of extraordinary size, not sufficiently ripe to enable us to speak positively of them, but they seemed to be grapes of good quality when ripe.

Mr. John B. Moore, of Concord, Mass., sent several bunches of his seedling, the Moore's Early. These grapes were over ripe, fully equal in quality to Concord, and ripening before Hartford, or, as nearly as possible, with Champion, known more recently here as Beaconsfield, but quite surpassing it in flavor. We believe this variety will prove of great value to our Province on account of its early ripening, and because, as we are informed, the vine is

vigorous and healthy. It has been fruited in Ontario, and is there much esteemed. The Massachusetts Horticultural Society, after testing this grape for several years, awarded it a prize of sixty dollars as the best new seedling.

Mr. T. S. Hubbard, of Fredonia, N.Y., sends several bunches of the Prentiss. This is a white grape, not yet tested in Canada, but is said to ripen about with the Concord, and to be as healthy in vine as the Isabella, of which it is supposed to be a seedling. The bunch and berry are of good size and of excellent quality, and may be planted here wherever the Concord has proved a success.

Mr. C. L. Hoag, of Lockport, N.Y., exhibits his new seedling grape, the Niagara. This is indeed a fine grape, and one of great promise in our cold north. We are told by a friend who has more than one year compared its growth side by side with Hartford Prolific, that it is eatable earlier, and ripens with that variety, hence its great promise of usefulness. It is large in berry and pretty large in bunch, quite green before ripe and said afterward to become an amber yellow. It is sweet and fine flavored, and we shall look forward to its dissemination with great interest.

Mr. Palmer, of Plattsburg, N.Y., exhibits three White Seedlings of his own raising. They are not ripe enough to test, yet they are free from pulp, and show signs of fine quality. Nos. 2 and 3 are small both in bunch and berry. The other, Palmer's White, yet green, is long in bunch and full medium in berry, and begins to show signs of sweetness. We wish we could test these grapes ten days later.

Dr. Hoskins, of Newport, Vermont, sent five samples of the Wealthy apple, a Minnesota seedling, which has been fruited at Como, Abbottsford and other places, and which promises to give great satisfaction for fruitfulness and hardness of tree. Also Northfield Beauty, in flesh crisp, juicy and sufficiently tart to be a good cooking fruit. Golden White was received as such from those imported by the U. S. Government from Russia, but it is too red to suit its name. It is rather coarse in texture, and of not more than fair quality.

Mr. H. Bryant, of St. Albans, Vt., exhibited samples of

Jonathan apples, 1879, in a very good state of preservation, but having lost their distinctive flavor.

Mr. Bailey, of Plattsburg, exhibits his crab known as Bailey's Crimson. It is a non-astringent crab of really fine quality and lovely deep color. For color and quality we know of none superior to it.

Mr. O'Hara exhibits a plate of peaches grown under glass. Specimens very fine.

Respectfully submitted,

CHARLES GIBB,

R. W. SHEPHERD, JR.



EXHIBITION OF THE HORTICULTURAL SOCIETY OF L'ISLET COUNTY.

On Tuesday, the 28th September last, this event took place for the first time at St. Jean Port Joli. For a beginning the result was very satisfactory. The collection of articles was both numerous and varied. The time, however, was not so well chosen as it might have been, especially for such fruits as plums, and the consequence was that many growers outside of the county were unable to send specimens. The next exhibition should be at least a fortnight earlier. The building used for the occasion was the Public Hall of St. Jean Port Joli, a space 60 feet by 40. Large tables were ranged along the walls, and others in the centre. These tables were reserved for flowers of every description, while a portion were devoted to fruit, of which there were over 200 plates—apples, pears, plums and excellent grapes. Vegetables were well represented, and in especial we may mention specimens of the sugar beet exhibited by Mr. P. T. Dupont. Messrs. Eugene Casgrain, Dr. Saluste Roy, Luc Dupuis, Prospere Litalien, and Levi Chartier also had fine collections. Twenty-two varieties of potatoes were displayed. The large and small melons—some of the latter the size of a hen's egg—the Tuscarora Indian corn, &c., exhibited by M. T. Pouliot, of l'Islet, were much admired.

The selection of Canadian seedling apples was considerable and interesting. Alfred Miville, Esq., of St. Roch des Aulnaies, showed a Fameuse seedling equal in quality, appearance and size to the Fameuse, and a better keeper. Mr. Anselme Caron exhibited six varieties of apples, and Mme. Riverin showed large and beautiful fruit. Dr. N. Dion, A. Dupuis and A. Miville had the best collection of crabs.

The largest collection of grafted apples was exhibited by Mr. A. Dupuis. There were 32 varieties in all, and among them,

Montreal Fameuse, Northern Spy, Lowell, Astrachan, Maiden's Blush, Snow Apple or Fameuse, Roxbury Russet, Geneating, Rome Beauty, Swaar, Golden Russet, Greening, Autumn Bough, Porter, Duchess of Oldenburg, Pomme Grise, K. Codlin, &c. The fine lot of the Misses Dionne consisted of Baldwin, Fameuse, St. Lawrence and Calville. Notwithstanding the lateness of the season, plums were exhibited of fine varieties and in good preservation by the Misses Dionne, Messrs. P. Pouliot, Giasson, A. C. Pelletier and Dr. Roy. Pears grow well in the county of l'Islet and the show was large, and the grapes grown in the open air were equal to anything produced in Montreal. Rogers' No. 4, exhibited by Mr. Aug. Dupuis, was of first quality, and so was the Brant of Mr. Dupont. J. M. LeMoine, Esq., of Spencer Grange, near Quebec, sent some grand specimens from his hothouses.

Apiculture is still only in its infancy, but M. Louis Lapointe obtained a prize for a hive and several cakes of exquisite honey. M. Aug. Dupuis has offered grape plants and apple trees to the value of \$20 in order to encourage the planting of fruit trees and vines. A good feature was the fruit of old apple trees of over 50 years, with certificate of age, vigor and average yearly bearing quality. Mr. J. B. Dupuis subscribed \$10, and Mr. Aug. Dupuis \$6, for the encouragement of maple plantations specially designed to make sugar.

ANNUAL MEETING OF THE HORTICULTURAL SOCIETY OF L'ISLET COUNTY.

This took place on the 11th January of this year at St. Jean Port Joli, Rev. M. J. Lagueux in the chair. The report of the President, M. J. B. Dupuis, M.P.P., was read, in which he congratulated the Society on the good work it had accomplished during the fourteen months of its existence. He referred, also, to the encouragement which it has received from the outside, and especially to Messrs. H. S. Evans and Shepherd for offering to publish their reports along with that of the Montreal Horticultural Society, and to Messrs. Fisk and Chas. Gibb, of the Abbotsford Horticultural Society, for valuable assistance. The report

also insists on the cultivation of different kinds of apples and plums, for which the county is famous.

The necessity of schooling our country parishes into a due appreciation of tree culture, is proven by the fact that the Society of l'Islet addressed circulars to the mayors and cures of all the parishes in the counties of Bonaventure, Gaspé and Saguenay, offering 1,000 apple plants free to those who would cultivate them and report thereon, and that a demand for only 275 was made.

Attention is also called to the making of wine out of native fruits, such as cherries, currants, blueberries and raspberries. Thousands of bushels of blueberries are bought in the Saguenay country for wine making, and this wine, mixed with alcohol, costing only 50 or 60 cents a gallon, is sold for \$1.50 to \$2.00 a gallon. Why should these makers be allowed all the profits on wines which can be made mild, harmless and nourishing? Receipts for the making of these wines are solicited.



REPORT
OF THE
FRUIT GROWERS' ASSOCIATION OF MISSISQUOI.

HON. THOMAS WOOD, *President.*

DAVID MAIR, *Vice-President.*

DAVID WESTERN, *Secretary-Treasurer.*

This Association held its second exhibition on the 26th September, and although the day proved a very wet and disagreeable one, the attendance was considerable, and the show excellent—evidence that, but for the unpropitious day, we should have excelled our previous exhibition.

Though the number of plates of apples was not equal to the show of 1879, yet the aggregate collections of twenty members numbered three hundred and thirty-six plates; besides these was a collection each from Rougemont and Abbotsford.

The display of grapes was a marked improvement over 1879, as well in numbers as varieties. To Messrs. Gibb and Fisk we are indebted for unmistakably the finest display of this luscious fruit ever exhibited in the county. Much interest is being awakened to the growing of this fruit here, and there are now in the county two vineyards of an acre in extent each, one and two years planted, of the varieties and success of which we hope to report favorably later.

The display of flowers and vegetables was particularly fine, and in large numbers.

APPLES IN THE COUNTY OF HUNTINGDON.

The result of the competition for the county prizes offered by the Montreal Horticultural Society at its exhibitions during the past three years, has afforded good proof that the county of Huntingdon is surpassed by no district in the Province of Quebec, in its adaptability to the growth and perfection of apples.

In the year 1878, the first prize in the county competition was awarded to the apples from this county. In the following year, the second prize was similarly awarded; while at the last exhibition, the county of Huntingdon carried off the two first premiums offered—one in the competition open to the whole Province, and one in that from which the County of Hochelaga was excluded.

This county embraces a narrow strip of territory along the frontier of the State of New York, reaching from the St. Lawrence river on the west, to within eight miles of the Richelieu river on the east. The western portion of the county, lying as it does mainly in the valleys of the St. Lawrence and its tributaries, and having mostly a clayey soil, is not peculiarly adapted to fruit culture. The four eastern townships of the county, viz., Hemmingford, Havelock, Franklin and Hinchinbrooke (the southern and eastern portion of the last-named township), form that portion of the county in which apple culture has been most successfully prosecuted. The soil of these townships is mainly a gravel, resting upon a limestone formation. It has, as a rule, sufficient depth over the underlying rock, or "hard-pan," to afford ample room for the spread of the roots of trees planted in it. Because of its gravelly character, the water produced by the melting of the snow or from the rainfalls is rapidly absorbed. Frost does not penetrate to any great depth in this soil. All these characteristics are, no doubt, favorable to the rapid and healthy growth of the hardier varieties of apples. The townships of Havelock

and Franklin lie mainly on the northern and eastern slope of Covey Hill—an outlying spur some 700 feet in height—of the Adirondack range. This situation appears to be specially favorable in the matter of fruit culture. The largest, most thrifty and most productive apple orchards in the county are found in one or the other of the last-named townships. The first settlers in the eastern portion of the county of Huntingdon were Americans. Many of these settlers planted fruit trees which are still, after an interval in some cases of sixty or seventy years, alive and bearing fruit. Upon the farm in Hemmingford formerly owned by the late Frederick Scriver are apple trees still thrifty and vigorous, which Mr. S. planted in 1805.

It is within only a few years, comparatively, that the farmers of the eastern part of Huntingdon county have begun to pay any considerable attention to fruit culture. And since the attention of many of them became drawn to the advantages which they possessed in this matter, and efforts began to be made to profit by these advantages, much labor and money have been expended to very little purpose. The wiles of the tree peddler have been too often successful in persuading people to purchase trees not at all adapted to the climate and soil of the country, while ignorance and carelessness in planting and caring for trees have been responsible, in many instances, for the want of success which has attended the attempts of many to engage in successful apple culture. Experience, however, has taught those interested the necessity, in order to success, in the first place, of selection of certain hardy and well-tried varieties, grown in nurseries not distant from the neighborhood in which it is proposed to plant the trees; in the second place, of using for orchards good, carefully cultured land, and, finally, of judicious attention to the trees after they are planted.

Such limited experience as the writer has had in apple growing has led him to the conclusion that, on the score of profit, it is not wise, in that part of the country referred to in this paper, to attempt the growth of many varieties of apples.

Those who, in the observation of the writer, have been most successful in growing apples, have not attempted the production

for market of more than six or eight varieties. These varieties have been, for late summer and early autumn fruit, the Red Astrachan, the Duchess of Oldenburg, and the Alexander; for middle autumn, the St. Lawrence; for late autumn and early winter, the Fameuse; and for winter fruit proper, the Northern Spy, the Jonathan and the Roxbury Russet. Of these varieties the Fameuse has been the most largely grown. I doubt that, in any other part of the Province of Quebec, this delicious apple has attained to the excellence which it has reached in the county of Huntingdon.

The owners of the largest orchards of this variety of fruit in that county have been somewhat disheartened by the comparatively low prices obtained for it during the past two seasons.

The writer is convinced that more care in cultivation and in the selection of the fruit to be sent to market, and closer attention to packing, would, in most instances, have led to more satisfactory results.

A gentleman resident in the township of Franklin (an intelligent and successful fruit grower) engaged last autumn in the enterprise of packing and shipping Fameuse apples direct to Liverpool. The packages that he used were neatly made of planed pine boards, and held one and one-half bushels each. The fruit was carefully packed in oaten chaff. None but sound, perfect fruit was sent. The gentleman referred to shipped not only the fruit grown by himself, but a considerable quantity purchased from his neighbors. The experiment, as the writer has been informed, proved fairly remunerative.

The experience of the writer has led him to form a very high opinion of the Duchess of Oldenburg. For the place which it fills as a late summer or early autumn apple, it can hardly be excelled. The tree is exceedingly hardy and, as a rule, symmetrical in form. It is an early and prolific bearer. The fruit is large and handsome—scarcely ever imperfect in form, and remarkably exempt from injury by worms. As a cooking apple it is not surpassed even by the Red Astrachan. When but little more than half grown, it can be satisfactorily used for cooking purposes. To those who do not object to a somewhat sharp

acid flavor, it can be commended as a good table apple. In the last days of August and the early ones of September, the tree is a beautiful object. The contrast between the bright red of the fruit and the deep green of the foliage, is most striking and pleasing. The fruit is hardly known in the Montreal market, the writer believes. That it could be, with satisfaction and profit, much more largely grown than it is in the county of Huntingdon, he has no doubt. Of the three varieties of winter apples named, the writer believes the Northern Spy to have given the most general satisfaction in the county of Huntingdon. The tree is very hardy, its shape generally good, and, though a late bearer, is a fairly prolific one after it commences bearing. As to the quality of the fruit, there can be but one opinion. Its superiority as a table apple over most other varieties of winter fruit will not be questioned by those who have had an opportunity of comparison.

The Jonathan is growing in favor, though the small size of the fruit will probably prevent its being largely grown for market.

The Roxbury Russet would be more largely grown than it is, were it not a somewhat shy bearer. The tree has proved pretty hardy, and the fruit of good size and shape.

Experiments are being made with other varieties than those mentioned, the results of which may be stated at some future time.



REPORT

OF THE FRUIT GROWERS' ASSOCIATION OF ABBOTTSFORD.

N. COTTON FISK, *President.*

CHARLES GIBB, *Secretary-Treasurer.*

This Association held its Fifth Annual Exhibition of fruits, flowers and vegetables, at Abbotsford, on 24th September.

The display of fruits was more varied than ever, and contained many new varieties never seen among us before, and some of great promise of usefulness.

The chief attraction this year was the display of outdoor grapes, which far surpassed any yet gathered in this Province. Of white grapes alone there were no less than 27 kinds; of red, 10 kinds; of black, 35; making a total of 72 different varieties upon the exhibition tables, and a total of 150 plates. Besides this, 7 more arrived after the exhibition, making a total of 79 kinds which have passed before the notice of our Fruit Committee. For, now that it has been proved beyond all doubt that there is heat enough in this climate, between frost and frost, to grow really good grapes, and to ripen them with certainty, it has become necessary, that is, a necessity to fair progress, to gather together all the old and tried, and all the new and promising kinds, and place them side by side for study and comparison. Many of these new varieties were sent by their originators distances of 300 miles and upward.

The Fruit Committee has been at work. The greater part of the collection was laid out where it was used as a book of reference for four or five weeks, and this labor has resulted in the following lists.

Of apples there were about 360 plates, less than for the last three years, on account of changes in our prize list in the seed-

ling collections. The assortment, however, was the largest yet. Inclusive of 9 kinds of crab hybrids, it numbered 110 varieties.

Ellwanger and Barry, of Rochester, N. Y., sent a very fine collection. The specimens were truly magnificent, and were much admired by all. It contained 25 kinds of pears, 31 of apples, and 18 of grapes. The pears were remarkably fine, well formed, well colored, huge specimens, showing what could be done by care and culture in a climate more favorable than our own. The kinds were almost unknown to any one, though all except one have been tested on the slopes of Montreal Mountain by the late James H. Springle, and 7 of them did well, 11 fairly well, and only 6 proved failures. Mr. Springle tested, it is said, about 300 kinds of pears, and it is well that his experience has been recorded, but it is too bad that, though recorded, it is not generally known. Those interested in this matter should consult Montreal Hort. Soc. 1st Report, p. 22, and either Ont. F. G. Assoc., Report 1871, p. 28, or *Canada Farmer*, July 15th and August, 1871.

The grapes from Messrs. Ellwanger and Barry were also unusually fine, and all but two kinds suitable for culture here. Seven of them had been fruited in Abbotsford. To compare theirs alongside of our own was most interesting. Ours were fine, without doubt, yet theirs, in size and form of bunch and in berry, were far ahead of ours. In fact, we were over-matched; over-matched, not by their superior climate, but mainly by their superior cultivation. This collection enabled us to settle several debated points of nomenclature, and while we express our thanks to the kind senders, we think we can say that by the public it was justly appreciated.

Charles Arnold, of Paris, Ont., whose hybridized grapes, apples and wheats are well known, sent seven seedling apples grown from the seven seeds of a Northern Spy, pollenized with Wagner and Spitzenberg, yet differing in form, color, size and season. One of them, the Ontario, has been sent by the Fruit Growers' Association of Ontario to all its members. It is a winter apple of Northern Spy form. Another, the Dora, is a medium sized, early fall apple of fine quality. Another, No. 6, is a tough,

elastic, high flavored, scented, sweet Russet, quite a curiosity and an acquisition.

Mr. John W. Bailey, of Plattsburg, N. Y., who has been growing grapes for a lifetime, exhibited 32 varieties of grapes, 15 of which have not yet been fruited in this Province. Of these we must speak at length, but later. We would merely mention that he competed for the first prize and took it. By this, you will see that the prize list of this society is open to all. We may add that there never has been an admission fee; and to those twenty miles distant from Abbotsford no competition fee of any kind whatever.

The first desire of a local society is to see its own fruits. Two exhibitions are usually necessary to do this. Their desire, then, is to see the fruits of *other* localities, to invite, and, as far as they can, compel competition, to force those to fight who are best able to beat them. A society does not begin to really grow until it has been soundly thrashed; only by such a course of action can a society live a life of wide usefulness.

In the evening, the shed, which was tastefully decorated with evergreens, mottoes and flags of all kinds, was lit up with Chinese lanterns. The rush of a busy day was now over, and the directors could give an opportunity to their friends to taste the "new" grapes, while kinds not needed for reference were enjoyed largely by those present.

A novel and interesting meeting soon followed. The members of the Association and their wives met at the house of one of the officers of the society, where 25 kinds of pears, nearly 70 of grapes, and a large collection of apples awaited their inspection. Such pears as were in eating order were first examined, their hardiness, whether a success with Mr. Springle in Montreal, and whether grown at Abbotsford, etc., stated; the variety was then tasted and its flavor noted. In like manner followed the grapes. Another such meeting was held soon after, well attended, and with like success. This was at the house of our President, on 15th October, when 9 kinds of pears (part of Ellwanger and Barry's collection), 27 or 30 of grapes, including very fine Salem, Lindley, Wilder, Massasoit and Adirondac grown by Mr. Fisk,

and a number of apples, were examined and tasted as before. Smaller committee meetings have also been held, and eleven more general social fruit meetings, at which the merits and demerits of different varieties were weighed. We mention all this because these, the after-advantages of exhibitions, are entirely overlooked, for it is only by thus studying fruits that we can get any accurate knowledge of them.

WHITE GRAPES OF NATIVE OR HYBRID PARENTAGE.

Of White Grapes there were upon our exhibition tables no less than 27 varieties. Among them are the most refined and most delicate flavored of our outdoor grapes; yet many of them are also the most delicate in constitution, and such as are successful only in certain localities, and in the hands of careful cultivators.

At the last meeting of the American Pomological Society, the great International Fruit Society, the most marked advance in any fruit was that in the white grape of native parentage, that is white grapes of which the leaf is large and thick, and woolly on the under side, the pure offspring of the Labrusca or Fox grapes species. It was then felt that white grapes could be grown throughout the country generally.

Our descriptions may seem tediously minute. We could not be more brief and say what was needed.

This is in fact a descriptive catalogue of our best white grapes. It is as unreadable as a page of dictionary. A page of dictionary, however, may be interesting to a philologist, and in the same way we hope that there are those who, while wading through this, will lighten the task by propagating thoughts about good grapes which may bear fruit in the near future.

NIAGARA.—This is a grape of great promise. It is a seedling of Concord and a small sweet grape but little known named the Cassidy. We are told by disinterested parties who have seen the vine, that it is large and leathery in leaf, and very vigorous in growth, and that it ripens its wood well; in fact, that the vine is equal to its parent, the Concord, than which we have no better.

The bunch is of good size, and quite compact, and the berry holds well to the bunch, which is important. The quality has been variously stated, and sometimes over-rated. Mr. J. J. Thomas states that, in quality, "it appears to be intermediate between the Hartford and Concord on the one hand, and the Croton and Dutchess on the other." This opinion coincides exactly with our own. The skin is tough, the pulp soft. It is sweet and juicy, and of good flavor, with a little of that peculiar muskiness or foxiness, which shows its native origin. We are told by a friend, who has more than one year compared the growing vines side by side with Hartford, that it is eatable rather earlier, and ripens with that early variety. Hence its great promise of usefulness to us in the North. Mr. C. L. Hoag, of Lockport, N. Y., owns this variety. It has not yet been put upon the market, but we hope that when it is, it will have an immediate trial in different parts of this Province.

POCKLINGTON is a seedling of Concord grown by Mr. John Pocklington, Sandy Hill, Washington county, N. Y. It was sent by Stone and Wellington, of Toronto, who have control of it. The vine is said by independent sources to be strong in growth, and to have very large leaves of heavy texture. The leaves of the young vines we have seen are thick and leathery, and show its good parentage in this respect.

In bunch it is large, or very large; in berry large, round, and a pale yellow. It holds pretty well to the bunch, but not as well as Niagara. The skin is thin, with slight pulp; pulp tough, but not acid. In flavor sweet and quite luscious, with slight muskiness or foxiness. It is said that when fully ripe the pulp disappears, and it becomes sweet to the very seeds. In quality it is stated by Messrs. Stone and Wellington to be "fully equal to Concord at its best." As we tasted it upon our exhibition tables it was superior to any Concord we have grown here; superior to that sent to the Montreal market from Ontario. Ontario Pocklington we may expect to be fully equal to Ontario Concord, and Quebec grown Pocklington equal to our Quebec Concord. It is a fine grape, but should be grown only where the Concord has proved a success.

PRENTISS.—This fine grape originated with Mr. J. W. Prentiss, of Pultney, Steuben county, N. Y. About 15 years ago, Mr. Prentiss sowed some seed of the Isabella, from which came a number of seedlings, of which this was one. Mr. Hubbard, although he adheres to this, still thinks that this grape "has traces of Rebecca blood in it," but whether fertilization of these seedlings by Rebecca was possible we cannot say. We are told by a friend that the vine is as healthy, and the leaf as thick as its parent the Isabella. It is, as is well known, a very heavy bearer; in fact, the bunches need to be thinned somewhat, as it inclines to over-bear.

The bunch and berry are of good size, in color a whitish, or yellowish, green. In flavor, as has been said, very like Rebecca, and without any of that muskiness or foxiness so common in the native grapes. It ripens with the Concord, but would bear being picked a little before ripe better than the Concord. We see in the October number of the *Horticulturist*, that interesting monthly, which is sent by the Fruit Growers' Association of Ontario to all its members, that this grape has been exhibited at the meeting of the Western New York Hort. Soc. on 22nd Jan., in perfect condition, which speaks well for its keeping qualities. It appears to us, too, to be a grape that will ship well.

Mr. T. S. Hubbard, Fredonia, N. Y., owns this vine; and has this fall, for the first time, offered it for sale. It ripens, as we said, with the Concord, and we hope it will be tried by those whose gardens have proved the Concord to be a fairly sure ripener.

DUCHESS is a delicious grape. It was sent by its originator, Mr. A. J. Caywood, Marlborough, Ulster county, N. Y., and must be mentioned here, although by some delay in transit it did not arrive until after our exhibition. It is the offspring of a white seedling of the Concord crossed with Delaware or Walter, the pollen of both being applied at the same time. The white Concord seedling was the product of a cross between Montgomery, a grape of foreign parentage, and Concord. From this it would appear that Duchess was three-fourths native parentage.

The bunch is long, and shouldered on one side, the berry medium only. In color greenish at first, and when fully ripe a

golden amber. The skin is thin, the flesh firm, and fleshy rather than juicy, sweet and luscious. Mr. Caywood sent us one bunch which had been cut on September 1st, and had been expressed to Sacramento, thence to Detroit, New York and Marlborough, before coming here. The berry was slightly shrivelled, but not at all injured by carriage, and, though quite green in color, had yet become sweet and good. This bunch was slightly more shrivelled. It had been kept in a warm room, too, when it was again examined in committee on October 9th, and was finally eaten up on November 1st. This shows that if picked before ripe it yet becomes good. This is important for a late grape. The Duchess was well tested at our committee meetings. Of the 79 varieties which passed before these meetings, it and Allen's Hybrid were the most delicate and refined in flavor; though it is only fair to say that Dempsey No. 25, Chasselas, of Aylmer, and Chasselas of Mr. Robert Wood, were not ripe enough to judge. At our large social committee meeting, when 50 were present, the question was whether Duchess or Allen's Hybrid bore the palm. Two-thirds said Duchess. In the June number of the *Journal* it was stated that the Duchess ripened with the Delaware. Would that it did. Mr. Caywood, however, writes that it ripens with him with the Concord, from September 1st to September 15th. This limits its area of cultivation here. Yet where the Concord ripens fairly this should be tried, and it is well worthy of a warm corner.

LADY WASHINGTON, though expected from Mr. James H. Ricketts, the well-known hybridist, was for some cause not sent to our exhibition; yet it must be mentioned here, as it was of all grapes the one whose absence from our Fruit Committee meetings was the most regretted.

It is a cross between Concord and Allen's Hybrid, a good grower, and shows its Concord parentage in its thick leaf. The bunch is large, and the berry of fine quality. It ripens with the Concord, and we hope will be tried in such places as ripen that variety.

DEMPSEY No. 25.—This is a seedling of Mr. P. C. Dempsey, of Albury, Ontario, who is well known as a grape hybridist. It is, strange to say, from Hartford Prolific fertilized with Black

Hamburg. Mr. Dempsey tells us that he raised 26 plants from this cross, and that two-thirds of them are white. The seed that produced this grape may even have been out of the same berry that produced the Burnet. It is a largeish, thin skinned, juicy grape, not quite ripe enough to test its quality. Mr. Dempsey thinks it is a little late for us; but thinks its quality well worthy of a corner in a cold vinery. A few very favorable places, like Aylmer and Clarenceville, might try it. In fact at the latter place it is already in Mr. Pattison's hands; and its fitness for such a locality will be known ere long.

SARANAC is a seedling by Mr. Bailey. It is a very delicious little grape. It has a poor little bunch, but is pulpless, luscious, and in flavor hard to surpass.

PALMER'S SEEDLINGS NOS. 1, 2 AND 3.—These were brought by Mr. Bailey to the exhibition of the Montreal Hort. Soc. They are chance seedlings (probably of the Rebecca) grown by Mr. Charles E. Palmer, of Plattsburg, N. Y. They were picked on 13th September, and before ripe. They were then crude and sour; yet, since then, have become sweet and good, and quite eatable even up to this 16th day of November. No. 1 is largeish in bunch and berry. Skin thick and green; juicy, free from pulp; sweet and good, and ripens, says Mr. Palmer, with Delaware. No. 3 smaller in bunch, nearly as large in berry, thinner in skin, yellowish, but little pulp; sweet, and probably rich, and ripens with the above. No. 2 is a little later in ripening, and therefore of less value where earliness is so important. It is a compact little bunch with small berry; now sweet and good, and showing signs of being a good keeper. These are really grapes of good quality, and worthy of trial.

Of older varieties,

MARTHA was sent by Ellwanger and Barry, of Rochester, and by Mr. Bailey. We do not know of its having been grown in this Province, except at Hull and Aylmer. It is a seedling of Concord, and shows the vigor of vine of its parent. It is of good fair quality, but at Aylmer proved only a medium bearer. It ripens a little before Concord, and it is probable that we shall find varieties which for earliness and quality will surpass it.

REBECCA was exhibited from Rochester, Plattsburg and Montreal. In Montreal it has been long grown, but in a very limited way. It is a very good grape, but of slender habit of growth, and quite a light bearer. It ripens a little before Concord, and repays good care and culture.

CROTON is said to be a hybrid of Delaware and Golden Chasselas, and was sent by Mr. H. S. Lomas, Point St. Charles. It is Mr. Lomas's favorite grape, has ripened well for a series of years, and borne very heavy crops. It has been subject to mildew, which has been kept in check by sulphur. On higher land it would be less likely to suffer from this cause. With Mr. John Stuart, of Rockburn, Huntingdon county, Croton has been a success, and he does not mention mildew on his upland. It is a grape of fine quality. It ripens early, and is worthy of trial in elevated gardens.

ALLEN'S HYBRID is a hybrid between some native and some European grape. Though a grape of the highest quality, yet its culture has been given up in the United States on account of its tendency to mildew. We have, however, known this grape in Montreal for many years, bearing its light crop of delicious fruit without a single failure. Further south, it is also found too tender to stand the winter; but where winter covering is necessary, this is but little against it. Our uplands seem unusually free from mildew; and this grape may still be recommended to careful cultivators in suitable situations.

EUROPEAN VARIETIES.

Fuller, in his carefully written work, "The Grape Culturist," says "that after two centuries of unsuccessful attempts to grow the European grape in open air in this country, pomologists turned their attention to the improvement of the native species of vine." In that most interesting manual, the "Bushbery Catalogue," published by Bush & Son & Meissner, Bushbery, Mo., we find accounts of these attempts by Swiss and French vignerons as early as 1630, attempts made with French, German and Spanish vines, which perished "from the vicissitudes of the climate." Thousands of failures are recorded, and not one durable success.

until A. J. Downing (*Horticulturist*, Jan., 1851) exclaims: "The introduction of the foreign grape in this country for open vineyard culture is impossible. Thousands of individuals have tried it the result in every case has been the same; a season or two of promise, then utter failure." This, of course, does not refer to the Pacific States.

Hussman, too, in his work just published, "American Grape Growing," speaks of the European vine as generally unsuccessful east of the Rocky Mountains, and says, further, that the European species is of interest to our grape growers, chiefly on account of the hybrids which have been produced between it and our own native vines. Some well-known grape growers go so far as to condemn hybridizing our native with the European vine; saying that by so doing we only enfeeble it and render it subject to disease.

The verdict of the American horticultural press of the Atlantic and Middle States is that the European vine is generally unsuccessful; only exceptionally is it a success. Of this exceptional success we in the Province of Quebec have had our full, fair share; and we have certain localities where the foreign vines have been such a success, and that for a long term of years, as to warrant their still being planted in like situations. They are not the grapes for beginners. Some, fortunately not all, are subject to mildew, even on good elevation, and need to have this kept in check by sulphur; all are more subject to thrip than the native vine, and should the dreaded *phylloxera*, which has worked such wholesale destruction in the vineyards of France and California, visit our shores, then we must give up the European vine altogether, or else engraft it on native roots.

CHASSELAS (*of Aylmer*).—It is at Aylmer that this grape has been most largely tested. Like many of these foreign vines it comes to us without a name; Chasselas is but the name of the type. Its name should be identified either with Aylmer or with its importer. It was imported by the late Denis Benjamin Papineau, some think as early as 1840, and first grown by him at Papineauville, on the Ottawa. Thanks to our kind friends at Aylmer, we had four bunches of it upon our exhibition tables.

These were large, or very large, long and, though not shouldered, of large diameter. We were told that they did not approach the bunches grown by them the year previous. The berry is above medium, roundish, or very slightly oval, and holds well to the bunch. The flesh is moderately firm, juicy and without pulp. It was picked before ripe, but afterward became sweet and somewhat rich, but how much richer than Sweetwater is what we specially wished to know, and had no opportunity to determine accurately.

This is the most largely tested of the white European varieties, except the Sweetwater. In some gardens, it has been a decided success; in others, subject to mildew. Aylmer is remarkably free from late spring and early fall frosts; yet we think that the foreign vine, as a rule, will be found to be more free from mildew where untimely frosts are kept off by elevation, than where they are averted by the near presence of large bodies of water.

ST. SULPICE (*so-called*) is another fine grape. It was long ago imported by the Seminary of St. Sulpice, and has been grown in fair quantity in their singularly sheltered garden in Notre Dame street. It has no name, but must have one, and we venture to name it after its importers, as has been done in similar cases before. This was not upon our show tables, yet it must, for its merits, be mentioned here. It is a large oval grape, yellowish when fully ripe. As to quality we did not taste it. A bunch was to have been kept for us, and by some mistake it was overlooked. It is, however, their favorite grape, so Signor Archetto, the gardener, tells us; and so it seems, for it was picked on 15th September, and all eaten at once in preference to others. This seems earlier than the Chasselas of Aylmer, or that grown by Mr. Robert Wood, and is one of the most worthy of trial.

CHASSELAS DE FONTAINEBLEAU.—Another of this type is that grown by Mr. Robert Wood, formerly in Bleury street, and more lately in Sherbrooke street, Montreal. Mr. Wood has fruited it for fifteen years without failure, and has had as many as ten bushels of it in a single season. In his opinion it is the most delicious grape grown; but it has a strong tendency to mildew even upon upland, which has to be overcome by dusting

with dry sulphur about three times during the season. The bunch is large and shouldered, berry round, and agrees exactly with the description of the Châsselas de Fontainebleau, as given by Downing; very like, too, that from the Collège de Montréal, under that name. We regret that it was not quite ripe enough to enable us to testify to its high quality.

SWEETWATER has been grown to a fair extent in many places, and for a very long time; and when thrip has not been troublesome, and when it has had fair care, has produced pretty good crops, which in most localities ripen well. There are, however, several varieties under this name; several showing quite distinctive marks were upon our exhibition tables, and proved this clearly.

IMPROVED SWEETWATER (*so-called*) just like Sweetwater; though perhaps a shade larger in bunch and berry, but with a slight Muscat flavor. A decided improvement—growing in a garden in Montreal.

BONNE DAME DE VIGNALA, or No. 6, was imported in 1877 by the Collège de Montréal. And here let us say that the college have nobly entered the field as experimentalists. They have imported about 70 varieties from Italy, and the success of these vines after three years under the care of their skilful gardener, Sig. Garelo, is most encouraging. We do, however, wish that the native vine had received a larger share of their attention. This No. 6 is largeish in bunch and shouldered, and in berry largeish and semi-oval. It is a yellowish green and slightly veined, and holds pretty well to the bunch, as all these European grapes are apt to do. It is slightly firmer in flesh, and is richer in flavor than Sweetwater. It ripens on their warm southern exposure from 20th August to 1st September; and on account of its earliness, is one of the most promising of its class.

PERLE DE VENISE No. 11 is largeish in berry, large in bunch, and in character much like the above. A fine grape, but ripens ten days later than the above.

CHASSELAS DE FONTAINEBLEAU, of the College, is very like that grown by Mr. Robert Wood, and perhaps the same. Had both been fully ripe, we might have formed an opinion as to their identity or otherwise. This ripens with the Perle de Venise.

STE. MARIE D'ITALIE is a medium sized grape which ripens soon after No. 6. In quality rich, and decidedly good.

BLANC D'AMBRE No. 9 is another which specially drew our attention. It is good in size and quality, and said by Sig. Garelo to be a good keeper.

—————In the gardens of the Seminary of St. Sulpice, in the northwest corner, there is a grape much like the Chasselas de Fontainebleau from the Collège de Montréal; but slightly oval in berry, and more firm and fleshy in texture, and earlier too, we fancy. It is a luscious grape of very high quality.

—————Another, on the same north side, but further to the west, much like the above, but more bronzed when quite ripe. It cannot be compared in richness with the above.

CHASSELAS.—Mr. John Beatty sent to the Montreal Horticultural Society's exhibition two bunches which he had grown at St. Lambert, one of which had weighed 2 lbs. 2 oz. There were seven bunches upon the vine, all about the same size. For ten winters it had been unprotected, and had been killed to the ground. Only for the last year or two had it had any care. Its origin is not traceable. It took prizes in Montreal under a former owner about fifteen years ago. The bunch is very heavily shouldered on all sides, the berry medium or above. It ripened about 10th October, and was of fine quality. But for its lateness, it would be well worth looking into.

CHASSELAS.—A grape of this type has been grown by Mr. James Morgan, Jr., at Hochelaga, received from Ellwanger & Barry as the Chasselas de Fontainebleau. Though it did not arrive till after our show, it must be mentioned. The bunch is nearly double the size of Concord, long, compact, and heavily shouldered on one side; the berry is largeish and oval, in color green until fully ripe, when it becomes purplish in hue. The flesh is firm, sweet and luscious. Two vines of this have yielded about 30 bunches each, or 25 lbs. each per annum for several years past, and, though in a low and shaded place, and upon heavy clay soil, have not mildewed, and have ripened pretty well.

CHASSELAS.—A grape large and irregular in size and form of berry, and large in bunch. In color an opaque white, veined

like a Malaga. This has done well in a garden in Montreal. A fine flavored grape, which has nearly always ripened well, and has borne good crops.

A few other white grapes we should like to draw attention to, in the hope that some one may test and report upon them.

GOLDEN DROP.—Raised by C. G. Pringle, of Charlotte, Vt. It is of native parentage, from Adirondac crossed with Delaware. A small grape, said to be quite free from foxiness, and very sweet, and ripens even earlier than Adirondac. Mr. Pringle's opinion, as expressed to a friend of ours, is that it is likely to prove quite a valuable grape in the North. It is in the hands of B. K. Bliss, New York.

LADY originated in Ohio, and is said to be a seedling of Concord which ripens ten days before its parent. It promises to be an early grape of good fair quality.

ANTUCHON is from a seedling of the Clinton type hybridized with Golden Chasselas, raised by Mr. Charles Arnold, Paris, Ont. Here let us note that the female parent of this vine is of the Cordifolia or Frost Grape species, a grape, we are led to believe, of fine quality, not to say late, and one that should be tried on our uplands.

NAOMI is a seedling of Clinton and Muscat Hamburg raised by Mr. Ricketts. The foliage is Labrusca. It is large and loose in bunch. In berry medium; green tinged with bronze, very juicy and high flavored and quality "best." So says the Committee on New Fruits, Am. Pom. Soc.

DEMPSEY No. 60 has far more promise of use to us than his No. 25. To quote from Ont. Committee on Seedling Grapes, 1875, "It is of sweet foreign flavor, and earlier than Delaware." The character of the vine, and of the size and quality of fruit, as given by Mr. Downing, show it to be a first-class fruit in every respect. It ripens with Concord.

LADY CHARLOTTE, from Delaware fertilized with Iona, is another pure native raised by Mr. Pringle, whose bearing and quality are highly spoken of. It ripens with Concord.

Of the seedlings of the late T. B. Miner, now held by Mrs. Miner, Linden, Union county, N. Y., **BELINDA** is said to ripen

a week earlier than Concord; and CARLOTTA, ADELINE and ANTOINETTE, with that variety.

Of grapes later than these we will make no mention, as they are suitable only to very special localities.

RED GRAPES

At the exhibition, the reddish grapes attracted a great deal of attention. But ten varieties were shown, yet some of these appeared in almost every collection, showing what favorites they are.

These reddish grapes vary widely in their characters. We have more or less early kinds of the northern fox-grape type; sweet but foxy—others, the direct or indirect offspring of the Catawba, and mostly of fine quality; also, thanks to Mr. E. S. Rogers, of Salem, Mass., we have hybrids with the European vine, which have been entirely successful here.

The following list is more or less in order of ripening, and contains the names of some kinds which we can heartily recommend to those who love really good grapes.

RED POUGHKEEPSIE is a little bright red grape which we quite fell in love with. It arrived just after our exhibition, owing to some detention, yet must be mentioned here. It was raised by Mr. A. J. Caywood, Marlborough, N. Y., who writes that "it is a seedling of Delaware." It is stated in the last report of Am. Pom. Soc. to be from Walter and Iona. Possibly, as in the case of the Duchess, the pollen of two varieties may have been applied at the same time. Mr. Caywood also states "that it exceeds Delaware in growth of vine, and nearly always sets four clusters on an arm." He further states that "it ripened this year two weeks before Hartford, and it would be safe to put it with that variety," and that "no variety, in over seventy kinds we have, bears more pounds than Red Poughkeepsie." It has not been placed upon the market yet, but the entire stock of it is for sale. The bunch is small but rather long, and shouldered like Delaware; the berry smaller and redder than that variety; thin skinned, juicy, and perfectly pulpless; very sweet and luscious. It resembles Delaware and is of equal quality, says Committee on New Fruits of

Am. Pom. Soc. It holds on to the bunch pretty well, and though not a late keeper, is not a grape of short season. For its earliness and fine quality, we hope it will be tried as soon as it can be obtained.

NORTHERN MUSCADINE is an early chocolate colored berry of medium size, of the pure native fox-grape type. It drops from the bunch as soon as quite ripe, but it is quite sweet, and to those who do not object to a good deal of foxy aroma, very nice.

BRIGHTON.—This new grape surprised us by its excellence. It was sent by Ellwanger & Barry, from Rochester, by Mr. Bailey from Plattsburg, and by Stone & Wellington, from Toronto, and in each case good beyond what we had expected.

It was raised by Mr. Jacob Moore, of Brighton, N. Y., from Concord and Diana Hamburg. Diana Hamburg is from Diana with Black Hamburg, and Diana from Catawba, native; so that we may consider Brighton to be three-fourths native. The bunch is largeish, and shouldered. The berry largeish and mahogany colored, and holds well to the bunch. It is thin-skinned and somewhat pulpy; but the pulp is sweet, and of a melting meateness to the very seeds. Flavor rich and really good. "Equal if not superior to Delaware," says Barry, and we fully agree with him. "To my taste better than Delaware, because more vinous," says Hussman.

Of the vine, we have no experience. Ellwanger & Barry say "vine vigorous, but subject to mildew in some localities; were it not for this we should pronounce it the best reddish purple grape in cultivation." Those in low damp situations should therefore plant cautiously; those in drier and higher places may safely try this grape, which combines fair earliness with such fine quality.

DELAWARE is probably a native vine. Fuller thinks it is from Catawba. Of Sheppard's Delaware, a seedling of Catawba, Downing says "the fruit and vine are similar in all respects to Delaware." The White Delaware, raised by G. W. Campbell, of Ohio, from seed of Delaware, has large, thick foliage, "resembling Catawba in all respects." These and other facts strongly suggest Catawba parentage. Besides this, it is said that seedlings of it have been largely grown with the hope of combining

greater size with its fine quality, but that these seedlings have usually proved roxy, showing its *Labrusca* descent.

This grape has been well tested here. Let us see how it has succeeded in different parts of our Province and upon different soils. Mr. Morgan, at Hochelaga, on heavy blue clay, deeply trenched and deeply enriched, has averaged for the last six years 50 lbs. per vine from 16 vines. It and Hartford proved the heaviest bearers, but there has been one trouble, a bursting of the berry, which has destroyed more or less of the crop each year. This fault, however, has we believe, shown itself in this garden only. In Montreal, on heavy hard-pan clay, in St. Catherine street, it has been of feeble growth, borne lightly, or fairly, and ripened thoroughly each year, for the last ten years. At Aylmer, on gravelly loam, it has borne as heavily as any other for the last nine years. At Como, on dry gritty gravel, it has been a thorough success for the last eight years. In the county of Huntingdon, on gravelly upland, Mr. John Stuart, of Rockburn, has found it a good reliable bearer, and would place it on his list *first*, "for profit." With ourselves, on gravelly upland, it has borne heavily, and ripened well, or fairly well, and fairly well only where fully exposed to our northwest winds. In the States, the Delaware is said to succeed best on warm rich soils and the notes given above favor this view.

ROGERS' RED HYBRIDS are a deservedly popular class of grape. Their large, showy, reddish berries, and good sized bunches give them great prominence on exhibition tables, but it is their fine quality that makes this good impression lasting. Large collections are sure to include them. Ellwanger & Barry sent for exhibition the following three, and beat us sadly in size and form of bunch. Mr. Bailey and Mr. Pattison sent the four following. We, too, had good specimens of each, of our own growth.

The parentage of these grapes we regret we cannot give. We can only refer to an incidental statement of Hon. Marshall P. Wilder, President of Am. Pom. Soc., that Massasoit is from a native vine hybridized with White Chasselas. It is well known, however, that they are not merely crosses, but two hybrids of the

native *Labrusca* species, and the *vinifera* or European vine. This was proved by Fuller, who in his "Grape Culturist," says "from the seeds of Wilder, I have produced both wild fox-grapes and apparently pure foreign varieties."

The vines are strong in growth, and large and thick in leaf, and seem well adapted to fairly favorable places, in our climate; one word of caution, however, we must add: Mr. Morgan, at Hochelaga, on a heavy clay soil deeply enriched, has grown Agawam and Wilder, and produced about 40 lbs. per vine per annum, but they have shown such constant tendency to mildew as to injure the crop, either in part or in the whole, every year. A singular fact is, that on the same plastic clay, but in a damp moist place in the open air, are two hothouse vines of a grape of Chasselas type in perfect health. This mildew is exceptional, and we must not assume exceptions to be rules, but to know a matter we must know all sides of it, and we mention this that those who cultivate such soils may plant cautiously.

These berries all have in our climate some pulp, yet they are juicy, sweet and rich, with an aromatic or slightly musky flavor. They are great favorites with us and with those who have tried them.

MASSASOIT (Rogers' No. 3) has fruited for a few years here, and given good satisfaction. At Aylmer it has been a like success. It is the earliest of Rogers' Red Hybrids, except perhaps some not yet named. It ripens with us before the Delaware; this last year a week, at least, before that variety; yet, as an American paper has said, grapes do not ripen on schedule time.

LINDLEY (Rogers' No. 9) is a great favorite here. With us its name alike suggests friendly fights at exhibitions, and the delight of our friends at its fine appearance and rich flavor. At Ottawa, too, it has succeeded well.

It ripens with us soon after Delaware, and some time before Concord.

SALEM (Rogers' No. 22) is very popular in the United States. Here less tried than those above named. At Abbotsford it bore last year for the first time, and ripened about with Lindley.

AGAWAM (Rogers' No. 15) is the largest in berry, yet the

latest to ripen, of those above named. At Aylmer, with Mr. Harvey Parker, it has borne fairly, and ripened well each year for the last five or six years, and its fine size, its color, and its luscious flavor, seem to show it to be a desirable grape for home use, and a profitable one for market. Mr. G. H. Ryland, in Montreal, who has about 25 vines of it, has ripened it without failure for the past twelve years, and also finds it a good keeper. With us it has only fruited the past year. Our experience, and the verdict of others, is that it ripens before Concord.

GAERTNER (Rogers' No. 14).—This appeared upon our tables sent by Messrs. E. and B., before even its name had reached us. It is one of those hybrids of Mr. Rogers' which has been known by number, and has been but lately named. The samples sent were very large both in bunch and berry, very bright in color, and of great beauty, and rich and delicate in flavor. Marshall P. Wilder, in the "Grape Culturist," describes it as follows; Bunch, good size; berry, medium to large; color, light brown or red; skin, thin; flavor, pleasant and aromatic; season, rather early; vine, healthy and productive.

IONA is a seedling of Catawba, and in some parts of the States a valuable market grape, and a good keeper. One good point about it is, that if picked before ripe, it afterwards becomes sweet and good. The Iona sent by Mr. Bailey was picked on 13th September before it was ripe, yet in the early part of October it was sweet, good, and even rich. That sent by Ellwanger and Barry was riper and far more luscious. It is, however, later than Concord, and there are but few localities in which it could approach success.

CATAWBA.—This name suggests the vine growing regions of Ohio. It is the latest ripening grape ever upon our tables, and useless in our climate; yet to be held in grateful memory for its offspring, Iona, Diana, Diana Hamburg, Brighton, Walter, Jefferson and Duchess, and probably Delaware; and if so, then Red Poughkeepsie, Golden Drop, Lady Charlotte, Croton, and many others.

Late as is this grape, we believed it to have been ripened at Aylmer. We had upon our tables a bunch grown by Mr. Driscoll,

which we really believe to be that variety. This was of course not yet ripe, as it was picked on September 18th, but it has been ripened, and we look upon this as the rarest exploit of ripening of one of our best localities.

To the following kinds, not upon our exhibition tables, we wish to draw either such special attention, or such passing notice, as they seem to deserve. We name them in what appears to be their order of ripening.

VERGENNES is a chance seedling from Vergennes, Vermont, said to ripen as early as the Hartford, and to combine with this earliness, high quality and remarkable keeping qualities. Its earliness, however, we have seen disputed. It has good testimonials, but, unfortunately, for the most part unsigned, and those signed are not by names widely known. The stock seems to be in the hands of F. L. Perry, Canandaigua, N. Y. We hope its merits may be weighed by some of our experimenters.

WYOMING RED, judging from scattered notices of it, seems worthy of a test. It ripens with Delaware, is earlier, and is large in berry. It is of superior quality, say some; it is more probably pretty good, and the vine is said to be healthy. Its name suggests its being a hardy wilding from a Western Territory, but it is most probably a chance *Labrusca* seedling from the Wyoming Valley in Pennsylvania.

DRACUT AMBER, a large early grape of the fox-grape type. The vine is said to be very healthy, but the berry inferior. Its use is questionable even in our cold north.

WALTER is a seedling raised by Mr. A. J. Caywood, of Marlborough, N. Y., from Delaware with Diana and is a really first qualityed grape. In many parts of the United States it has been a failure, through a tendency to leaf-blight, and is not recommended for localities at all subject to mildew. We believe that we fruited this variety here last season, and we were very much pleased with its fine flavor. We have been told it has succeeded well at Pembroke, on the Upper Ottawa. It ripens before Concord, and might be tried on our uplands, as they seem specially free from the disease.

PERKINS is another of the fox-grape family, but seems perhaps the most widely popular of its class. It is well spoken of for healthiness and productiveness of vine. The berry is quite large and sweet, but foxy. It ripens, some say with Hartford, others put it as late as Concord.

JEFFERSON.—This grape we wish to draw special attention to. It is a seedling produced by James H. Ricketts, of Newburg, N. Y., the celebrated hybridist, from Iona and Concord, and therefore of native parentage, and it is well known to have the vigorous growth, and thick, downy, large leaves, of the latter parent. The fruit is much like Iona in color, texture, and quality. Mr. Downing says of it "bunch very large, often double shouldered, very compact; berries large, roundish oval, light red with a thin black bloom; flesh meaty and solid, tender, juicy, sweet, slightly vinous, spicy."

Letters from the United States from a friend who has had every opportunity of judging of the merits of this grape, have led us to hope that it will be tried in favorable localities here. It ripens about with Concord, but as we have said of others, berries of this quality, even if they have to be picked a little before ripe, become good. This vine is in the hands of Mr. J. G. Burrow, Fishkill, N. Y.

DIANA HAMBURG is a hybrid with Diana and Black Hamburg, and has been grown and ripened successfully by the late W. W. Smith, in his exceptionally well sheltered garden at Phillipsburg, and has been exhibited by him here. It is of fine quality, but as it ripens with Isabella, is altogether too late, except for exceptional places in this Province.

DIANA, like the above, has been ripened and exhibited here by the late W. W. Smith, but as it is even later in ripening, we may consider it useless to us.

We thus see among the nineteen kinds of red grapes above described, great variety in size, season, and quality; and among them kinds which, from our own experience, we can most heartily recommend.

A catalogue of the black grapes we have been unable to prepare.

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- Canadian Agriculturist, Toronto, 1849. Presented by Chas. Gibb.
- Farmers' Encyclopedia, by Johnson, Philadelphia, 1844. Presented by Chas. Gibb.

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