

REPORT

OF THE

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FRUIT GROWERS' ASSOCIATION

OF

ONTARIO,

FOR THE YEAR

1870.

Printed by Order of the Legislative Assembly.



ENTOMOLOGICAL BRANCH
DEPARTMENT OF AGRICULTURE
OTTAWA - - CANADA

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1871.

REPORT
THE CANADIAN FRUIT GROWERS ASSOCIATION

ONTARIO

Printed in Ottawa at the Printing Press

ENTOMOLOGICAL BRANCH
DEPARTMENT OF AGRICULTURE
OTTAWA - CANADA

PRINTED BY WILSON BROS. & CO. 24 & 26 KING STREET WEST
OTTAWA

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To the Honor

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DEPARTMENT OF AGRICULTURE
OTTAWA - - CANADA

REPORT

OF THE

Fruit Growers' Association

OF ONTARIO,

1869-

FOR THE YEARS 1870.

To the Honourable the Commissioner of Agriculture:—

SIR,—I take much pleasure in submitting for your consideration the Report of the Fruit Growers' Association of Ontario, for the year 1870, embracing full details of the discussions had at the meetings of the Association held in October, 1869, and in February, July and September, 1870. These discussions are eminently of a practical character, and set forth the experience of the members in the cultivation of the several fruits under consideration.

Appended thereto will be found the excellent Prize Essay on some of the Small Fruits, written by W. Saunders, Esq., of London; and Mr. Saunders' Report on the rewards offered by the Association for the capture and destruction of the Plum Curculio, an insect that destroys the plum crop in nearly all parts of the Province.

The Report of the Directors, accompanied by the Treasurers' Report, was submitted to the Association at the Annual Meeting, held in the City of Toronto, pursuant to the statute; which, with the President's address, are hereto appended.

It will be gratifying to you to learn that the membership of the Association has been nearly doubled since my last report, and that its usefulness has been thereby largely extended.

I have the honour to remain,
Your obedient Servant,

D. W. BEADLE,
Secretary of the Fruit Growers' Association of Ontario.

ST. CATHARINE'S,
November 18th, 1870.

FRUIT GROWERS' ASSOCIATION OF ONTARIO.

ANNUAL MEETING.

The annual meeting was held in the Agricultural Hall, Toronto, on Tuesday evening, October 4th, 1870, Rev. R. Burnet, President, in the chair.

The Directors submitted their Annual Report, and the Treasurer a detailed statement of receipts and disbursements.

The President read his annual address, which was received with great satisfaction.

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Mr. Saunders, of London, seconded by Mr. Ross, of Goderich, moved that the thanks of the meeting be tendered to the President for his very interesting and able address, and that he be requested to furnish a copy for publication in the proceedings of the Association. Carried.

An election of officers for the ensuing year was then held, which resulted as follows, viz.:-

President—Rev. R. Burnet, of Hamilton.

Vice-President—J. C. Rykert, Esq., M.P.P., of St. Catharines.

Secretary-Treasurer—D. W. Beadle, Esq., of St. Catharines.

Directors—Messrs. James Dougall, of Windsor; Warren Holton, of Hamilton; William H. Mills, of Hamilton; Wm. H. Boulton, of Toronto; A. B. Bennett, of Brantford; Geo. Leslie, Jr., of Toronto; Wm. Saunders, of London; A. M. Ross, of Goderich; Charles Arnold, of Paris.

Auditors—Messrs. W. L. Copeland and W. J. McCalla, of St. Catharines.

After the election of officers, the meeting took up the consideration of miscellaneous business.

Mr. Hammond, of Credit, asked how the Association classed the Ribston Pippin, whether as a fall or winter apple?

Mr. Dougall, of Windsor, replied that its season of maturity depended upon the place where it was grown; that in the varied climate of our Province—embracing the long, warm summers of the South of Essex, and the short, cool seasons of the Muskoka District—the Ribston Pippin was in the former an early fall apple, quite dry and mealy now, and in the latter was a winter apple, keeping well until March.

Mr. Leslie, of Toronto, said that it varied much also with the warmth of the summer, in some seasons ripening up early, and in other and cooler seasons ripening more slowly and keeping much later.

Mr. Caldwell, of Gait, stated that the apple kept well until March in that section, and was truly there a winter apple.

Mr. Arnold, of Paris, asked what are we to do in judging when the apple is entered both in the fall and winter varieties? and suggested that the method of classification now in use should be abandoned, and that prizes should be offered only for the best samples of particular kinds, without reference to their season of ripening, so that the judges would have to determine which was the best sample of Ribston Pippin, or Snow Apple, or Greening, and not which was the best fall apple or winter.

Mr. Beadle stated that, thanks to the efforts of the President and Vice-President, a beginning had been this year effected in this direction, which, it was to be hoped, would be carried out in all the departments of the fruit list.

Mr. Rykert stated that as soon as the Board of Agriculture should place sufficient prize money at the disposal of the Committee having in charge the Horticultural department of the prize list, this much needed reform would be effected.

Mr. A. M. Ross, of Goderich, wished to know the cause and cure of the rot in the fruit of the plum. He had suffered much from this rot during the past season, much more than from the curculio, and deemed the rot a far more serious obstacle to the successful culture of the plum than the little turk.

Mr. Saunders, of London, had also suffered severely from this rotting of the fruit, but could not suggest any remedy.

Mr. Dougall, of Windsor, had taken pains to have all the rotting plums carefully gathered and thrown on the ground, and then covered them and the ground under the plum trees with quicklime, also dusting quicklime freely through the tops of the trees, and thought he had in this way been successful in putting a stop to all further spread of the disease. He believed that this rotting was caused by minute fungi fastening on the fruit and developing there, and that the quicklime destroyed the fungus. The rot could not have been caused by the weather, for there had been no rain there for three months.

Mr. Mills, of Hamilton, thought that the rot was not caused by a fungus, but that the rot having begun, and the state of the atmosphere being favourable to the growth of this fungus, it found in the rotting portion of the plum a favourable place for its growth and development. He thought the rot was caused by warmth and moisture occurring at a

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certain stage of the growth of the plum; and when this did not occur at that particular stage the rot did not occur, hence the plums in some seasons escape the rot altogether.

Mr. Ross said that last season was very wet, and the fruit on only two of his plum trees was affected by the rot, and these were shaded by other trees; this year the rot spread from those affected last year to the trees adjacent, while the trees in another part of his garden wholly escaped; hence he thinks that the rot is infectious in some way, and that if once introduced, if no way of stopping it can be discovered, it will continue to spread until the fruit on all the trees in the vicinity is affected.

Mr. W. H. Boulton, of Toronto, said that the fruit on trees standing in the open ground in his garden was not affected, but on trees at the south side of a board fence the plums had rotted very considerably.

Mr. Arnold, of Paris, believed it to be an infectious fungus, which under favourable conditions grew upon the fruit, causing it to rot.

Mr. Saunders, of London, asked why some of the plums on his trees should be rotten, and others near not at all affected, if the cause of the rot be an infectious fungus?

Mr. Arnold replied that he had not observed such a state of things, but that the rot spread to the plums adjacent.

Mr. Mills, of Hamilton, did not think that the rot is caused by fungi; and that the reason why some plums on the tree escaped while others rot, is in the difference in the texture of the skin of different plums on the same tree, and that those having a skin whose texture resists the influences of moisture and heat escape the rot.

[NOTE BY THE SECRETARY.—Gentlemen in this discussion made use of the term “infectious fungi;” but they did not mean to be understood as using that term in the usual sense of the word, “infectious.” Fungi increase by means of minute spores, which are perfected under favourable conditions in a very short time, and in countless millions. These spores are very minute, float in the air, and are carried about by the lightest currents, and these falling on a surface suited to their growth, under conditions of moisture and heat favourable to their germination, soon develop into a perfect plant, again perfecting its spores, to be in turn carried by currents of air and deposited upon some spot where they may germinate and perfect themselves.]

DIRECTOR'S REPORT.

The Directors, in submitting their Annual Report, beg to say that, since the last Annual Meeting, there have been four General Meetings of the Association—one in October, 1869, at Brantford; the Winter Meeting in February, 1870, at Hamilton; another in July, 1870, at London; and the last in September, 1870, at St. Catherine's.

At all of these meetings some very fine fruit was exhibited, and the discussions were of a very practical and profitable character. These discussions have been preserved by the Secretary, and will be printed in our Report to the Commissioner of Agriculture.

The Directors thought it advisable to offer a reward for the destruction of the Plum Curculio, an insect that destroys our plums, by feeding upon them in the worm or larva state. The insects that were taken were sent to Mr. W. Saunders, Entomologist to the Association, who will submit a report thereon.

The Directors also distributed a vine of the Eumelan Grape to each member of the Association, on the condition that the member receiving it should report to the Secretary for five years the result of the trial. This grape was attracting considerable attention, as being early, hardy, healthy and productive. The Secretary will cause a summary of the returns he may receive to be printed with our report.

We have determined to distribute among the members next spring, upon the same conditions of reporting to the Secretary annually, for five years, the results of their experience, a young tree of the Beurre d'Anjou Pear, a variety that gives promise of being well adapted to our climate, and of superior quality. Those members who may chance to have this variety already, will be allowed to select another from any one of the following varieties, viz.:—Tyson, Howell or Jaminette.

It is believed that, in this way, the Association will be the means of disseminating widely through the Province fruits that promise to be valuable, and of testing their adaptedness to the different soils and exposures.

As any person may become a member of the Association at any time, by the annual payment of one dollar, there is every reason to hope that by the increase of members by the 1st of April next, the Beurre d'Anjou Pear will have a very wide dissemination.

A list of the prizes offered by the Association for the year 1871, accompanies our Report.

All of which is respectfully submitted.

R. BURNET, *President.*
D. W. BEADLE, *Secretary.*

AUDITORS' REPORT.

Abstract of receipts and disbursements of the Fruit Growers' Association of Ontario, D. W. Beadle, Treasurer, from February 24th to September 20th, 1869.

To members' subscriptions, received since last audit, February 14th, 1869, to date	\$120 00	
Less—Commissions paid in Hamilton for collecting \$30, at 8 per cent.	2 40	
		117 60
To Legislative Grant		350 00
		<hr/> 467 60
By Balance due Treasurer last audit.....	18 51	
“ Printing, postage, stationery, &c.....	30 45	
“ Secretary-Treasurer's Salary	100 00	
“ Balance in Treasury	318 64	
		<hr/> 467 60
To Balance in Treasurer's hands	318 64	
Also, to credit of Association in N. D. Bank	350 00	
		<hr/> 668 64

We certify that the foregoing is a correct statement of accounts for the year 1869, as shewn by Treasurer's books, with vouchers for all disbursements.

(Signed) W. J. McCALLA, } *Auditors.*
W. L. COPELAND, }

St. Catharines, Sept. 20th, 1869.

TREASURER'S REPORT.

Balance in Treasury on 20th Sept., 1868, as appears by the Auditors' Report hereto annexed	318 64
Received from Members since 20th Sept., 1869.....	381 00
Legislative Grant, August, 1870	350 00
	<hr/> 1049 64
Total receipts to date, 4th Oct., 1870.....	1049 64

DISBURSEMENTS.

Directors' and Secretary's expenses.....	89 64
Expenses connected with purchase and distribution of "Eumelan" vine	327 96
Travelling Expenses of delegate sent to meeting of the Pomological Society of the United States.....	51 00
Postages and express charges	25 66
Stationery and incidentals	5 65
Printing	35 50
Prize Essays	45 00
Curculio Bounties.....	105 00
Secretary-Treasurer's salary.....	100 00
	<hr/> 785 41
Total disbursements to date, 4th Oct., 1870.....	785 41
Balance in hand	264 23
	<hr/> 1049 64

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PRESIDENT'S ADDRESS.

When a traveller has left his home for a season, and has a definite object in view by his journeyings to distant lands—when he imagines that he is nigh its accomplishment, he begins to think of counting the miles that he has traversed, and the multitude of incidents that has contributed to the successful issue of his plan. When one of our merchants has been long and sedulously engaged in the prosecution of an extensive business, he finds it to his advantage to balance accounts—to take a survey of the means employed to foster and extend his prosperous pursuits. So ought it to be with those who, like the members of the Fruit Growers' Association of Ontario, are diligently endeavouring to impress upon their fellow-men the importance of fruit culture. It is our duty, from time to time, and especially at our annual gathering, to catch up the threads of our sayings and doings, and bid them go and accomplish our objects in every county, township and home-stead of our land.

Associations for commercial purposes seem to understand the importance of keeping past progress and attainment carefully before the public supporters of their respective institutions. An Insurance Society, for instance, recommends its advantages by constant appeals to its past successes, and in every annual statement, contrasts the past with the present. Statistics furnish the grand criteria of such comparisons, and inspire the general public with confidence. To such an extent has this become the case, that rival Institutions place their claim to favour on the amount of business which they have successfully accomplished. This is just as it should be. And if our Association is to take a forward place among the beneficial agencies of our Province, we must endeavour to lay claim to the appellation of benefactors, by presenting a careful exhibit of our good doings.

With us, at present, not having in the past employed systematic effort, it is more difficult than many would at first suppose, to give a *vidimus* of past progress. No general statements have ever yet been made of the rise and progress of fruit-growing among us. Here and there, indeed, enthusiasts have appeared, who have by their influence and example disseminated fruits, and a taste for their cultivation, but no statistics of the amount of acres under cultivation, the best sorts cultivated, have ever yet appeared from the press of our country.

It has occurred to your President that it may not be an altogether unsuitable subject of address on the present occasion, to take up the subject of "the progress of Canadian fruit culture in our Western Province, and the best means for giving it an increased impetus."

My distinguished predecessor in office, Mr. W. H. Mills, in one of his annual addresses, presented a summary historical account of our Society, and in several other of his papers of a philosophical and practical bearing, has greatly exhausted the field of observation on our favourite and interesting cultivation.

There can be little question that our fruit culture owes much to the taste and experience of the United Empire loyalists. These men, who are fast disappearing from among us, live among us still by their works. Their zeal not only brought with them from the States, their cherished political opinions, but also the arts and industrious habits which characterized them on the other side. With a hard struggle for existence for some years in their new locations, they did not neglect the means of securing future comforts and profits.

The late Colonel Land, who settled in Hamilton in 1784, told me years ago, that when he went to Grimsby carrying his wheat on his back to get it ground, he greatly prized a few scions of grafted trees obtained there from older settlers than himself. To prepare for grafting, he sowed the seeds of apples obtained from any quarter, and in due time planted them out as orchard trees, and top grafted them as opportunity presented. Orchards of seeding fruit are not rare in several parts of the country even now. Not to mention orchards, a great proportion of whose fruit trees bear natural fruit even in the neighbourhood of Niagara, there are the remains of large orchards of natural fruit along the shore of Lake Erie, from Simcoe westward.

Francois Baby, Esq., brought up from Montreal, in 1796, the following varieties, which are pretty generally distributed in the south-west: Fameuse, Pomme-grise (two varieties), Red Colville, Roseau, another called Long Roseau, the Borrassa, and one called

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White Colville, a sample of which the Fruit Growers' Association had from Nova Scotia a year ago. It was, however, Mr. James Dougall says, "the Winter Pearmain."

In the year 1835, Mr. Dougall, one of our most esteemed Directors, and a veteran horticulturist, began to disseminate the finer varieties. Some years after, the late Dr. Beadle, St. Catharines, and Mr. Leslie, of Toronto, introduced new and valuable sorts.

The advance of our horticulture from small beginnings to its present eminence, is altogether within the memory of "living men." The premier Horticultural Society of the United States, (I refer to that of Cincinnati) dates *only back* to 1843; and the gentleman in whose house it was formed, Robert Buchanan, Esq., still lives to grace the Horticultural Society of that city, and to urge forward by his enthusiastic example all kinds of fruit culture.

Niagara and District have been long famous for their fruits. As the Old Capital—a military and trading post—its position brought many casual visitors and residents of varied tastes. The late Hon. James Crooks was in the habit of speaking in enthusiastic terms of the Count de Flahault, who introduced into Niagara both apples and pears from France. From his stock much of the best fruit in the Niagara and Hamilton Districts has arisen. Indeed some of the best apples we have, were brought into notice by the Count. There is an apple of superior excellence which ought to be mentioned in this connection, and which unfortunately is not so well distributed as its merits warrant, I mean the Swayzie pomme grise. It was first introduced into the Niagara District by Colonel Swayzie, and is one of the best, if not the very best apple known. Its eating, cooking, and keeping qualities attest its excellence.

Mr. Crooks brought with him on his removal to Flamboro' all the best sort of apples grown at Niagara. From Flamboro' as a centre, the finer and then rarer sorts were quickly disseminated. Mr. Crooks told me that people were in the habit of coming long distances to obtain cuttings, of which he was no niggardly distributor. In any mention of these early times, we ought not omit the tribute that is due to horticulturists on the other side of the line for their enthusiastic and acute prosecution of the trade in fruit trees. Settlers from that country in almost every corner of our land, brought the taste and desire for fruit trees with them, which had an early development in the Old Dominion and throughout the New England States. This fact is yet apparent among the descendants of Americans now naturalized in Western Canada. As a class they are still pre-eminent for their fruit-growing and taste for horticulture.

The progress of fruit-growing, of late years, among all classes is wonderful. Western Canada is now looked to as one of the great sources of supply for the Province of Quebec. It is an undoubted fact that we are beginning to compete with them, even in their own market, for apples. Large shippers forward great quantities of apples to Montreal and to the City of Quebec. This season I had an advantageous offer from a fruiterer in Montreal for any variety of pears that would take the market, while the Bartlett was especially mentioned. Horticulturists from the States declare that the apples grown by our farmers in the Niagara district will successfully compete with any grown in any part of New York State. This is as flattering as it is remarkable, if we take into account the advanced state of fruit culture in Rochester, Lockport, Canandaigua and the other fruit centres in that State.

It cannot be denied that the art has received a great impetus by the means employed for that purpose by the Fruit Growers' Association of Ontario. Their records show the painstaking efforts made in this direction. The list of apples and fruits best adapted to the different districts of our longitudinal country is valuable, and might be made the means of greater good. The soil and climatic influences are so varied, that it is only by frequent comparisons that we can arrive at the knowledge of which fruit trees are best adapted to any particular locality. For example, varieties of fruit trees that do admirably well in Hamilton, Grimsby and Niagara, often produce poor and stunted fruit at no greater distance than Toronto and further east. Our Greenings are greatly superior to those grown on the north shore of Lake Ontario. The Baldwins and Spys of Wellington Square and Stoney Creek can scarcely be equalled anywhere.

This principle of adaptedness to a particular locality must yet form an important phase in future operations of this Association.

Pear culture is more recent for years to come, went to there his effort northern shore St. Catharines the cultivation both in the remark. There are some specimens in growth and

The culture. Our ravages of the is the extent anywhere, the month of May, orchards have all but imposed

We are seen Erie, and the Huron—as Be eminance in Ontario and along Lake Curculio, is bl but as "Etern at the door of and, once got

Should attention, I strongly exposure, of a shine on that a liable to injury

Plums have considered a many years since now Now the finest is no uncommon a ready sale at often heard and spoiled for any apricot, and Reibearers. Plum

We have many slips between certain crops, but the smallest sharp cherry is quite

Perhaps the never-failing Ke have been in great Black Eagle, Elton fruits, has given tree itself has few heavy clay soils.

The peach

Pear culture, perhaps, has even made greater strides than that of apples, because it is more recent. It is true indeed, that there is no want of individuals, who have been for years touched with the fever of pear culture. Mr. Dougall, of Windsor, years and years ago, went to the expense of importing new and rare varieties from France. Here and there his efforts and example have borne fruit. There is some fine fruit grown on the northern shores of Lake Erie, which, in many instances, can be traced to his nursery. St. Catherines and Niagara have been, perhaps, far ahead of other parts of the country in the cultivation of the older and finer varieties of pear. Pears excel on alluvial deposits, both in the Old and New Worlds. Windsor and Niagara are striking examples of the remark. The old pear trees in and about Windsor are the wonder of visitors, and there are some specimens of pear trees at and near Niagara, not much behind the former in growth and size.

The cultivation of the peach of late years has not kept pace with apple and pear culture. Owing to the open and unsteady nature of the weather in winter, and the ravages of the curculio, peach trees have suffered severely. Eighteen years ago—which is the extent of my experience in the country—there were few finer sights to be presented anywhere, than a journey from Hamilton to the Falls, by the macadamized road, in the month of May. In that month the blossom was exquisite. Now all is changed; whole orchards have disappeared, and few cultivators of that luscious fruit can be found. It is all but impossible to raise a peach or a peach tree.

We are satisfied that on the western borders of Lake Ontario, the northern of Lake Erie, and the ridges of "Long Point," parts of Essex and Kent, and the shores of Lake Huron—as Bayfield, Goderich and Kincardine—will yet raise peach culture to an enviable eminence in our Province. Nectarines flourish well in gardens, as standards, at Goderich and along Lake Huron from Sarnia to Kincardine. The inroads of that little Turk, the Curculio, is blamed for the almost total neglect of apricot, nectarine and peach culture; but as "Eternal vigilance is the price of good fruit," perhaps the blame ought to be laid at the door of our neglect. Many fruit-growers have overcome the unwelcome "Turk," and, once got rid of, a good crop is ensured.

Should any one hear me who may desire to enter upon apricot and nectarine cultivation, I strongly recommend, from my experience, that the trees be planted in a western exposure, of a house or other building, as the day is far gone before the sun gets round to shine on that aspect, when a frosty night has rendered the branches and their sap-vessels liable to injury by the sun shining on and bursting them.

Plums have come into very general cultivation of late years. They have always been considered a most desirable fruit, and are highly esteemed by the public. It is not many years since no variety was to be found in our markets, except the common blue plum. Now the finest sorts are generally cultivated, and bring large prices, five dollars a bushel is no uncommon price for them in the Hamilton market, and all that can be produced find a ready sale at \$3. Public taste is being educated for finer varieties. It is a remark often heard among purchasers, who have patronized the best varieties once, my taste is spoiled for anything else than the best. Duane's purple, Bradshaw, McLaughlin, Guthrie's apricot, and Reine Claude de Bavay, are leading varieties, and all these are productive bearers. Plum culture will amply repay all outlay.

We have never had any great liking for the cultivation of the cherry. There are so many slips between the tree and the lip, that often much labour is lost. What with uncertain crops, bird depredations, and other enemies, such as the cherry curculio, very often the smallest share remains to reward the grower. The advance in the cultivation of the cherry is quite on a par with that of the other fruits before mentioned.

Perhaps the advance on the whole is greater. Most of us remember the rows of never-failing Kentish that used to grace the farmer's snake fence or garden border. These have been in great measure replaced along our frontier townships by the Black Tartarian, Black Eagle, Elton and Napoleon Bigarreau. The improved modes of canning the smaller fruits, has given quite an impetus to the production of the various sorts of cherries. The tree itself has fewer enemies than most other fruit trees. It is, however, liable to gum on heavy clay soils.

The peach and quince and grape do well wherever you find the chesnut flourish.

They delight in a white, soapy, clay loam, and wherever the circumstances are favorable, large crops reward the producer. It has often occurred to us that the absence of the Medlar is to be deplored. We have made frequent attempts to secure a specimen tree, but have hitherto failed. We don't despair, however.

Small fruits follow in the wake of any advance in horticulture in any country. In newer and more backward districts, the cultivation of the smaller fruits is almost unknown. The want is supplied by the abundant crops of wild native raspberry and strawberry. Hamilton and the Niagara and Erie districts are almost too far south to admit of the profitable cultivation of gooseberries. Currants do well and bear very prolifically.

Grapes are rapidly becoming a specialty in cultivation. Marvellous advancement has been made with respect to grape culture. It seems as if we had become inoculated with the mania from the other side. Visions of fortune-making and good wine-making have been for years so industriously circulated of the Catawba, and of grape-growing in California, that we, too, have been seized with the desire for improvement. Vineyards are springing up in many sections of the Province. Enterprising farmers have begun to think that it is as profitable to produce grapes as wheat, and that a few acres are more profitable under grape culture than the same amount under cereals. Mr. William Lottridge, of Stoney Creek, has this year sold his grapes at 6 cents a pound. This rate will pay. Grape growing in Canada has not undergone the fluctuations usually characteristic of any new introduction of a similar kind of production. Advantage has been so taken of the trials and experiments of others in the United States, that, Minerva-like, it has almost sprung into maturity from the first. Fine varieties are only planted now. The best, perhaps, in point of excellence, hardiness, productiveness, for table and wine making, are the following, named in order of their quality. I am indebted to my friend, Mr. Wm. Haskins, of the City Water Works, for the following information, which may be relied on, regarding the best hardy varieties of grapes:—

The Delaware, which always ripens here; the Hartford Prolific, the first grape for the million; the Concord, which always ripens and is prolific. These three have been tried, and found to succeed beyond a doubt. Rodgers' Hybrids follow in order. The Salem and No. 4 exhibiting all the excellence of Rodgers' Hybrids. Classed with these is No. 15.

Dr. Grant's Iona and Israella are really superior to any other where they will succeed and mature. The Israella (black) ripens anywhere, comes in soon after the Hartford Prolific and the Iona, when it will ripen, and has no superior in the country. These are all excellent table grapes.

The Clinton stands A 1 for the making of red wine. The Americans who once discarded the Clinton now speak of it with great favor, and say that its excellence has been overlooked. The Delaware and Diana stand next for white wine, and Ives' Seedling will always ripen well to make a good claret. The Creveling makes a superior wine, and the Adirondack progresses in public favor.

In entering on the question, "How are we, as fruit-growers, and especially members of the Fruit Growers' Association of Ontario, to advance fruit culture? I crave your patient indulgence and generous criticism. The views are entirely my own, and to be received and acted on with caution, on account of my limited experience in fruit-growing.

The first, and one of the most important influences for the advancement of our interests and those of the country, is the proper outlay of the means placed at our disposal by the Act of our Provincial Legislature. If private means and enterprise have so much benefited horticulture, how much more the intelligent disposal of public money? Many of our members, some years ago, were taken with the idea of an experimental farm. This useful, old and stereotyped notion has been productive of much good in its day, in older and more advanced countries than ours. But what we desiderate, is the formation of the whole Province into an experimental farm, for the propagation and testing of old and new fruits. Our Province is so varied in its climate and height that what suits one quarter seems to be the very reverse in another. Even at short distances the most singular contrasts appear. An apple does well at Windsor, but it fails at Toronto and Kingston. We require, therefore, to know not only the best fruit, but also the locality where it will suc-

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ceed the best. We are aware that soil has much to do in this case, but we will reserve this question for a distinct paragraph. The plan adopted last year is a good one, and has borne the test, and nothing could have been more successful. I mean, the issuing of a plant or fruit that is of superior excellence, asking for its cultivation, and annual report of its success. The dissemination of the Eumelan grape has largely benefited the Society in the way of additions to the membership—not far short of 30 new subscribers were obtained in the city of Hamilton alone, and large accessions throughout the country in general.

It is not to be expected, indeed, none of the promoters of this movement for a moment suppose that the fruit trees distributed will prove wholly suitable—that is not to be expected, but it is no little gain to intending purchasers, for the Society to be able to say such and such a variety has been tried in your neighbourhood, and under similar circumstances it will not succeed.

We are satisfied that attention has not been sufficiently directed to the geological strata of our country, and the question of the influence of the different strata on fruit growing. Some years ago I was incidentally led in this direction, by the observation of the fact that the finer varieties of fruits flourished well in a friend's garden at Goderich. I tried to account for it, and passed in review before my mind the moderating influence of Lake Huron, and the height above the sea, but to the discomfiture of all my notions, I further found that the same fruits were only produced in certain localities, and not throughout the length of the district—Kincardine, Goderich and Bayfield. In looking at Sir William Logan's geological map, I saw that a certain formation cropped out at these places, and from the fact that the varieties of fruit did not appear to do well at certain intermediate localities, where they had been tried and where a different stratum prevailed, I was forced to the conclusion that the geological formation of a country has much to do with good fruit raising, and that the question of soil, now as of old, is of paramount importance to us as encouragers and directors of fruit growing. So impressed was I with this idea, when Mr. Beadle and I prepared your last fruit report, that I then proposed a new distribution as a basis of comparison, viz. :—A geological one instead of one into districts. It has often happened that you get a report from two members living a stone's throw from each other in the same district, in the same valley, on the same plateau, with similar exposures. Such reports are contradictory and unsatisfactory. Mention may be made of the same fruit trees, doing badly in one case and well in another. Such reports are not only puzzling to compilers of statistics, but worthless as data on which to build up any practical plan and direction for local fruit growing. We would suggest that our Society should bring out the views of members on this point, give a premium for the best essay on the different geological strata best adapted to fruit culture. It would ventilate this important subject, and nothing loses but mustiness by ventilation.

Let me also notice the question of the utilization of fruit when it has been raised. I do not refer to its consumption by the immediate producers and their immediate neighbors, but as to the mode of dealing with it, that others at a distance may also be induced to enquire for it. Exhibitions are most commendable, and I could not, I would not lift up any derogatory word against their usefulness. Our presence here, on this occasion, would be a living rebuke to any such rash censure. It seems to me, however, that we have got beyond the day of exhibitions, pure, and simple, these being accomplished facts. What we now want is the utilization of our exhibited fruits.

The Hon. George Brown, at a recent meeting of the Local Committee, suggested that subjects of discussion, arising out of the articles exhibited at our Provincial Fairs, should be fairly and temperately canvassed on the different evenings of the Exhibition week. The benefit likely to accrue from this, if undertaken, is so apparent, that it requires only to be put to commend itself to every exhibitor. Publicity is the grand desideratum of our exhibitions. Competition involves publicity. The fact of our having goods or products better than our neighbour, and more deserving of public confidence, requires to be known. What I would urge would be, that not only should our Association order its Directors to prepare questions for discussion connected with our specialty, but that they should be so widely disseminated through the press, that intelligent and practical farmers interested in the Horticultural branch of their profession, should come up to the place of

exhibition and to the meetings for discussion, prepared to take an active and prominent part for the general good.

The question of utilization does not end here, though it may well begin with the former suggestion. We would like to see the samples of our exhibited fruits at our Provincial shows, more widely distributed, to catch the eyes of as many beholders as possible. Let the Provincial Association pass a rule, that all prize, farm, and garden products are to be considered as the property of the Association, and a difficulty is obviated in these not being the property of the Association. Something similar is done by the owners of stock and machines. Why not with fruits? The same bull that took the prize to-day may be exhibited next week in a distant county, and carry off golden opinions and something else from a different body of exhibitors. So with machines, let it also be with fruits. Let means be established whereby others can derive benefit from our fruit growing. Believing, as I do, that our more immediate districts of Toronto and Hamilton, Niagara and Erie, are yet destined to become the great fruit growing districts of our country, it becomes us not to let our light be hid under a bushel. I would also send samples of our fruit to Newfoundland, and thus show them what we can do so far west, but I would also send to the township and agricultural fairs in the remoter districts where fruit is scarce, and where there is, or rather ought to be, a demand for it, the products that could be put in their way, if only they desire them, as a healthy addition to their food and comfort.

The exportation of fruit ought also to be encouraged. Similar means as the foregoing ought to be used to accomplish so important an object. Our Association should attempt to open up means of communication with the Royal Society of England, the Royal Highland Agricultural Society of Scotland, and with the Dublin Horticultural Society, and enter as competitors as fruit growers in their exhibitions; such intercommunication would do more to develop provincial export than even the reports of our Provincial Exhibitions would do for years. It may be remembered, for I do, that some years ago specimens of our Canadian grown apples were forwarded to the Royal Society, which created quite a surprise among the members. These means must be reiterated, and like efforts made at short intervals. We must make more of our advantages than we have yet done. Good will rebound, not only to the country generally, but to the farming class particularly.

In close connection with this subject is the question of the best varieties. This has been somewhat authoritatively settled by some of our savans, in the pages of our publications. With due deference to the extensive knowledge of the practical horticulturists among us, I would suggest the propriety of a double division of "Fruits desirable to be cultivated." First and foremost, market varieties claim our first attention, but the conditions of fruit-growing are far from being served by furthering the production of market varieties; we want another class of fruits to suit a large, and, I am happy to say, an influential class in our Association—I refer to the amateur class. Men who cultivate for pleasure and beauty, as well as for profit, such apples as the Pomme Royal, Summer Rose, Mother, Autumn, Strawberry, Tetofsky, and many of a similar class, and they are many, ought not to be discarded from even general cultivation, although for profit they cannot be compared to the old market varieties. Greater and greater attention is being given by an increasing number of amateurs to these superb varieties. The Pomme Royal—an apple not enjoying that eminent position its merits ought to command—is one of the best summer apples. The same may be said of the Swayzie Pomme Gris as a winter apple. In exhibitions for prizes this distinction ought to be kept steadily in view. At a late competition for excellence in fruits, we saw a plate of Mother apples entirely overlooked, and a poor but common variety carrying off the palm in its stead.

This leads us to notice a distinctive feature of the prize catalogue of the present Provincial Exhibition, and that is the classifying the different kinds of pears and apples, and only bringing varieties of the same kind into comparison. We write in anticipation of the event, but we venture to augur that the display will exceed the most sanguine expectations of its promoters. The change, we believe, will work well, and simplify the labour of the judges. It is scarcely fair to ask a man to decide between a plate of Seckels and a plate of Bartletts. By the new mode the difficulty is obviated, and the decision is not left to individual taste. We would like to see our Association introduce

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to general practice some discrimination between market varieties of apples, pears and plums, and those of higher flavor probably, but not so common on account of not carrying so well, or from some other such cause. Such discrimination in our prize exhibitions would go far to introduce a very general cultivation of apples and pears, which at present, for several reasons, are in abeyance. We might surely blend the profitable, the beautiful, and the pleasant, the interest of the nurseryman—the adornment of the orchard and table both of the farmer and professional man.

Another point of attention in fruit culture that is to advance its best interests, is the inculcation of the more general practice of thinning the fruit. Being myself one of the greedy sort, I am perhaps the last man who ought to lecture other growers on their failure in securing good fruit. I am so impressed, however, from various reasons, of the urgent propriety of thinning out, that I cannot but make brief mention of it.

We have all noticed the fine fruit on our trees in the season when it is not bearing heavily. This year, for example, I had a Seckel that bore a heavy crop last year and was allowed to do so. The tree did its own thinning this last season, and only produced a few specimens: the consequence is, that the crop is exceedingly large and handsome—in fact the largest Seckels I ever produced—good results to the tree as well as to the fruit—the tree will bear more generally year after year—the fruit is infinitely finer—and the amount in weight is not far short of a great crop of poor fruit. By a judicious system of thinning, I have also noticed—in having it practised on one tree—that we get rid, to a large extent, of the apple and pear moth worm. This is not a small advantage, for if the thinning out be done just when the moisture of late spring and early summer begins to fail, the tree is much helped in maturing the good fruit, and pests are prevented coming to maturity, and so strengthened to bury themselves for future depredations.

The preserving of fruit and lengthening out its period is an important question to the fruit producer. Much talk, trouble, and money has been expended, but much, almost everything, remains to be done. We believe in burying them in the earth. In the preservation of grapes, we have heard of charcoal water being employed, the stems of the fruit-bearing vine being put into bottles containing the water. The expense and trouble connected with such a process will ever go far to prevent its common use. Our neighbours across the lines have come nearest obviating the difficulty by the use of their preserving cans. Ingenuity, however, will yet discover cheaper and more common means for preserving grapes beyond the season.

Mr. Reid, of Port Dalhousie, has produced a grape that seems to me in advance of any other, as admirably suited for a raisin grape. When exhibited at St. Catharines last week, it seemed to me to have all the characteristics of a good drying grape. The production of such a grape may be of no pecuniary advantage to the producer, but assuredly the country will profit by its general introduction and cultivation.

The fostering of the labour of the Hybridizer has received attention from this Association. This branch of the art of gardening has been long known and practised by the nations of antiquity. What an endless store of observation and production is opened up to us through this wonderful process. We are believers in natural selection as well as in the nicest manipulations of art, and fine seedings are to be looked for from both sources.

An Act of Parliament to enforce the destruction of moth-eaten fallen fruit is much needed. The insect pests are making rapid strides among our crops of fruit. We trust that the Commissioner of Agriculture will give this subject the attention it demands, and should the present Agricultural Act require amendment get a clause inserted, making it imperative on all fruit growers to destroy fallen fruit.

I cannot close without thanking you, gentlemen, for your kind indulgence throughout my year of office. I shall always look back with honest pride to the uniform urbanity with which you treated me, and in retiring into the ranks of our Association from which your distinguished consideration elevated me, will only feel too happy in furthering, to the utmost of my ability, the best interests of your Association.

With devout thankfulness to the Giver of all good for permitting us to prosecute the arts of peace—having driven the ruthless invader from our border—and to enjoy the peace, happiness, and plenty which crown the labours of the agriculturist and horticulturist

throughout our large and growing country, while others are engaged in deadly strife. I bid you all a kindly and hearty farewell.

AUTUMN MEETING OF THE FRUIT GROWERS' ASSOCIATION OF ONTARIO, 1869.

The Fruit Growers' Association of Ontario held their regular autumn meeting in the Town Hall, Brantford, on the 7th October, 1869; the President, the Rev. Mr. Burnet, in the chair.

The Secretary, D. W. Beadle, read the minutes of the previous meeting of the Association in London. The minutes and resolutions were confirmed.

Mr. Arnold and Mr. Leslie were appointed a committee on apples; Mr. Holton and Mr. Woolverton on pears; Mr. Saunders and Mr. Mills on grapes and other fruit; to examine and report.

The President then proposed the discussion of the first question, namely, "*the benefits of planting trees for shelter, and the propriety of offering a prize therefor.*"

Mr. Saunders stated that he had no experience; but he had planted a number this year, and would be able, in a few years, to have something to say in the matter.

Mr. W. H. Mills, of Hamilton, had planted shade trees on his place, and found that he could plant fruit trees successfully where they would not thrive before. He attributed this result to the shade trees protecting the tender fruit trees from the wind.

Mr. Bennett corroborated the last speaker, with respect to grapes, and approved highly of trees for shelter.

Mr. Russell Smith thought they were an advantage to fruit trees and vines.

Mr. Woolverton spoke favourably, as far as his experience, which was limited to hedges, went.

Mr. Aaron Slaght, of Waterford, lives in a comparatively new country, with many forest trees; thought wind and storm very disastrous to fruit trees, especially peaches, unless sheltered; strongly recommended a large portion of pine trees as a protection, evergreens sheltering in winter as well as summer; suggested the propriety of planting fruit trees more closely, and recommended a prize for the best essay on the subject.

Mr. Hamilton thought trees a great protection, provided they are not too near. In that case he considered them a detriment; thought east worse than north wind.

Mr. W. A. Smith had planted a hedge on the north-west side, which he considered a benefit.

Mr. John Hatch, Woodstock, thought fruit trees, as well as cattle, required protection.

Mr. Moyle said that his children planted peach trees under some vines, and they have done better than any others; they survived the winter better, and he strongly advised protection to them.

Mr. Chisholm has an orchard well protected by forest trees; his neighbours complain of their fruit being blown off, while he cannot complain on that score. He has never planted trees for shelter, owing to a sufficiency of natural forest.

Mr. Ball said there could be but one opinion as to the planting trees on east, west or north sides; but vines did not require to have trees on the south; suggested legislation to restrain persons from cutting down all the trees on their farms; thought pine and other evergreens made good shelter, and grow well; the yellow locust is very good; planted his trees two deep, and not too closely; transplanted his evergreens in May, or early in June.

Mr. Woolverton did not approve of the locust, as being liable to the borer.

Mr. Holton thought shelter desirable to fruits, likes the white cedar, but had had no extended experience.

Mr. Bauer disapproved of the locust, but approved of the maple.

Mr. Hart suggested cedar or pine as shelter; thought the winter hurt trees more than the summer.

The President spoke of Lombardy poplars as being used in France for shelter. They diverted winds to the higher strata of air, and were close in their foliage. He suggested a

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Mr. Holton feared the Lombardy poplar might become a nuisance, as they sprouted up from the root very fast, and were very hard to keep down.

Mr. Bennett did not approve of the poplar; said that it was too tall, and produced worms; but spoke, from practical experience, most favourably of the white cedar.

Mr. Holton spoke well of the silver maple.

Mr. Arnold spoke of the Norway spruce; recommended them above all others; and said that the Lombardy poplars were very injurious to his orchard.

Mr. Saunders corroborated Mr. Holton's remarks, as to the silver maple.

Mr. Chisholm spoke highly of beech hedge.

The Secretary favoured the Norway spruce, saying that it could be regulated better than any other, and thrive in any soil.

Mr. Bennett also spoke well of spruce, but thought they were expensive.

Mr. Holton corroborated Mr. Bennett, and was also of opinion that the Norway spruce grew slowly.

Mr. Smith thought that half of the white cedars which were transplanted died, while the Norway spruce were stronger.

Mr. Hamilton thought the white cedar was easily raised.

Mr. Bennett thought the spruce took too long to grow.

Mr. Mills thought the variety of trees should be chosen by parties about to plant, with regard to the nature of the soil and other circumstances.

The following resolution was then adopted:

Resolved,—"That in the view of this Association, there is no question but that the planting of shade trees for shelter to orchards and farms, from the cold prevailing winter winds, is of the greatest benefit, and this meeting recommends to the Directors to offer a premium for the farm which, within the next five years, shall be most thoroughly and advantageously planted with trees for shelter." Carried.

The Committees appointed to report on the fruits exhibited, presented their reports, which are appended.

The report of Mr. Arnold, delegate of this Association to the Pomological Association of Philadelphia, was then read, and ordered to be printed. This is also appended.

The second question then came up for discussion, namely, "*The best and most economical system of vineyard culture.*"

Mr. Saunders recommended Mr. Fuller's plan of keeping the bearing wood near the ground.

Mr. Russell Smith said he had adopted the plan of planting in rows, ten feet apart, preparing the soil first. He runs the vines along trellises, and thinks they can be raised in this way on almost any soil. He attends to underdraining, and sets the vines in prepared ridges, training them six feet high, tied to trellises. The fruit seems to ripen better if the vines are trimmed; besides, trimming gets rid of mildew. He trims in the fall, immediately after the grapes are gathered.

Mr. Bauer thought the trellis should run north and south, and the vines be kept down to six feet, the wood being renewed. Laterals should be cut off, and plenty of air allowed to circulate. The leaves are requisite to shade the fruit. The first year, he said, cut down plants to two eyes, the second year to three eyes, and the third to four. He sulphured the plants three times a year, by a bellows with a curved nozzle. De la Vergne's system of sulphuring will suit a garden, but not a vineyard. The sulphur is put into the bellows. Sulphur, Mr. B. said, prevented mildew, but would not cure the rot, nor did he know of anything that would.

Mr. Grace said that he adopts Fuller's system of culture.

The third question was then proposed, namely, "*The best varieties of vines for making wine.*"

Mr. Burnet thought the Clinton too acid for wines, but recommended a mixture of the Isabella and Clinton—half and half; thought the Delaware made the best wine; but the Catawba was very good, as was also the Iona.

Mr. Bauer thought nothing better than Clinton and Delaware. For white wine, the

Delaware was as good as any grape raised in Europe; it had all the properties for the best and most solid wine, and if carefully made, the wine would compete with any in the world. The specific gravity of Hartford was 50; Delaware, 75. Arnold's No. 5 was very heavy in the saccharine matter.

Mr. Smith made his best wines by a mixture of various kinds.

Mr. Bennett thought a temperature of 62° or 64°, during fermentation, was essential to good wine.

Mr. Bauer was of the same opinion, but preferred 60° all the year round. The equality of temperature made the wine more pure and fine.

The Secretary thought that, for red wine, the Clinton, and for white, the Delaware, were the best.

It was then resolved that, "Whereas a number of parties have brought fruit, especially apples, here, to be named by the Association, a committee be appointed to name such fruit, and that the President name the committee."

Messrs. Beadle, Arnold, Holton and Leslie were appointed.

The meeting took a recess.

EVENING SESSION.

Subject for discussion: "*The best variety of grape for table use.*"

Mr. Bennett thought Delaware best for this climate; Iona, Creveling, Adirondac and Israella would be next, and could be cultivated with success in this section.

Mr. Bull thought that no one grape would fill the gap—that they must have a succession; thought those named by Mr. Bennett were very good; thought the Rebecca very good, and the Diana the best keeper.

Mr. Bennett thought the Rebecca did not break well in spring, but the Diana kept very well.

Mr. Saunders would place the Delaware first on the list; liked the Adirondac, Iona and Israella. These were so good, he did not know which to choose for next best; liked the Diana very well.

Mr. W. H. Mills would qualify his statement in regard to those grapes just named, as they might be good locally, but not so generally. The Delaware was the best in his own ground, but it does not do well everywhere. The Diana did well with him, but did not ripen evenly, and had to be thinned to get good bunches; would add to those mentioned Rogers' No. 4; thought a great deal of it; thought the Creveling a very fine grape, but it did not set well unless grown with other grapes.

Mr. Saunders thought Mr. Arnold's No. 5 much superior to the Rebecca, and thought it would compare very favourably with the Golden Chasselas and Sweetwater, grown under glass.

Mr. Arnold said the Delaware would succeed in Paris, but it required too much care; with high culture it did admirably. The Iona was a very delicious grape, but it killed to the ground every winter. If confined to a single grape, he would choose Rogers' No. 15; it was the best flavoured grape he had, but not a perfect flower. Rogers' No. 4 was a good bunch; Diana did not bear, was perfectly useless, though it kept well. But he would pit his No. 16 or 2 against the Diana for keeping. Creveling was tender with him. Adirondac, he thought, lacked character—nothing but sugar and water.

Mr. Chisholm thought the seasons, as well as the localities, had a great deal to do with grapes.

Mr. Beadle said, the best table grape was the first ripe grape he could get. The Adirondac and Rogers' No. 3 ripened the earliest; then the Creveling came in, and was very fine. After that, some more of Rogers' came in, Nos. 33 and 44; then the Delaware. He liked the Delaware very much; it required a porous soil; it did not do well on stiff clay. The Delaware was the best. He found that Rogers' Hybrids, when fully ripe, did not improve; but the Delaware got better the longer it was kept. He had kept it to Christmas. Took Concord next, and found it to ripen better than the Isabella.

Mr. Hislop would enquire if the Association had adopted or appointed a committee for the identification and classification of fruit, and thought it would be a benefit to fruit growers to do so.

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Mr. W. H. Mills would suggest that the classification of summer, autumn and winter did very well, and that any closer classification could not be carried out.

Rev. Mr. Slaght thought the Association should pass a resolution, recommending the various agricultural shows to have fruit correctly classified, and named in all the classes.

Mr. Bennett thought it very important to have all fruit correctly named.

Mr. Beadle then read the report of the Committee on seedling fruit. (See report.)

The report was adopted unanimously. Discussion on the "*grape-vine flea-beetle*" was next in order.

Mr. Saunders, of London, said this beetle was easier managed in the larva state. In the beetle state it was very active; while it was destructive in both the larva and beetle states.

Mr. Arnold knew enough of the destruction caused by it, but did not know how to get rid of it.

Mr. Bauer thought a lot of chickens would make a clearance of them.

Mr. Beadle found them easily killed in the larva state, which would be the best time to get rid of them.

Mr. Saunders thought hellebore would be effectual in killing the larva.

Mr. Arnold had not found the hellebore of any use; thought the Virginia creeper a nursery for them.

Mr. Saunders thought the same insects that fed on the grape would also feed on the creeper.

Mr. Bauer said, a wash of tobacco stems, boiled in water, with soap and sal soda added, would be very effectual.

Mr. Saunders thought Mr. Bauer's remedy very good.

Mr. Bauer promised to furnish the exact proportions to the Secretary, by letter, for publication.

The pear blight discussion was postponed until next meeting.

Mr. Mills gave notice of a motion for amendment of the constitution.

The next meeting was ordered to be held in Hamilton, at the call of the President, and the Society adjourned.

At the Directors' meeting, held immediately after, it was resolved that the following subjects should be submitted to the next meeting for discussion, namely:—

1. THE PEAR BLIGHT.

2. THE BEST VARIETIES OF WINTER PEARS.

3. DOES CLOSE SUMMER PINCHING IN OR HEADING BACK PRODUCE BEARING FRUIT SPURS?—IF SO, IS IT DONE WITHOUT INJURY TO THE LIFE OF THE TREE? WHEN IS THIS PINCHING TO BE DONE, AND HOW?

4. WHAT EFFECTS ARE PRODUCED BY THINNING OUT FRUIT, BOTH AS REGARDS THE FRUIT AND THE TREE?

5. CAN FRUIT BE KEPT FOR ANY LENGTH OF TIME BEYOND THE NATURAL PERIOD OF RIPENING, AND HOW?

6. WHAT ARE THE BEST VARIETIES OF APPLES FOR SHIPPING?

FRUIT REPORTS.

REPORT OF COMMITTEE ON APPLES.

Your Committee find a number of seedling apples, namely:

Shown by C. Arnold, Paris, five varieties.

Shown by A. Forfar, Scarborough, three varieties.

Shown by S. M. Durkee, Wellington Square, two varieties.

Shown by James Cowherd, Newport, seven varieties, and six of crabs.

Shown by Thos. Chisholm, one variety.

IN CULTIVATED VARIETIES.

James Heaslip exhibits King of Tompkins County.

Mr. Woolverton shows Cranberry Pippin, King of Tompkins County, Cooper's Market, Baldwin, and Yellow Bellflower.

Mr. Russell Smith sends Northern Spy, Baldwin, Seek-no-further, Ribston Pippin, Greening, Rambo, Swaar, Spitzenberg, Talman's Sweet, Sweet Bough, Fall Pippin, Fallo-water, and several varieties for name.

Mr. James Grace shews about twenty varieties, for which he wishes names.

W. A. Smith shews twelve varieties of apples.

W. H. Mills, Hamilton, exhibits a fine sample of Alexander, King of Tompkins County, R. I. Greening, Gravenstein, Autumn Strawberry, and three crabs.

Mr. James Cowherd, Newport, shows a fine collection of forty-three varieties of apples. The largest apple amongst them is the Flower of Genesee.

Thomas Spencer shows an exceedingly fine sample of King of Tompkins County.

T. Turnbull shows twenty good varieties of apples, and three varieties for name.

Many of the specimens shewn are very creditable; but of the cultivated varieties, no new ones are noticed, except such as have been on exhibition before. Not having tested the seedlings, we can say nothing of them, more than that some are of fine appearance. The testing them comes under the jurisdiction of another committee.

GEORGE LESLIE. }
CHARLES ARNOLD. }

REPORT OF COMMITTEE ON PEARS.

Your Committee, appointed to examine the Pears upon the table, beg to report that they find the following:

From President Burnet, fifteen varieties, among which they find—very fine—Beurre Bosc, Duchesse and Flemish Beauty,—a specimen of the latter weighing one pound.

F. M. Bennett, 30 varieties, including Winter Nelis, Sheldon, Easter Beurre, and Belle et Bonne, of superior excellence.

From Mr. Woolverton, eight varieties, among which fine Swan's Orange, and Kingsessings were noted.

From Mr. Whitlaw, fifteen varieties, including handsome specimens of Triomphe de Jodoigne, Kingsessing, and Louise Bonne de Jersey.

From Mr. Arnold, three varieties.

From Mr. R. Smith, three varieties.

From Mr. Grace, one variety.

From Mr. W. A. Smith, eleven varieties, among which were noted good specimens of Stevens' Genesee, Verte Longue, and Louise Bonne de Jersey.

From Mr. Holton, fifteen varieties, including handsome Howell and Napoleon.

From Mr. W. H. Mills, ten varieties, among which we note fine Duchesse, Belle Lucrative, and Vicar of Winkfield.

From Mr. Turnbull, three varieties.

From Mr. Ball, one variety of seedling Pear, small size, not ripe, for further examination.

Your Committee have to express great satisfaction at the splendid display, as a whole. All of which is submitted.

W. HOLTON. }
C. E. WOOLVERTON. }

REPORT OF THE COMMITTEE ON GRAPES.

Your Committee on Grapes, Plums, &c., beg to report as follows:

We find, placed on the table by the Rev. Mr. Burnet, of Hamilton, three varieties of grapes, namely, the Hungarian Princess, better known as the Zinfindal, grown in the open air, weighing one pound and over, a grape very compact, but not of high flavor, which may be owing to the extremely wet season; the Riessling, and the Chester Seedling, No. 1, of very fine flavor, grown in open air, by the Rev. Dr. McMurray, of Niagara.

Mr. William Saunders, of London, exhibited some fine Pond's Seedling Plums, measuring six inches in circumference, and Smith's Orleans, 5½ inches.

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MR. FORFAIR'S :

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No. 2.—Fall

No. 3.—Win

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MR. DURKEE'S :

No. 1.—Conic

No. 2.—Good

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Mr. A. B. Bennett, of Brantford, showed Delaware and Creveling grapes, fine, and quite ripe, and Ionas.

Mr. Hislop, of Ancaster, showed Fox Grapes, very large.

Mr. Woolverton, of Grimsby, showed Allen's Hybrid, Iona and Diana.

Russell Smith, Esq., of Fairfield Plains, exhibited Black Hamburg (under glass), Concord (open air), also Hartford Prolific, very good, and Delaware.

Mr. W. H. Mills, Hamilton, some fine Dianas, weighing ten ounces in the bunch; Delawares, 4½ ounces; Isabellas, 9½ ounces; also, a very poor grape, called the King; Rebeccas, Rogers' Nos. 15 and 4, Concords, very good and large, and well ripened; Ionas, nearly ripe; Black Hamburg (under glass); also, Bowood Muscat, a single bunch weighing 1 lb., 6¼ oz.; some very fine Plums, namely, Pond's Seedling, Reine Claude de Bavay and Bingham.

Mr. Arnold, of Paris, exhibited some fruit of fall-bearing raspberries, namely, the Yellow Canada Raspberry, Arnold's Red, and the General Negley.

A variety of Peach, called the Smock Freestone, a late, large, fine Peach for preserving, was placed on the table by Mr. Woolverton, of Grimsby.

We would not feel justified in closing this report without taking special notice of some very fine Seedling Peaches, placed on the table by Mr. James Cowherd, of Newport—six varieties, some of which, we trust, he may put more prominently before the country by inviting a committee from the Association, next season, to examine and report upon them.

W. H. MILLS.

WM. SAUNDERS.

REPORT ON SEEDLING FRUIT.—APPLES.

MR. COWHERD'S COLLECTION :

No. 1.—Fall Apple, large, conical, striped, acid, only fit for cooking, and has no distinctive merits to make it worthy of dissemination.

No. 2.—Said to be a seedling of the Esopus Spitzenberg, possessing, in appearance, much of the characteristics of that fruit, but much larger. A very promising apple, which the Committee would like to test when fully ripe.

No. 3.—Fall Apple, medium size, pleasant, sub-acid, but not equal to other cultivated varieties of same season.

No. 4.—Medium size, sharp acid, without flavour.

No. 5.—Very fine, medium size, promising to be a good keeper; very acid, but the Committee would like to see it when fully ripe.

No. 6.—Fall Apple, sweet, medium size; no particular merit.

No. 7.—A pretty Apple, but very tart, without flavour.

MR. CHISHOLM'S :

One variety, medium size, conical, green, with a red cheek, very acid, and no improvement.

MR. FORFAIR'S :

No. 1.—Fall Apple, medium size, flattish, pale yellow; said to be grown on a tree seventy years of age; mild, very agreeable flavour, and fine grain; a very promising table Apple, not to be overlooked.

No. 2.—Fall Apple, sweet, flat, red, striped; no merit.

No. 3.—Winter Apple, flat, green, with a red cheek, and covered with numerous white dots; firm flesh, of a peculiar and rich flavour; an Apple to be looked after by the Committee.

MR. DURKEE'S :

No. 1.—Conical, red, striped, but no merit.

No. 2.—Good size, very handsome, flat, very red, striped; an early winter apple; in the estimation of the Committee, only fit for cooking. Mr. Durkee has, however, promised to lay the Apple before the Committee during the winter.

In the collection of Seedling Crabs, by Mr. Cowherd, there are none of anything like the quality of the Transcendant, consequently can not be recommended for dissemination. One of them (No. 2) has more the appearance of a small Apple than a Crab, and is quite sweet.

In Mr. Cowherd's selection of Seedling Peaches, the Committee are of opinion that those marked Nos. 4, 7, 9 and 10, are the best, and should not be lost sight of. The Committee hope to see the Peaches numbered above laid before them or the Association another year.

NOVA SCOTIA APPLES.

The Directors of this Society held a meeting at the City of Hamilton on Wednesday, the 8th December, 1869.

The occasion was made more than usually interesting by the reception of a collection of apples from Nova Scotia, sent by the Fruit Growers' Association of that Province, with their cordial greetings, and the expression of a desire on their part to make exchanges of scions, specimens of fruit, and information concerning the culture of fruit. The collection embraced forty-nine varieties of apple, many of them being well known sorts, which are generally cultivated in this Province, such as the R. I. Greening, Ribston Pippin, Gravenstein, Northern Spy, Baldwin, &c. According to the letter received from the Secretary of the Society, they sent one hundred and sixty-one apples, but only some one hundred and forty could be found in the barrel when it came to hand. The barrel had been opened in the course of its transit and plundered. In consequence of this the apples that did reach their destination were very badly bruised. The fruit was sent from Halifax by steamer to Portland, and thence by Grand Trunk Railway to Toronto, and the Nova Scotia Society paid the freight through, including the bonding charges at Island Pond, so that no Customs Official nor any one else had any right to open the barrel, much less to plunder it. It is a shame that a small parcel of fruit cannot pass from one part of the Dominion to another without being thus molested. The Nova Scotia friends had taken much pains to paste a numbered ticket upon the fruit to correspond with the list forwarded by mail, but nearly all these numbers had been rubbed off in consequence of such unauthorized disturbance, so that the value of the specimens was mostly lost.

It is very interesting, however, to see the samples of fruits well known to our cultivators, and easily recognized even without any numbers, to compare them with the same varieties grown here, and likewise to know the estimate in which they are held in Nova Scotia.

The R. I. Greenings were what would be here considered as a fair sample of that variety, not quite such as would be selected to exhibit at a County Exhibition. They say that it does well there on warm light soils.

The Ribston Pippins were a very fine sample, and their remark is that it ranks high as a market apple.

The Gravensteins were a fair sample, not extra. This sort is esteemed by them, as by us, a first-class apple for market, for the table, and for profit.

The samples of Yellow Bellflower were very fine indeed, and they say that it is first-class on light, dry soils.

The Northern Spy apples would be considered of medium size by us, and not very well coloured. They say that this variety has been scarcely tested yet, and seems tardy in bearing.

The Alexanders were doubtless very fair samples when put up, but they reached us in exceedingly bad order. This variety was at first condemned in Nova Scotia, but is now considered profitable.

Their Snow Apples were very fine, and they report them to be prolific and hardy, but apt to spot and mildew. This is the character of this apple in the warmer parts of Ontario, but in the more northern sections it is much less liable to be spotted.

The Pomme Grise would be here considered an inferior sample. They speak of it as good, but too small for profit.

The samples of Westfield Seek-no-further were very fine, and evidently confirm their report of it that it does well there, even better, we judge, than with us.

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Their Baldwin was a very good sample, and according to the report, is one of their standard sorts.

The samples of the English Golden Pippin were very fine and well grown, and it is reported by them to do well there, and sell readily at high prices.

They report the Talman Sweet as a long keeper and a good cooking variety; Lyman's Pumpkin Sweet as a first-class baking fruit, that sells quickly where known; the Hubbardston's Nonsuch as prolific and good, and Æsopus Spitzenburg as good, but variable.

From this, our reader will be able to form some idea of the apples of Nova Scotia, and the capabilities of that Province for their successful cultivation.

A number of local varieties were sent, but owing to the labels being rubbed off, it was quite impossible to identify, save a very few of them. There was one, however, which was called the Iron Apple, that came in an excellent state of preservation, and seemed to be a very fine apple, having a fine grain and a rich and somewhat aromatic flavour.

The Secretary of the Association was instructed to acknowledge the receipt of the apples, with many thanks, and to express to our Nova Scotia brethren the appreciation by this Society of their kindness, and the readiness of the Society and officials at all times to reciprocate in any way that may be of service to them, this expression of their fraternal regard.

CIRCULAR TO THE MEMBERS OF THE FRUIT GROWERS' ASSOCIATION OF ONTARIO.

At a recent meeting of the Fruit Growers' Association a resolution was unanimously passed that the President and Secretary should be instructed to prepare a prospectus of the objects contemplated by the Society, for gratuitous distribution among the members and others.

In pursuance of this appointment, the following synopsis is respectfully submitted to the consideration of our Provincial fruit growers.

Article II. of the Constitution comprises the following summary:—"Its objects shall be the advancement of the SCIENCE and ART of fruit culture, by holding meetings for the exhibition of fruit and for the discussion of all questions relative to fruit culture; by collecting, arranging and disseminating useful information, and by such other means as may from time to time seem advisable."

A wide field is thus opened up to us by the framers of our constitution—room enough on the one hand for the discussion of abstract and speculative principles, and on the other, verge for the most acute, or it may be, the most prosy performances in practical gardening.

The aim and ambition of our Fruit Growers' Association is, directly and indirectly, to lead the votaries of horticulture to the study of vegetable physiology. The highest delights of horticulture are to be derived from a knowledge of the growth of the different species of fruits, and the functions of the various parts of plants; of the principles that govern and regulate growth and maturity, the formation of wood and the production of fruit.

Meteorology, too, looms up as a necessary adjunct to the success of the gardener. Pomologists and fruit-culturists in the United States fully realize the importance of this branch of science as materially modifying the circumstances of weather—heat and cold, drought and moisture—which affect the labours of the horticulturist. The philosophical discussions on this subject in horticultural assemblies or conventions in the United States are worthy of our imitation. It may not perhaps be amiss to hint to our members, that a free discussion on the benefits of scientific study, whether of chemistry, botany, or meteorology, might not be out of place alongside of our animated assertions about "pear blight," "frozen sap," or "fungous growth." What profitable discussion might arise from the simple but prevalent principles of light, moisture, heat, or its negation, cold. How much knowledge is requisite for the adequate discussion of any one of these subjects, and yet how absolutely necessary is such knowledge to the would-be successful horticulturist? We may here direct attention to the fact that Professor Kingston, of Toronto, will furnish, at a small expense, the necessary instruments of observation, and provide (gratis) directions for the use of the observer.

Our Association is also designed to promote the ART of fruit-culture. The first grand pre-requisite of this art is to know "a good soil." A clayey loam is the best for fruit-

growing, although different varieties of fruit require different soils; some doing well on stiff clay, others on sandy or light texture.

Draining will also come under this division. It is essential to all soils. If the inferior strata be retentive, draining must be executed with the greatest care to carry off the superfluous moisture. In "The Essay on the Philosophy of Drainage" it is shewn that "the thermometer in drained land rose, in June, 1837, to 66° at seven inches below the surface, while in the neighbouring water-logged land, it would never rise above 47°." The reason why drained land gains heat consists in the well-known fact, that heat cannot be transmitted downwards through water. It is melancholy to see the effects of wet land in our Province, or indeed anywhere. Witness the swamp between St. Catharines and Niagara; the level land in the neighbourhood, east and west of Komoka, and elsewhere. How desirable for townships to club together and clear main or leading drains, so as to allow individuals along the line the opportunity of draining their lands. The stunted, undergrown, moss-covered fruit trees, the poor stubble, the over-rank grass, all cry out for agricultural and horticultural societies to do their duty, and urge men to benefit themselves and their neighbours.

Manures.—The proper application of manures to fruit trees also requires our attention. In manuring an orchard, shall we apply the manure to the surface, or let it do the double duty of mulching and enriching? The object of this Association is to ascertain and disseminate correct views of this and kindred questions.

Shelter for fruit trees, and even for land, is a consideration every year becoming more and more necessary for us on this high table-plateau. As the country is getting denuded of its timber, the remark is frequently made, how changed our seasons are now from what they were five-and-twenty years ago. Doubtless, this is a fact not to be gainsayed. From observations by Professor Kingston, Toronto, the rainfall of this district is gradually decreasing. The planting of trees for shelter for land and crops has been proved productive of abundant rain; what rain would do for this country, if sufficiently copious, every summer, is known to every farmer. The climate becomes ameliorated, and many blessings flow in the train of attention to this one of the most essential items of successful agriculture and horticulture. Let only municipalities vie with each other in arboriculture, and an incalculable amount of good would accrue to themselves and to the country at large. To elicit and disseminate information on this important subject will come within the aims of this society.

Fencing is also pressing itself on the attention of farmers, gardeners, and others. Why should not the members of the Fruit Growers' Association strive to indoctrinate their neighbours and friends with better views than have as yet prevailed on this subject? As lumber becomes scarce, a substitute must be found and employed. In Westminster, the Messrs. Macpherson have miles of thriving quickset thorn hedges round their fields. *The Thorn* of the country is not winter-killed, and the benefit to the fields is great by the hedge having an open drain, or as it is called, a sunk fence, accompanying it in its length and breadth. We are to ascertain by experiment and discussion what plants are best adapted to hedging in this country.

FRUITS.

The Apple.—As regards the art of fruit-culture, it remains for us to notice the great staple of Canadian fruit-culture—the *apple*, and its varieties.

The Province has, unfortunately, been flooded with all sorts of apple trees. A class of middle men, who make a trade on the ignorance and credulity of our farmers, has been of incalculable damage to fruit-growing. Any name is easily attached to the trees after they are got from the nurserymen, and it is only after years of anxiety and labour in raising them, that experience finds out that they are a worthless variety. A local tax on the vendors of such trees is the only means we see of successfully putting an end to this kind of traffic. Every member of our Fruit Growers' Association is invited to lend a helping hand to suppress this evil. In presenting to our present and future members a list of varieties to be cultivated and recommended for general trial throughout the Province, we cannot do better than quote from the prize essay on the apple, which will be found in the Report of the Honourable Commissioner of Agriculture and Arts of the Province of Ontario for 1869, and in the CANADA FARMER for November, 1868.

"It will usually be found that an orchard for family use, comprising the following

varieties, will
For summer,
For early autumn
For late autumn
pin, and Snow
Esopus Spitzen
Roxbury Russ

For market
Gravenstein, and
for a near or home
and Roxbury I

The Pear.
home use or for
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varieties, will give good returns in fruit, and furnish a supply throughout the season, viz.: For summer, the Early Harvest and Red Astracan, as sour apples; and the Sweet Bough. For early autumn, the Duchess of Oldenburgh, Gravenstein, Primate and Jersey Sweet. For late autumn and early winter, the Ribston Pippin, Hubbardston Nonsuch, Fall Pippin, and Snow Apple. For midwinter to March, the R. I. Greening, Northern Spy, Esopus Spitzenburg, Pomme Grise, and Tolman Sweet; for spring, the Golden Russet, and Roxbury Russet.

For market, the most profitable varieties are Red Astracan, Duchess of Oldenburgh, Gravenstein, and Hubbardston Nonsuch, ripening in the order in which they are named, for a near or home market; and for shipping, the R. I. Greening, Baldwin, Golden Russet, and Roxbury Russet, will yield the largest pecuniary returns."

The Pear.—For pear culture we are persuaded that the most profitable varieties for home use or for market are very few, and we would strongly recommend the Louise Bonne de Jersey, Bartlett, Beurre d'Anjou, Beurre Clairgeau, Flemish Beauty, Duchesse d'Angoulême, Graslins, Sheldon, and Winter Nelis.

The Plum.—The following varieties of plum are recommended after trial throughout a large portion of the Province:—Lombard, Washington, Huling's Superb, Jefferson, Smith's Orleans, Coe's Golden Drop, Guthrie's Apricot, and Green Gage.

The Cherry.—Most of the varieties of cherry succeed well in warm and sheltered localities; such as Black Tartarian, May Duke, Black Eagle, Elton, and Napoleon Bigarreau.

Strawberries.—Strawberries of all sorts do well. Wilson's Albany bears the palm, and is by far the most productive of all the varieties. For cultivation the Association recommend Wilson's Albany, Triomphe de Gand, Jucunda, Trollope's Victoria, Agriculturist, Nicanor, and Russel's Prolific.

Small Fruits.—For an exhaustive list of small fruits, their mode of cultivation, insect pests, market value, planting, soil, etc., we would unhesitatingly recommend the prize essay on this subject by Mr. William Saunders, of London, published in the April number of the CANADA FARMER for 1870, and in this report.

Grape Culture is yet in its infancy in Ontario. Mr. Underhill, the veteran vine culturist, recently paid us a visit, and declared to several of our members, that he had seen no part of the North American Continent so suitable for vine culture as the western portion of the Province of Ontario. The leading varieties which have been long tested, are Clinton and Concord, Delaware and Adirondac, Creveling and Rogers' Hybrids.

MEETINGS FOR THE EXHIBITION OF FRUIT.

Our Association holds an annual meeting at the place where the Provincial Exhibition is held, at which the office-bearers for the season are chosen. Three other general meetings are held in different localities, where exhibitions and discussions on old and new varieties of fruit give interest to the meetings and profit to the members.

Collecting, arranging and disseminating useful information.—The Honourable the Commissioner of Agriculture issued queries to the several agricultural and horticultural societies; which, having been answered, were condensed and arranged by the Secretary and President of our Association, and appear in a collected form in our Report for 1869. A copy of this compilation is placed in the hands of all our members.

The Association has also from time to time offered and awarded prizes for the best essays on subjects connected with horticulture. Such essays have been published, and other papers of a similar kind, and these publications are known to have given an impetus to horticulture among the yeomanry of our Western Province.

The Council of the Association has also offered prizes for collections of insects prejudicial to agriculture and horticulture, and at this moment several of the most learned and enthusiastic entomologists in the country are members of our Association—ever ready to hold their ability and knowledge at the disposal and for the instruction of our Association. Nor ought mention to be forgotten of the efforts the Agricultural Board are making in the same direction, it having recently contributed a handsome sum for a similar purpose. Prizes for the encouragement of hybridizers, and producers of new and valuable fruits, have been held out as inducements for members to enter the arena, and contend

with enthusiastic producers on the other side of the line. The future is big with wonders, through the efforts of such men as Wilder, Dana, Hovey, Grant and Arnold.

Correspondence, too, has been opened up with the neighbouring Provinces, and an interchange of fruits for exhibition has been the result. Our reports are thus widely circulated, and only the other day we received a valuable gift on agriculture from Sir William Young, through the Board of Agriculture of Nova Scotia. We desire others to share in the advancement of the common good of this and the other Provinces of Canada.

More recently we have entered upon another means for the advancement of fruit culture, in that we have unanimously agreed to *present to every member a specimen of some new vine or fruit tree*. This year "the Eumelan," a new vine highly recommended, was placed in the hands of every member desiring it, on condition of reporting to our Society of its success or failure during the next five years; a condition we hope to see generally complied with.

Nor does the Association leave the horticulturist at a loss what to do with his fruit, and how to keep it, after he has raised it. We have had profitable discussion on the marketing and preserving of fruits. We desire generalization on both matters, and anxiously look to the old and new members for expressions of their experience on such matters, in order to a wide circulation for the public benefit.

There is just one desideratum that we would like to mention, and that is the enlistment of the middle class of society in this good work—the encouragement of the amateur who has only his quarter or half an acre. The study and practice of horticulture has an elevating and humanizing tendency. To the wearied artizan on his return from a heavy day's work, there is nothing so refreshing as the tending of a few fruit trees in his garden patch. Indeed, wherever this taste has assumed the form of enthusiasm, comfort, content, health and happiness, have almost invariably been the concomitants. With the increase of fresh members, intent on the accomplishment of the grand objects of the Association, we may look for fresh successes and triumphs on new and unbroken ground.

ROBERT BURNET, *President*.
D. W. BEADLE, *Secretary*.

FRUIT-GROWERS' ASSOCIATION OF ONTARIO.

The regular winter meeting of this Association was held on the 3rd of February, 1870, at the Court House in the city of Hamilton. There was a very good attendance of members, and considerable interest manifested in the subjects discussed.

The meeting was called to order by the President, Rev. R. Burnet, and after reading of minutes,

Mr. Rykert called attention to the Fruit Prize List of the Agricultural and Arts Association, and suggested the desirability of having it extended and better classified.

Mr. Mills stated that he had no doubt the Agricultural Association would alter the Prize List to meet the views of this Society, as they had made many changes last year upon his recommendation.

This subject was left in the hands of the President, and the meeting proceeded to the discussion of the first subject,

THE PEAR BLIGHT.

Mr. A. P. Farrell, of Cayuga, had tried iron filings, applied to the roots by mixing them with the soil, and at the same time carefully and thoroughly cut out the blighted and affected portions of the trees, and they had grown very thriftily since.

Mr. Bennett, of Brantford, had tried the same application and treatment, and thought he had found it to be very beneficial until this year, when very many of his trees blighted, and there seemed to be nothing left but to cut off the diseased portions as often as they appeared.

Mr. Arnold, of Paris, was entirely at a loss what to say or do concerning this disease. It had baffled all his skill, and set at nought all his attempts to devise a remedy, and he had none to offer.

Mr. Morse, of Smithville, had but little experience with the pear blight. (Fortunate

man.) It was liable to be killed by the blight, and the fruit was small and of little value. He was inclined to cold in the ashes, and perhaps the pear, both of which were killed.

Mr. W. H. tree:—First, for third, a blight of the growing season, a few days of war, the over-strained some fungus, with its own rapid growth.

Judge Logan well rotted man, thought the soil, the application of

Mr. A. M. wood ashes. He very highly.

Mr. Holton to Mr. Lewis Spr the limbs down to but not down to the blight. He especially in the disease to be the worked downward.

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Dr. L. Cross, c bark turning black.

Mr. Freed, of winter. He was di the hot summer fini

Mr. Beadle the tions, and that it was seedling pear trees entirely by it. He of preventing the bli

man.) It was only when trees made a very luxuriant growth that he had found them liable to be killed back, probably by the effects of the winter. He mentioned an experiment that had been tried by some gentleman, who gave some of his trees very high cultivation, and some very little care. Those that were highly cultivated were all of them more or less affected, while those with but little cultivation were all good and sound. He was inclined to believe that the trees suffered most from sudden changes from heat to cold in the early part of the growing season. He thought that the application of ashes, and perhaps, of a little lime, was of the greatest possible benefit in the culture of the pear, both as regards the blight and the general growth and vigour of the tree.

Mr. W. H. Mills, of Hamilton, thought there were three causes of blight in the pear tree:—First, frozen sap blight; second, summer blight, arising from different causes; and third, a blight caused by fungoid growth. He thought that if evaporation is rapid during the growing season, and the tree is not well supplied, and this condition is followed by a few days of warm rain with a close atmosphere, then the tree becomes gorged with sap, the over-strained sap-vessels burst, turn black, and are in a fit state to be attacked by some fungus, which finds in this condition of things just that which is most conducive to its own rapid growth.

Judge Logie, of Hamilton, had applied coal ashes, mixed with wood ashes and a little well rotted manure, and has never known the trees thus treated to become blighted. He thought the soil had much to do with the blight, and that in soils in which lime is deficient, the application of a moderate quantity was highly beneficial.

Mr. A. M. Smith, of Lockport, N. Y., said he had much faith in the use of lime and wood ashes. He also washes his trees with soap and lime water, and does not cultivate very highly.

Mr. Holton had watched with much interest the progress of a pear orchard belonging to Mr. Lewis Springer, who had made an incision into the bark of the trees, running from the limbs down the trunk to the ground. This cut was made just through the outer bark, but not down to the wood, in the month of June. Thus far, this orchard had escaped the blight. He has also been seriously troubled with a blight in his crab apple trees, especially in the Montreal Beauty, which is not a very rapid grower, and thought the disease to be the same as the pear blight. It usually began in the tops of the trees and worked downward.

Mr. Arnold asked if any one had seen a pear tree blighted, the cultivation of which had been wholly neglected.

Mr. Rykert replied that he knew of an orchard of dwarf pear trees in the vicinity of St. Catherines which had been totally neglected, was allowed to grow up with weeds and grass that nearly hid the trees from sight, and a large part of that orchard had been killed with blight.

Mr. Mills said he had for several years past been in the habit of making longitudinal incisions in the bark of his pear trees in the manner mentioned by Mr. Holton, and had not found any of his trees to be affected with the blight since he had tried this plan.

Mr. Saunders, of London, stated that he had an orchard of pear trees in a light, hungry soil, and one of those trees was killed by the blight. That one had made the least growth of any.

Mr. Bennett remarked that the frozen sap blight which appeared in trees making too rapid growth was easily understood, but the other blight, which he thinks is quite distinct, known as the fire-blight, is a puzzle.

Dr. L. Cross, of St. Catherines, has noticed a form of blight which is indicated by the bark turning black in spots, and that the trees which are attacked in this way *always* die.

Mr. Freed, of Hamilton, thought that the blight was more prevalent after a severe winter. He was disposed to believe that the severe frost was the first cause of the blight, the hot summer finishing the evil then commenced.

Mr. Beadle thought there was only one disease, which was varied in its manifestations, and that it was well known by the name of fire blight. He had seen this disease in seedling pear trees that had never passed through a winter, and known them killed entirely by it. He had known charcoal used, and for a time it seemed to have the effect of preventing the blight, none having been seen among the trees so treated for some eight

or ten years. But all at once the blight broke out again, and many of those trees were killed by it. He had seen trees growing in clay soils, in sandy soils, and in gravelly soils, alike suffer from this fire blight; had seen them blighted when growing wholly neglected in a fence corner, as well as when well carefully cultivated in the garden. He trusted, however, that further and protracted experiments would be tried, in hopes of yet finding some remedy or preventive of this disease.

On motion of Mr. Morse, seconded by Mr. Rykert, leave was granted to introduce at this meeting a memorial to Parliament, in effect praying that our Government would impose upon fruit trees coming into Canada from the United States the same duty that is imposed by that Government upon the same articles, when sent there from Canada.

The meeting then took a recess until two o'clock p.m.

AFTERNOON SESSION.

Messrs. Holton, George Leslie, junr., and C. Arnold were appointed a committee to examine and report upon the seedling apples and other fruits on the table.

There was a very fine collection of many varieties of winter apples and late keeping pears on the table, brought together by the members from different parts of the country. The reports of the Society for the year 1869 were distributed to the members present. Members entitled to them who were not present received them by mail.

Mr. Morse introduced the memorial to the Legislature, stating that he was a free trade man, and felt that if our Government would impose upon the products of the United States the same duties that they impose upon our products, they would soon see the folly of attempting to drive us into annexation by the course they were now pursuing, and would be very glad to return to a more liberal policy.

Considerable diversity of opinion was expressed, and an animated discussion was maintained for some time, which we omit, as throwing no light on the cultivation of fruit.

It was at length resolved, by a vote of seventeen to ten, to send the memorial introduced by Mr. Morse, to the several branches of the Legislature, and that the President and Secretary sign the same.

Nothing new was elicited on the subject of winter pears. The President spoke very highly of the *Beurre Millet*, had found it a very fine pear, and thought it well worthy of trial.

The *Beurre Millet*, of Angers, is a very vigorous and productive tree. The fruit is of medium size, having a greenish skin, covered with russet, and thickly sprinkled with minute russet dots. The flesh is whitish, somewhat buttery, juicy, melting, with a brisk vinous flavour. In use in December and January.

SUMMER PINCHING

Was the next subject discussed. The President stated that for eight or nine years he had pursued the system of pinching in the growing shoots. This should be done in dry weather, and on no account is it to be done in wet weather. The effect of this summer pinching was to increase the quantity of fruit and induce the trees to fruit earlier. This pinching should be done in the end of June or beginning of July.

Mr. Townsend, of Hamilton, said he had a large number of pear trees under his care, always summer pinched in the manner described by the President, and was fully satisfied of its beneficial effects.

Mr. Saunders agreed in the main with the President, but had found that you could not always depend upon obtaining greater fruitfulness by summer pinching. He had a plum tree which he had summer pinched most thoroughly, in the hope of making it fruit, but it had spent its whole force in making wood, in despite of all his pinching.

Mr. Beadle was of opinion that the tendency of summer pinching was to arrest the wood growth and induce the tree to form fruit spurs. There may be occasional exceptions, owing to some peculiar counteracting cause, but in the main the effect may be relied upon.

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Mr. Mills b be exceedingly l Alexander. He size of a walnut, satisfied that he finally left about was perfect, they and imperfect fr greater than if tl

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The President l It would keep plums ripening. A cold re where the temperatur perfectly good conditi air of the room. Pea exposed to the air.

Mr. Mills said he or three weeks after t stairs ripened in a few

THINNING OUT THE FRUIT.

Mr. Morden, of Halloway, County of Hastings, thought there could be no question but that the thinning out of the fruit was very beneficial both to the development and perfection of the fruit that was allowed to remain, and to the tree.

Mr. Mills had had considerable experience in thinning out the fruit, and found it to be exceedingly beneficial. He instanced a dwarf apple tree, of the variety known as the Alexander. He commenced to thin this out when the fruit was quite young, about the size of a walnut, and removed about half of the fruit. Later in the season he became satisfied that he had left too much fruit on this tree, and he thinned it out again, and finally left about half a bushel on the tree, and as the result of this thinning, every apple was perfect, they were of uniform size, and perfect beauties. He takes off the smaller and imperfect fruit, and is confident that the value of the crop thus obtained is decidedly greater than if the entire crop set were allowed to remain on the tree.

Mr. Morse and Mr. Freed confirmed what had been said, believing that both size and quality of the fruit were improved by proper thinning out, and that the price realized from the fruit of an orchard would be greater than if the whole were allowed to grow.

The President stated that if only the proper quantity of fruit were allowed to grow, which, of course, varied with the size and vigour of the tree, plenty of fruit spurs would be formed by the tree for the production of fruit the following year; but if all the fruit was allowed to grow and ripen, the tree would not form fruit buds for the next year, so that there would be always fruit only every other year. By judicious thinning a crop of fruit is secured every year.

Mr. Beadle believed from actual experience that it would pay to hire a good hand at a dollar and a quarter per day to go carefully through the orchard, and thin out the fruit from those trees that had set too much.

KEEPING FRUIT.

Mr. Mills said that while in attendance upon the American Pomological Society at Philadelphia, he saw fruit that had been kept for a year in a fruit house, without change or deterioration, and thought it was very desirable to adopt such a plan. He kept his own fruit in an ordinary cellar, lined with water-lime.

Mr. Saunders said that it would be very easy to try the experiment of keeping fruit in an atmosphere of carbonic acid gas, which prevents the action of the air upon the fruit, and suggested that members make the trial.

Mr. Bauer, of Hamilton, said that he had kept currants and grapes in cans charged with sulphurous acid gas, if put in a cool place. He had tried to keep them in this way in a warm place and had failed. This gas had no effect on the flavour. He had kept cherries nicely until Christmas, and should experiment further.

Mr. Saunders had tried sulphate of soda, but found it to give a strong nutty flavour, which was not satisfactory. Carbonic acid gas, on account of its great specific gravity, was very easily tried. Sulphurous acid gas escaped easily.

Dr. Cross said that sulphurous acid gas absorbed oxygen from the fruit, and kept it in a fresh state without fermentation or decay, while carbonic acid gas only excludes the oxygen of the atmosphere.

PACKING FRUIT.

The President said he would recommend to pack fruit in nice, clean, washed sand. It would keep plums and cherries for a considerable time beyond their natural period of ripening. A cold room of even temperature would keep fruit much longer than one where the temperature was constantly varying. Pears placed in a close drawer kept in perfectly good condition for a month or six weeks longer than those exposed in the open air of the room. Pears tied up in paper bags keep much longer and ripen better than if exposed to the air.

Mr. Mills said he put some Belle Lucrative pears in clean washed sand. They kept for three weeks after the others were ripe, and were then not ripe, but on being taken upstairs ripened in a few days, but lost their flavour.

Mr. Hatt, of Dundas, headed up tightly in a barrel some snow apples, and kept them in a cold cellar, almost at freezing point, and they turned out exceedingly well.

SHIPPING FRUIT.

Mr. Ball, of Niagara, said that any clean-looking, well-flavoured apple, can be shipped if properly packed. The chief point was the packing. He had shipped with sweating and without. Only first-class apples should be used. Each basketful of apples, when put into the barrel, should be carefully shaken down, and the barrels filled nearly even with the top, the heads put on and pressed to their places. He had shipped several varieties—Russets, Ribston Pippins, &c. Apples required to be of good flavour and colour to sell well in Europe, and to be of uniform size, never more than two sizes in the same barrel. He did not think it advisable to press more than an inch and a half.

Mr. Mills described Mr. Springer's mode of packing apples. He does not shake them down as he puts them into the barrel, but after he has filled the barrel he puts on a cone of inferior apples to receive the crushing and then presses them down. Mr. Springer is very successful.

Mr. Keating thought that when the apples had to be transported over rough roads it was necessary to press more than when they need to be taken only a short distance in wagons over smooth roads. He is in the habit of pressing the fruit down about three inches. Only the top ones are bruised.

Mr. Ball recommended that each shipper should put his name and mark on each barrel of apples he sends out. In this way the fruit and shipper become known and obtain a character in the market, and a price suited to that character. He also remarked that the Green Newtown Pippin sold for the highest prices in England, and if it could be grown clean and free from spots on a favourable soil, would be a profitable variety to ship to Europe.

Mr. Beadle said it was an utter waste of time and money to grow the Green Newtown Pippin for shipping from this country. It does not grow anywhere in this country in good order with certainty; it spots badly, and the tree fruits sparingly. It will not pay to grow it.

Mr. O. Hammond said he grew it in good order, but it did not bear so well as other varieties.

A resolution was passed recommending to all growers of fruit to mark their packages with their names, or some distinctive mark, by which they shall be known readily in the market.

The subject of holding an autumn exhibition of fruit was laid over for consideration at the next meeting.

It was requested that the "Pruning of Fruit Trees" might be discussed at the summer meeting.

The committee appointed to examine the new seedling apples and other fruits on the table made their report, and the Association adjourned, to meet in London at the call of the President.

REPORT OF THE COMMITTEE ON SEEDLING APPLES AND OTHER FRUITS.

Seedling apples shown :—

Mr. James Best, Toronto, a pretty, medium sized, red cheeked apple, much resembling the Wagner, but inferior to it in flavour.

W. J. Marsh, Clarksburg, two seedling apples, both past their season, one resembling the Holland Pippin, but not equal to it; and one resembling the Rambo in appearance, but earlier, and not having, in our opinion, any distinctive merits.

W. E. Coleman, Lyn, two seedlings, one a small to medium apple, mild flavour, no merit; the other a very large, exceedingly showy, red apple, very much dotted, rather over ripe, evidently a late Fall apple, flavour mild sub-acid; worthy of trial.

Mr. Attwood, London, shows an apple of large size, supposed to be a seedling, in flavour and appearance very much resembling the Ribston Pippin; if proved to be a seed-

ling of Canada notice.

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ling of Canadian growth, we consider it to be the best that has been brought before our notice.

D. Hammond, Toronto township, one seedling apple, conical, with a red cheek, handsome, flesh almost white, rather coarse, mild flavour, core large; worthy of trial; also one called Andrew's Russet, a flattish, medium sized Russet, with a very red cheek, flesh white and of good flavour, specimens past their season.

E. R. Morden, two seedlings, small fruit, both past their season.

In apples of cultivated varieties, the display was very large and fine. Amongst the best, we note Swayze Pomme Grise, Cayuga Redstreak, King of Tompkins County, Melon, Swaar, Wagner, Northern Spy, and Lady Apple.

The display of pears, comprising some twenty kinds, was, for the season, very good; but many kinds were past their season, and nearly devoid of flavour. Well preserved specimens of Beurre Diel, Beurre d'Anjou, Vicar of Winkfield, Duchesse d'Angoulême, Winter Nelis and Verte Longue, were noted.

Mr. Cross, Oakville, exhibited samples of a strawberry basket that seemed to your Committee to combine cheapness with durability to a very desirable degree.

CHAS. ARNOLD,
W. HOLTON,
GEO. LESLIE, JR.

MEETING OF DIRECTORS.

A meeting of the Directors of the Fruit Growers' Association was held in the Court House, Hamilton, on the evening of the 3rd of February, 1870.

After the transaction of some routine business, the Secretary laid before the Board the three essays which he had received in competition for the prizes offered by the Association, and the Board appointed the President, Mr. Mills, and Mr. Holton a Committee to read the essays and award the prizes.

After hearing Mr. Freed's report on some crab apples—

A resolution was passed, thanking Mr. Cowherd, of Newport, for his exertions in producing superior varieties of the crab apple.

Mr. Rykert gave notice that he should, at the next meeting of the Directors, move a resolution that a Fruit Show be held by this Association in the fall.

The auditors' report was read, and the Secretary instructed to obtain sufficient vines of the Eumelan grape to give one to each member, and to each person who shall become a member before the first day of April, 1870, and who notifies the Secretary of his willingness to make the report thereon required by the Association.

Adjourned to the call of the President.

REPORT ON CRABS.

I examined and tasted the two varieties of fruit left at my place for my opinion, and beg to say:—

No. 1, from Sarnia, is of very fair size for a crab, and although past its best, I would say it is a desirable fruit for a crab, particularly on account of its good keeping qualities.

No. 2, from Brantford (Mr. Cowherd's variety), is a very handsome fruit, of medium size, and very pleasant flavour, losing all the harsh and austere flavour of the crab, for the higher and finer flavour of our best apples, approaching very near to the Scarlet Pearmain, which is a very good early dessert fruit.

To call it a crab, I think, surely, is a misnomer, and one that I think should engage the attention of the Society for a more suitable definition.

And here I would beg to remark that I know nothing of its parentage, but understood it to be a cross effected by Mr. Cowherd. This success of Mr. Cowherd in breaking down the harshness of the crab for the better qualities of the apple deserves encouragement, and a special vote of thanks by the Directors of the Association.

And I trust the Directors will offer good inducements for the best six or any other number of cross seedlings, raised from our best varieties of crabs and Russian varieties of apples, in the hope of raising hardy fruits of good size, and suitable for cooking and

dessert. Fruit that can be raised in our far northern counties, of good second quality only, would confer a great boon on them, and one which I think the Association should keep in view.

JOHN FREED.

P.S.—My remarks are meant to apply to our northern counties for the fruit in question, thinking that in our more favoured locality more crabs are not required.

J. F.

Hamilton, December 29, 1869.

FRUIT GROWERS' ASSOCIATION OF ONTARIO.

SUMMER MEETING.

The summer meeting was held at London, July 13th, 1870. A telegraph having been received from the President, stating that he was unavoidably detained, the Vice-President, J. C. Rykert, Esq., M.P.P., took the chair. Minutes of last meeting were read and approved.

The Chairman stated to the meeting, in reference to the matter of the prize list of the Agricultural Association, that the revision of the Fruit Department had been entrusted to the President and Vice President of the Association, and that two hundred dollars had been added to the prize list.

The first question was then discussed, viz. :

WHAT VARIETIES OF RASPBERRY ARE BEST AND MOST HARDY ?

Mr. Chas. Arnold, of Paris, named the Philadelphia, Mammoth Cluster, and General Negley. The latter is of the Black Cap family, being equal to the Mammoth Cluster in size and flavour, but he thought it on the whole to be more productive, it being a perpetual bearer. The Mammoth Cluster ripens later than the Doolittle. The Philadelphia is an immense bearer, medium in flavour. All these are perfectly hardy. He spoke also of the Orange King, a seedling raised by himself, which is perfectly hardy and of superior flavour, quite thornless, not as large a berry as Brinckle's Orange. He has grown it for seven years; has about an eighth of an acre; the fruit is too soft to ship to distant market.

Mr. Holton, of Hamilton, named for market use the Doolittle, Davison's Thornless and Miami, and for home use the Brinckle's Orange.

Mr. James Dougall, of Windsor, said that his soil is rather heavy, and with him the Black Cap varieties do best. He named the Doolittle and the Philadelphia as being very prolific, while for flavour he esteemed the White and Red Antwerp.

Mr. Saunders of London was much pleased with the great productiveness of the Philadelphia. The Mammoth Cluster is also very productive; ripens later than the Doolittle.

Dr. Francis of Delaware, had found the Antwerps all too tender. The Philadelphia is an immense bearer, but too soft to be sent away to market. Doolittle is hardy, and the berry quite firm.

Mr. McColl, of Stratford, had thought that it did not pay to raise raspberries for market in Canada, there was so much competition from the wild raspberries, and the common red cherries.

Mr. A. M. Smith, of Grimsby, was pleased with the Davison's Thornless; it ripens two or three days earlier than the Doolittle; thought it is not quite so productive, but that is more than overbalanced by the ease with which the fruit can be gathered, because the plants have no thorns. The Clarke raspberry promises well.

Mr. Farrell, of Cayuga, spoke of the White Antwerp, which, when not too highly cultivated, bore abundantly; but if it was largely manured, produced leaves, but not fruit. The Brinckle's Orange had failed with him.

Mr. A. Leslie, of London, said that the Philadelphia was the hardiest red raspberry he had grown. The Black Caps are hardy and do well.

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Mr. Bead upon the raspb so that he had v usually passing The berries are ket. Has know there in good or is often much in Philadelphia is past trying sea tive of them all.

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was the question th Mr. Attwood, ding the keeping of fruit. He was of a carry the pollen so a prevails while the fi fruit does not set w Mr. Saunders r weather prevailed dt convey the pollen fr setting of the fruit i bees; but the pollen hence was not carrie

Mr. Chas. Ridout, Clinton, said that the Red Antwerps did not require any protection in the County of Huron; the snow giving the plants all the protection they required, so that any and all varieties could be grown there.

Mr. Beadle, of St. Catherines, said that he had found the past season very severe upon the raspberry canes. The Franconia canes had been nearly all killed to the ground, so that he had very little fruit of that variety. Yet he thought that variety very valuable, usually passing through our winters without much injury, and bearing good crops of fruit. The berries are of good size and flavour, and sufficiently firm to bear transportation to market. Has known them to have been sent by rail from Lockport to New York City, arrive there in good order, selling readily for twenty-five cents per quart. The yellow Antwerp is often much injured by our winters, and the berry quite too soft for market use. The Philadelphia is the most hardy of all the red or yellow raspberries; it passed through the past trying season without injury, and is bearing an immense crop; is the most productive of them all. The berry is not of the largest size, but is above medium, and sufficiently firm for a near market. The flavour is not the highest, but is sufficiently good to make the berry quite acceptable to buyers. Davison's Thornless is a decided acquisition; the fruit is of fair size, of good flavour, and ripens early, while the canes are *without thorns*, and bear an abundant crop of fruit. The Mammoth Cluster is late in ripening, very productive, fruit of large size and good flavour. Is valuable by reason of its extending the season of raspberries. Brinckle's Orange is a very fine variety for family use, of excellent quality, and continuing to ripen over a period of six weeks. It is tolerably hardy, usually passing through our winters without suffering very much.

A vote was now taken in order to ascertain the position which the different varieties held in the estimation of those present.

FOR MARKET.

The Philadelphia had the highest number of votes.

Doolittle's Black Cap received only one vote less than the Philadelphia.

Mammoth Cluster had three-fourths of the number cast for the Philadelphia.

Davison's Thornless had nearly half as many.

FOR HOME USE.

Brinckle's Orange had the highest number of votes.

Franconia had half the number cast for Brinckle's Orange, and so had Orange King,

Mr. Arnold's seedling.

Fastloff and Yellow Antwerp had each one less than Franconia.

On the subject of Insect Enemies of the Raspberry, members had not much to say. It would seem that on the whole this fruit is remarkably free from the ravages of insects. Mr. Saunders referred to his essay on small fruits as comprising the results of his investigations up to this time, and remarked that this season there had not been as much of the raspberry saw-fly as last year.

Mr. Arnold had seen a small bee boring out the pith of his raspberry canes.

ARE BEES INJURIOUS TO FRUIT BLOSSOMS?

was the question then discussed.

Mr. Attwood, of Vanneck, said that some corporation had enacted a by-law forbidding the keeping of bees within its limits, on the ground that they caused the loss of the fruit. He was of an opposite opinion, believing that they and other insects helped to carry the pollen so as to fertilize the fruit-producing organs, remarking that if wet weather prevails while the fruit trees are in blossom, the bees not being able to fly about, the fruit does not set well.

Mr. Saunders remarked that it was true that fruit did not set well if cold wet weather prevailed during the time of flowering, and it was also true that the bees did convey the pollen from one flower to another, but that he thought the failure of the setting of the fruit in wet weather was not wholly to be attributed to the absence of the bees; but the pollen being damp in wet weather, did not float in the atmosphere, and hence was not carried by the currents of air, as it is in dry weather.

Mr. Dougall spoke of the necessity of fertilizing melons by hand which are grown under glass, and felt confident that bees were useful rather than injurious to fruit.

This appearing to be the general opinion of the meeting, the next question was then taken up.

THE PLUM CURCULIO, HOW TO CATCH AND KILL?

Mr. Saunders read a very interesting report on the curculio, based upon the information he had received from those who had sent collections of this insect to him for the prize offered by the Association. Mr. Saunders asked leave to extend and complete his report, and when finished it will be published in full. A vote of thanks to Mr. Saunders was then passed for his very interesting report, and his service to the Association in receiving and counting upwards of ten thousand curculio which had been sent to him.

Mr. Arnold stated, in reply to an inquiry, that he had found his plan of white-washing the ground under his plum trees to be of great service, and believed that the insect did not lay its eggs on his plums, knowing that the young larvæ could not penetrate through the crust of lime, and must therefore perish.

Mr. Shedd had also tried this plan, but the curculio had failed to see that the larvæ would be unable to penetrate into the earth, and had continued to sting his plums and deposit their eggs the same as they had done before. He had fancied it to be a good plan to bore a small auger hole into his plum trees, and insert a bolt of iron just fitting the hole, and to strike smartly on that. The jar thus made caused them to drop off at once, and the blow did no harm to the tree. This was better than to drive a spike into the tree, as had been done by some, for each blow on the spike drove it farther into the tree, and there was danger in the end of splitting the tree.

Mr. Dougall had found that jarring apricot and nectarine trees brought down the fruit. His plum trees, some two hundred, are enclosed with a high board fence; in this enclosure he keeps his fowls, and they catch the curculio for him. Young pigs were also suggested as good to eat up the fallen fruit, and with it the larvæ of the curculio in the fruit. Large pigs sometimes would gnaw the bark off the trees.

The method of jarring the trees and catching the curculio on a cotton sheet as they fall, had been most tried, and had served a good purpose. It was also remarked by Mr. Saunders that the plan of laying shingles, chips, pieces of bark, and the like, under the plum trees, and seeking for the curculio under these, might also be employed in connection with that of jarring the trees, and that by these combined methods a most destructive war could be waged against them.

THE BLACKBERRY—BEST AND HADIEST VARIETIES.

Mr. Saunders had found the Kittatiny to winter-kill the past season, but the Sable Queen had passed through without injury.

Mr. Farrell had succeeded well with the Lawton.

Mr. Arnold had tried Wilson's Early, Missouri Mammoth and others, but found them all to be quite inferior to the common wild sorts.

Mr. Schoff had not been successful in growing the blackberry at all.

Mr. Holton found the Dorchester to do well; it was good flavoured, not so large nor as acid as the Lawton.

Mr. Smith had found the Dorchester the hardiest variety; thinks the Early Wilson the best in flavour. The Dorchester berry is rather small, and the plant not a very heavy bearer.

PROTECTION OF ORCHARDS FROM MICE.

Mr. Saunders had saved his apple trees by raising a mound of earth about them. He had learned by experience that the mice would destroy spruces and other evergreens.

Mr. Schoff had found banking up with earth a preventive.

Mr. Dougall had known small trees protected by placing a couple of horse-shoe tiles so as to enclose the tree.

Mr. Attwood had known the mice to build their nests inside of pieces of bark that had been put around the trees with the view of protection.

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Mr. Slaght recommended, besides banking with earth, to tramp the snow hard around the trees. Had known Horse-Chestnut trees girdled with mice.

Mr. Saunders thought that if the trees were washed with a strong decoction of quassia, the mice would not gnaw the bark, because of the very disagreeable bitter taste of the quassia.

Mr. Weld had found banking with earth in the fall would prevent the mice from girdling the trees.

Mr. McBeth had placed pieces of stove pipe around his, and in this way had saved them.

Another had strewed poisoned corn about his trees, and killed off the mice. He had found that in most cases the trees could be saved after the mice had girdled them, by immediately, as soon as the snow went off, banking fresh earth around the tree, so as completely to cover the part that had been gnawed. Had also saved trees by inserting scions so as to keep up the circulation of the sap across the girdled portion.

Mr. Saunders had applied a mixture of sulphur and cow-dung to his evergreens, covering the girdled part; some of them seemed to be doing well, others died.

Mr. Attwood had tried inserting scions according to the plan recommended in the *Canada Farmer*, and had succeeded admirably. If the inner bark is not all eaten off, the tree can usually be saved by covering the girdled part with earth sufficient to keep it moist all the time. This needs to be done before the girdled part has been exposed to dry winds or the sun, and become dried.

Messrs. Schoff, Dougall and Farrell had all tried the inserting of scions after this manner, and had succeeded.

Mr. Smith had poisoned the mice, and so got rid of them.

Mr. Arnold spread butter and arsenic on bread, and placed it in old tin oyster cans, and laid them in the way of the mice, and saved trees by thus poisoning the mice.

A communication was read by the Chairman from Mr. D. Noxon, of Allisonville, on the Flea-Beetle that infests the grape vine.

The following is the paper:—

THE GRAPE FLEA.

"Its habitation will be found at the root of the vine, scattered some three or four inches from the stock, leading down into the ground. After removing about an inch of earth you will begin to find them, even down on the large roots leading off. This examination is presumed to be at the time of opening or uncovering the vine in the early spring, when they will be found in a partially dormant state.

"*Their Destruction.*—Presuming the earth has not been pulled away from the root of the vine—take of common wood ashes from two quarts to one gallon, more or less as the vine may be large or small, spreading the ashes at the stock of the tree, an inch thick, gradually thinning them for a foot each way. This will effectually kill every flea that may be beneath the ashes.

"Let the ashes remain undisturbed around the vine for fourteen or fifteen months—for this plain reason. In the month of May, June, and probably July, the full-grown flea lays her ova, in the earth around the stock of the tree. When incubation takes place they subsist upon the sap and juices of the root, and remain there until their age or maturity furnishes them with the necessary means of preying upon the buds and foliage of the tree. As the ova will not incubate in the ashes—and I presume sawdust would answer quite as well in this case—the plan of allowing them to remain for so long a period, completely cuts off the possibility of the next year's generation.

"These are the results of several years of unwearied and vexatious trial, and searching examination against that little destroyer of the grape vine.

"In regard to the slug or grub found on the under side of the grape leaf, I am not able to say anything of its habits; whether they burrow at the root of the vine—which I am inclined to think they do—for they were equally troublesome to my vines. I saw no more of them when I discovered the habits of the flea, and destroyed them as above. My discovery, if it may be called such, has its date from the spring of 1869, and since that time I have not discovered half a dozen of the flea, and not any of the slug."

Some gentlemen present suggested that the Flea-beetle in the larva state fed on the leaf of the grape vine, and that the slug mentioned in the communication was doubtless the larva of the Flea-beetle; that the larvæ probably went into the ground to pass into the pupa state, and that the alkali of the ashes caused the death of the insect at that time.

On motion of Mr. Saunders, it was resolved that Messrs. Beadle and Rykert be a committee to draft a series of questions to be submitted to members.

On motion of Mr. Saunders, it was unanimously resolved that the sum of fifty dollars be appropriated for the purchase of electrotype plates of insects, for the illustration of that part of the entomological report which related to fruits.

Miscellaneous business being in order, Mr. Schoff inquired if other members had lost their grape vines during the past winter. He had lost many, varying from two to fourteen years of age. Had lost three or four each of the Adirondac, Hartford Prolific, and Delaware; some five or six Isabellas, and one Catawba. Some of the Isabellas and Catawbas were killed down, but are now starting from the ground or near the ground. The ground is well underdrained, and the vines are on a trellis. He did not lose any of his Clintons. Does not cover his vines in winter. When he used to cover them he got a crop of grapes one year out of three, but since he ceased to cover them he has had good crops every year until this. He regards this year as very exceptional, and attributes the death of the vines last winter to the want of sufficient heat last summer to ripen the wood.

Mr. Saunders said that he had lost none in his garden but one Diana; in the field he had lost a few of the Rebecca, Delaware and Hartford Prolific.

Mr. Peters and Mr. Attwood had not lost any.

Mr. Slaght wanted a cheaper remedy for the currant worm than the white hellebore.

Mr. Saunders thought that the hellebore was not very expensive, that it was sold at forty cents a pound, that an ounce mixed with a pailful of water was quite sufficient for twenty bushes.

Inquiry was made concerning the best method of killing the pear tree slug.

Mr. Saunders had tried sand, also unleached wood ashes; and though they were well coated with it, the slugs merely crawled out of their skins and came out quite sleek and fierce, and went to eating again as if nothing had happened to disturb them. He then tried the solution of hellebore, and it killed them.

Mr. Schoff had used fresh slacked lime, and it killed them.

Mr. Arnold had killed them with unleached wood ashes.

Mr. Dougall said, if they are quite young the lime and wood ashes will kill; if old, they crawl out of their skins and go to work again.

There was a collection of many varieties of raspberries on the table, some cherries, gooseberries, plums, apples of last year, and ripe Doyenne d'Été pears, the latter brought by Mr. Dougall from Windsor.

Mr. Attwood also exhibited some jars of very fine honey, taken from the combs this season by the revolving comb separator; a part gathered from the white clover, and some from the basswood flowers. At the close of the meeting the members seemed to resolve themselves into a tasting committee of the whole, and fruit and honey were laid under considerable tribute.

The meeting was very pleasant and profitable; the London Directors did everything possible for the comfort of members from a distance, and we can only regret that there were not more from abroad to enjoy the occasion.

EXTRACTS FROM LETTERS TO THE SECRETARY ON FRUIT CULTURE.

WINONA, Sept. 22nd, 1870.

I use a good deal of leached ashes about my vines, and think they improve the sweetness of the grapes. The grape crop is very good in this locality, I never saw them better, large, and free from mildew or anything else. The apple crop very good and fair

The peaches all them. The pear blight places, there is planted some since is a single blight last year but no little from blight kinds are gone, come yet for the

I herewith give in nine apple grafts longest growth, 1 inches. An apple same time. I send

I send you, I close receipt. To the grower. It is see, resembles the of quality to recon constant and an E that the wood is to of 10 bushels a year since it came into fight its way again less hardy varieties to submit it to the placed upon the li

Fruit in general of last winter and injury. Only the Section even on the out. I planted 150 winter and swept all low on some of the Pears will only perfectly hardy and varying from 5 to 20 standards are Flemish Easter,* damaged; White Doyenne G Oswego Beurree, Vic Flemish Beauty, this Plums poor in q

The peaches almost a failure, but the trees are uncommonly thrifty, nothing troubling them. The pear crop is a failure here, the trees are free from blight and growing well, the pear blight does not seem to be so prevalent in this neighbourhood as it is in many places, there is an orchard of some three hundred trees just near to me having been planted some six or seven years with very common culture, and I don't think there is a single blighted tree among them, growing well, too; some of them had a few pears last year but none this year; my own old trees or young have never suffered but very little from blight. The plum crop is a failure here too, the trees of some of the good old kinds are gone, the knot and curculio have finished them, but we hope for a good time to come yet for the plum.

LEVI LEWIS.

SEBRINGVILLE, Oct. 3rd, 1870.

I herewith give you my experience of apple grafting this summer; June 29th, I put in nine apple grafts, four in two old trees, and five in young seedlings, only one failed; longest growth, 13 inches; shortest, 5 inches. I again grafted, July 23d, growth $4\frac{1}{2}$ inches. An apple tree here was loaded with fruit and this fall was also in blossom at the same time. I send this information, believing that it will be acceptable to the Association.

ROBERT MOORE.

DELAWARE, Sept. 19th, 1870.

I send you, by express, a specimen of a seedling apple growing in this vicinity, I enclose receipt. The tree is about twenty years old from the seed, and is in possession of the grower. It is of fine form, vigorous growth, and upright habit. The fruit, as you will see, resembles the early strawberry. I do not think that it has any particular excellence of quality to recommend it, except its appearance, but it is distinguished as an early, a constant and an ENORMOUS bearer. It is now loaded to such an extent that were it not that the wood is tough it would break, and the owner tells me that it has borne an average of 10 bushels a year for quite a number of years, and has never missed yielding a full crop since it came into bearing. The tree has had no particular care bestowed upon it, has had to fight its way against adverse circumstances, and has managed to live and thrive where less hardy varieties have starved. For these reasons, I take the liberty of requesting you to submit it to the inspection of the association. Should they consider it worthy of being placed upon the list for trial, I can furnish cuttings at the proper season.

N. AGNEW.

OWEN SOUND, Oct. 3, 1870.

Fruit in general is poor in this Section. Many trees injured and killed by the effect of last winter and the imperfect ripening of the wood. The mice also have done great injury. Only the hardier varieties are bearing. The Baldwin will not do in this Section even on the border of the Lakes, there is a few trees, but the most of them die out. I planted 150 trees of them that grew well for three years, then came a severe winter and swept all except about 6 or 7 trees, the roots are healthy yet, which I will graft low on some of the stronger shoots, for they are always killed back.

Pears will only succeed in very limited varieties. I have found the Flemish Beauty perfectly hardy and bears regular, it is the best. I cultivate about 20 varieties, varying from 5 to 20 of each kind, the Louise Bonne in great number, all dwarfs. The standards are Flemish Beauty, Winter Nelis,* Lawrence,* Beurre Clairgeau,* dead, Beurre Easter,* damaged; Winter Nelis* and Lawrence* suffered this winter past. Dwarfs, White Doyenne Glout Morceau,* Beurre Diel, Buffum, Louise Bonne,* Bartlett,* Oswego Beurre, Vicar of Winkfield,* several others I cannot name, all those marked with a star are injured. Many of the Louise lost all the tops, and none bearing, except Flemish Beauty, this year.

Plums poor in quality and quantity, and many injured from the above cause.

JOHN McLEAN.

BRANTFORD, Sept. 16, 1870.

I have a new Tomato, that I think is going to be an improvement, if any one is coming down from here I will send one to the meeting.

JAMES WOODS.

DUNDAS, Sept. 21st, 1870.

I have sent a half dozen apples from one of my neighbours, who asserts it to be a seedling, the trees have been planted about 40 years. I was sure at first they were the Colverts, but now think they are not. They are famed for their cooking and drying properties. They are not so acid as the Colverts of mine, and become quite mellow when fully ripe.

JAS. HESLOP.

HAMILTON, 6th Sept., 1870.

Being desirous of giving some of Mr. Arnold's hybrids a trial, I resolved to plant two or three in the same plot of ground, in the same soil and exposure, and subject them to the same training as the Eumelan, so that a fair comparison could be instituted between them. I accordingly wrote to Mr. Arnold, and he sent me No. 1 Othello, (two vines), No. 2, the Cornucopia, and No. 16, the Canada. They arrived late in the season, and with the exception of the Cornucopia, they had few roots. The Cornucopia has made a growth equal to the Eumelan. The Canada met with an accident, the first shoot having been broken off when about four inches in length. It was some time before another bud started, and the growth it has made is about 18 inches. Both vines of the Othello were late in making a start, one has grown about two feet, the other about 15 inches.

Thinking it might be interesting to the members of the Association, I purpose sending in a report of these grapes of Mr. Arnold's with my annual report of the progress of the Eumelan.

A. LOGIE.

BARRIE, Sept. 20th, 1870.

A further experience with the cultivation of the grape vine generally will, I hope, enable me next year to speak of future prospects in this part of the country. This year, however, bids well so far, the following grapes having ripened with me:—The Adirondac and Delaware, 5th September. Rogers' Hybrids, Nos. 3, 4, 15, 19, and the Concord and Diana, perfectly ripe on the 10th September. The Clinton on the 15th September. The Isabella is well coloured, and even the *Catawba* is colouring; but as I think this, as well as 1868 and 1869 are exceptional years in their way, I would add a fortnight more to the times of ripening here.

THOS. D. LLOYD.

TORONTO NURSERIES, Sept. 19, 1870.

I send you to-day, by express, a sample of apples—seedling Fall—grown by Mr. Chas. Cameron, Credit P. O., and on which he wishes a report of the Fruit Committee. One of the apples he would like you to keep for a month or so until fully ripe. He names it "Prince of Orange."

GEO. LESLIE, JR.

SHERIDAN, Sept. 20th, 1870.

I send by express a sample of *seedling* fall apples, for comparison or otherwise, as you may direct respecting the prize offered by the Association. You will remember, perhaps, my sending a sample of winter (seedling) apples to Hamilton last February. I have none at present. The tree had some on, but a few weeks ago there was a very high wind one day, and they every one blew off the tree, it standing in a very exposed place, consequently I have none of that variety to exhibit this year. If the trial for the fall apples is at some other time and place, it will be necessary, as the fruit is ripening earlier than

common this year investigation, and told others of fruit the true mystery. If the without human as a fact of interest. please excuse a information in c obedient servant

I am anxious of training, &c., about 150, which to be about the "Israella" and "ton," "Chippawa," to drop its berries all seem to answer practiced at Cool the third, trained and in others two to do well on the s

Our climate full crop from my fruit more than that than earlier than usual, of the wood which little or no fruit, say *pawa*, which seem of small round stor Telegraph, Israella: least hardy of any. I have no good spec

With regard to and seem better adapted mens of different varieties been able to preserve know nothing of C not a bushel from 30 could be used. I can a hail storm which please also observe, was told The leaves remained

This County has to equal it. The apples The plums are not affected at the Provincial Show in very heavy clay soil, dust and old bark from more lasting than chip

common this year, to have it at the earliest convenience possible. I also send, for your investigation, a limb bearing two kinds of fruit. I have shown it to different persons, and told others of it, but none can account for it in any way. You will see what variety of fruit the tree is of, the large apple being the kind it bears—the russet being the mystery. If the Association can explain in any way the cause of its bearing the russet, without human agency (which it certainly is), you will confer a favour. I send this last as a fact of interest, as requested in circular, having fallen to my experience. You will please excuse any essay or paper to be read at the meeting, other than the above. Any information in connection with any of the foregoing will be thankfully received by your obedient servant.

O. HAMMOND.

LINDSAY, 19th Sept., 1870.

I am anxious to obtain all the information I can with reference to the culture, modes of training, &c., of the grapevine, although I have as yet but a few vines planted, say about 150, which comprise about 25 varieties, but principally the Clinton which appears to be about the hardiest, but have found the "Delaware," "Rogers' Hybrid" No. 3, "Israella" and "Telegraph" somewhat the earliest; next to these the "Sherman," "Clinton," "Chippawa," "Adirondac" and "Hartford Prolific;" the latter I find is very subject to drop its berries just before ripening. I have adopted three modes of training, which all seem to answer. One is the one in the form of a long arbour, similar to the system practiced at Cooksville; the second, the long arm laid horizontally on the trellis; and the third, trained to single stakes from 8 to 12 feet apart, the vine (in some cases one, and in others two to a stake) twisted spirally round the stake. The Clinton seems to do well on the stakes.

Our climate here is far from being as favourable as yours. Last year I had a very full crop from my few vines, but they did not fully mature, at least the later varieties, and more than that the wood did not fully ripen, consequently owing to the winter setting in earlier than usual, I failed to cover a single vine of any variety; the result was that most of the wood which should have borne fruit this season was winter-killed, therefore I have little or no fruit, say a bushel at the most, and these principally *Clinton*, *Sherman* and *Chippawa*, which seem to be all equally hardy. My soil is a strong clay with a large mixture of small round stones. What few inferior bunches I have of Delaware, Rogers' No. 3, Telegraph, Israella and Hartford are now pretty fairly ripe. I have found the "Iona" the least hardy of any. The Concord, Ontario and Diana I find too late in most seasons. As I have no good specimens of any variety, I concluded not to send you any.

With regard to *plums*, they have been a great crop in this section of the Province, and seem better adapted to our soil than any other orchard fruit. I had some fine specimens of different varieties, but they ripened so much earlier than usual that I have not been able to preserve a single one to send to the meeting, or would have done so. We know nothing of *Curculio* or *Black Knot* in this part of the country. Of apples I had not a bushel from 30 trees, and these so affected by the apple moth, that not one-third could be used. I cannot account for the failure of the crop, unless it was occasioned by a hail storm which passed over the trees when in blossom. What was unusual, I may also observe, was the winter setting in so early last fall, before the wood fully matured. The leaves remained on the trees all winter.

J. KNOWLSON.

BERLIN, COUNTY OF WATERLOO,
20th Sept., 1870.

This County has been blessed with a wonderful Fruit crop this season—nothing hitherto to equal it. The apples, however, are seriously injured with *Curculio* or *Codlin* moth. The plums are not affected, and they are most abundant. I hope to exhibit 12 varieties at the Provincial Show, though late in the season. I succeed well with them and apples in very heavy clay soil, with which I have mixed great quantities of stable manure, saw dust and old bark from the tannery. I find the bark good to keep open the soil, and more lasting than chip or other manures. I use considerable old iron filings around my

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trees, and even drive spike nails in them. I cannot say I see any advantage, yet I have most abundant crop every year, and little or no black-knot. I approve of grafting the tame plum on the wild stock a foot or so above ground, but not in the root, and prune from the top, so to keep the tree low and limbs near the ground. The only protection I have is a single row of ornamental trees along the outer north edge of the garden.

The only insect with me this season is in the apple. I burn or bury in ashes all small fallen fruit. This season all fruit seems much earlier than usual, and rot more on the trees.

I raise too few pears to say any thing about them, they do not seem plentiful about here this season.

I raise the crab apple as an ornamental tree, having five varieties on the one stock.

M. C. SCHOFIELD.

CAMPBELLFORD, Sept. 20th, 1870.

I consider the Delaware the very best of the following vines which I fruited this season:—H. Prolific, Concord, Clinton, Isabella, Bloods Black, Hydes Eliza, Ontario, Laura Beverly (same as Creveling), Rodgers, 3 and 15—the two latter are next in quality to Delaware.

J. W. JOHNSTON.

REPORT ON THE "EUMELAN" GRAPE VINE.

The number of vines distributed by the Association to members, was four hundred and twenty. Of the recipients, some two hundred and seventy-five have acknowledged the receipt of the vine.

The reports received thus far have been very favourable, very few deaths having been noticed, and usually a fine, healthy growth. Those reported from the County of Brant—Have grown from 2 to 6 feet; one had mildewed considerably, the others were healthy.

Bruce—Have all been healthy and done well.

Bothwell—Also healthy, and made a fair growth.

Elgin—Generally healthy, and ripened the wood well; one says the leaves mildewed some, and another that they mildewed badly.

Frontenac—Complaint is made of long drouth, and consequent small but healthy growth.

Grey—Healthy all, and ripened up well.

Haldimand—All healthy.

Halton—One dead; the others are healthy.

Huron—One failed to grow, another made twenty-three feet of wood; generally strong and healthy.

Kent—One mildewed badly, remainder healthy.

Lincoln—Two dead; grew from 2 to 4 feet, no mildew.

Lambton—Grew from 3 to 15 feet; all healthy but one that showed some mildew on the leaves.

Middlesex—Grew from 2 to 10 feet; one failed, two mildewed some in August.

Northumberland—Made moderate growth; healthy.

Ontario—Grew from one to two feet, and ripened up well.

Perth—Grew about four feet; healthy.

Peel—Grew well, some five feet; very healthy.

Russell—No mildew; one made 20 feet growth.

Simcoe—Grew well; seem to be perfectly hardy.

Victoria—Made a moderate growth; no disease.

Waterloo—Grew from 2 to 7 feet; no mildew, one dead.

Wentworth—Grew from 2 to 5 feet; one showed some mildew, one dead.

Welland—Grew well; all healthy.

Wellington—Made fair growth, as good as Concord; all healthy.

York—From 10 inches to 4 feet growth; one dead, no mildew.

D. W. BEADLE,

St. Catharines, 8th November, 1870.

Secretary.

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AUTUMN MEETING, 1870.

The Association held its regular autumn meeting in St. Catharines, on Thursday, the 22nd September, 1870. There was a very full attendance of members, and a very fine display of fruit. The collection of grapes was very extensive, embracing a great number of varieties, and many of the newer sorts, including the Eumelan, which latter sort was exhibited by Mr. John Brown, of Thorold, and Messrs. Merrell and Coleman, of Geneva, N. Y.

The meeting was called to order by the President. The minutes of last meeting were read, and the following Committees appointed:

- Committee on apples and pears—Messrs. Dougall, Morse and Bennett.
- Committee on grapes—Messrs. Read, Taylor and A. M. Smith.
- Committee on other fruits—Messrs. Mills, R. N. Ball, and Saunders.
- Committee on wines—Messrs. Farrell, Logie, and White.
- Committee on seedling fruit—Messrs. Cross, Arnold, and Holton.

The discussion of the

"BEST METHOD OF PRUNING AND TRAINING THE GRAPE VINE"

was then entered upon.

Mr. M. Y. Keating, of Jordan, stated that he trained his vines on the arbour system. His vines did not cover the top of the arbour trellis as yet, and therefore he allowed the vines to fruit on the perpendicular part of the trellis; but as soon as the vines are able to cover the top, he intended to prune off the branches from the perpendicular part of the trellis, and confine the fruit and foliage to the top or horizontal part. He has about an acre and a half planted with the Delaware, of which one acre is trellised. He pruned in March and April, and has three canes to each vine, but has not practised summer pruning, but is of the opinion that a little pinching-in during the summer would be serviceable. The vine now exhibited by Mr. Keating, and covered with ripe fruit, has been planted six years. He manured his vineyard two years ago by ploughing under clover, and last spring applied a dressing of well-rotted barnyard manure. His soil is sandy loam, the soil about eight inches deep, with a hard, yellow, sandy subsoil, having a hard pan two and a half feet below the surface, and clay from eight to nine feet down.

John W. Ball, of Niagara, trained his vines on the arbour trellis plan, no foliage allowed on the sides of the trellis, the vines are trained up the sides of the posts to the top of the trellis, and the sides are open all around, so that he can drive under the trellis in every direction, and cultivate with the horse every part of the vineyard. The posts are seven feet long, not planted in the ground, but set upon a flat stone placed under the foot of each post. The horizontal bars are nailed on to the top of the post, so that the whole weight of the top rests on the ends of posts; and braces run from the posts to the horizontal bars. Made in this way, there is no rotting off of posts, nor strain upon a nail, nor blowing down by the wind, nor heaving out of place by the frost. His soil is a clay loam, about a foot deep, with a retentive clay sub-soil, well under drained. Has manured them with leached ashes. His vines are planted twelve feet apart each way. Of course, his vines get no winter protection.

W. H. Read, of Port Dalhousie, said that he pruned both in the fall and spring, mostly in the fall, because it was more convenient to do it then. He varies his pruning according to the habit of the vine; those of very strong growth and vigorous habit requiring to be left with longer shoots than those of a slower habit of growth. He has never seen any evil to result from fall pruning. Some of his vines are trained to stakes, others to upright trellises; has not tried the arbour trellis; thinks the best ripened grapes are those near the ground, because they get the radiated heat of the earth. His soil is a sandy loam, about eighteen inches deep, with a hard-pan subsoil, located on the south shore of Lake Ontario. He thoroughly manured the ground with barn-yard manure when he planted the vines, ten years ago, but has not given them any manure since. High manuring may produce larger grapes, but poorer in quality.

Jas. Taylor, of St. Catharines, prunes his vines in the fall, and finds that they do not

get injured by the winter in consequence. He has more leisure to prune in the fall, and therefore prefers to do it then; is also satisfied that grape vines are not benefited by high manuring, and has abandoned the practice of manuring them, except by a mulch of barnyard litter over the roots. His soil is a lime-stone gravel, naturally porous and well drained. Some of his vines are on a side hill, with a western exposure. He has also given up the practice of summer pruning, having become convinced that much summer pruning is injurious, and now contents himself with merely pinching in the ends of shoots that seem to require it.

The meeting adjourned until 2:30 P.M.

AFTERNOON SESSION.

The President called the meeting to order, and called upon Mr. Haskins, of Hamilton, who remarked that he preferred the arbour system of training, and spring pruning, especially for the free-growing sorts, such as the Clinton and its confreres. He uses as fertilizers leached ashes, and bone dust, and stable manure. He mixes two tons of bone dust with four tons of ashes, and four tons of gypsum or plaster, and applies it to five acres of vines. He finds that many varieties kill back badly in the winter if fall pruned, and therefore he prefers the spring. He has nine-and-a-half acres of grape vines in cultivation, planted two years ago last spring. The vines are showing a little fruit this year. The sorts are mostly Rogers' Hybrids, with a good many Delaware and Clinton, with about twenty other sorts for experiment. Is much pleased with the Iona, Delaware, and Rogers' No. 4. Thinks the Creveling one of the very best of wine grapes, but the bunches are very imperfect, because the berries do not set well, but are too scattering. The soil is sandy loam, clay bottom, well under-drained.

Mr. Babcock, of Lockport, New York, said that vine cultivators in the United States were now beginning to prune longer and train higher. They have heretofore been in the habit of cutting off too much of the vine at the winter pruning. If the vine sets too much fruit, they thin it out, either by thinning out the branches, or by cutting off the entire branch, fruit and all. They usually cultivate on upright trellis, composed of three wires, fastening the vines to the wires with willow twigs or rye-straw. There is a new wire contrivance for fastening the wire to the trellis, known as Underhill's patent wire hook. They have a machine for tightening the wires of the trellis.

Here several members described different contrivances for tightening and slackening the wires of the trellis; the most simple of all seemed to be one described by Mr. Barnes, of Hamilton; but we forbear attempting to give a description, hoping to obtain from Mr. Barnes a full description, with illustrative drawings.

"THE BEST METHODS OF GRAFTING THE VINE."

W. H. Mills, of Hamilton, said he had not been successful in grafting a vine that was already established growing in the soil; but when he dug the vine up, and then grafted it, and planted it out again, he had met with very good success.

W. H. Read, of Port Dalhousie, said that he had grafted in the fall, and then carefully protected the grafts from the frost. In this way, forty-five per cent. had done well.

C. Arnold, of Paris, had succeeded well in the same way; it was not necessary to have the bark of the scion and stock fit together, as in grafting the apple, but they grew just as well when inserted in the middle of the stock.

Mr. Brooking, of Ancaster, planted out some old vines, thirteen in number, and then grafted them. Of these, twelve grew. This was done in April, and the crown where the graft was inserted was covered with earth, leaving one bud of the scion at the surface of the ground.

Mr. Dougall, of Windsor, had tried grafting the vine, but always failed.

Hugh Smith, of Sarnia, exhibited to the meeting some samples of a method which was a combination of layering and grafting. The branch of a tree or shrub is bent down, so as to admit of the twigs being readily layered; the twigs are then tongued on the under-side, as for layering. A piece of root of the same species is cut about six inches long, pointed like a wedge at the upper end, and inserted in the slit made in the twig, the bark

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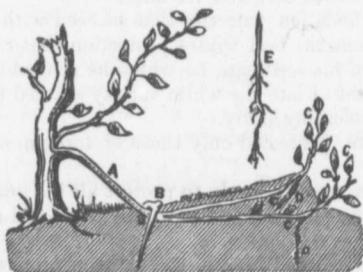
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of each being fitted exactly on at least one side, and fastened to its place by tying with basswood bark or cotton yarn, and then the root is inserted in the ground, with enough of twig to keep the point of union moist below the surface of the ground.



The accompanying sketch may illustrate the process. *a* is a branch bent down to the ground. *b* is a hooked peg, to hold the branch in place. *c c* are the twig slits on the under side. *d d* are pieces of root inserted into the twigs at the slit made on the under side. *e* shows the wedge form of the root at the end to be inserted in the slit.

Mr. Smith stated that he did not suppose that this method would be generally used, but that it would be found to be of service in the propagation of those trees, plants and shrubs that are difficult of propagation by the ordinary methods.

President Burnet, of Hamilton, had cut his grape scions in the fall, and kept them in a cool place, where they remained in a dormant state until the vines were in full leaf in June; then he inserted a scion, of two or three buds long, in a branch of a growing vine, in the usual manner of cleft grafting, fastened the graft by tying, and then buried the place of union in the soil, sufficiently deep to keep it moist; and, in order the more certainly to secure this, he covered the place of union, before burying, with a thick coating of cow-dung. In this manner he had been very successful.

"THE BEST METHOD OF MANURING THE VINE."

Mr. Arnold, of Paris, would use very little manure; and never use coarse or highly nitrogenous manures.

Mr. Mills, of Hamilton, would manure according to the requirements of the variety. Some varieties, such as the Delaware, required high culture, and would never yield their best results in poor soil; others, as the Diana, required no manuring, but yielded their finest crops and ripened them best in a poor soil, abounding in lime.

Dr. Cross, of St. Catharines, manures only those varieties which are slow growers.

Mr. Farrell, of Cayuga, would manure according to the habit of growth of the variety.

Mr. Bennett, of Brantford, thought that vines succeeded best in the natural soil; at least, he would not manure highly.

Mr. Read, of Port Dalhousie, uses leaf mould, cow-dung and ashes.

Mr. Taylor, of St. Catharines, top dresses with coarse stable manure, more as a mulch than otherwise.

Rev. Mr. Campbell, of Niagara, has an old Isabella vine growing in grass in the lawn, which fruits abundantly, and ripens its fruit well.

Mr. Mills also had an Isabella that had stood for seven years in sod, that bore fine fruit, and ripened its fruit.

Dr. Cross, of St. Catharines, cultivates the ground between his vines, and never failed to ripen the Isabella, except in 1869; and when there are no severe September frosts, his Catawbas ripen. He prunes on the renewal system, and finds the Isabella and Catawba grow finer fruit, and ripen it better on young canes.

WINTER PROTECTION OF GRAPE VINES.

Mr. Saunders, of London, said that he was of the opinion that a grape vine which required winter protection was not worth having. He had found most of our varieties suf-

ficiently hardy without any winter protection, though his Diana had been killed to the ground.

Mr. Read, of Port Dalhousie, protects by a light covering of pure soil or earth. Other coverings are apt to afford a shelter for mice.

Mr. Arnold, of Paris, finds few varieties that succeed without winter protection. He thinks branches of evergreens the best winter protection that can be used. Inquiry was made as to the hardihood of his seedlings, to which he replied that he had supposed that they were all hardy, but that of late the white variety seemed to be tender. Brant, Canada and Cornucopia were tolerably hardy.

Mr. Paffard, of Niagara, protected only those of foreign origin, as the Sweetwater, Zinfudal, &c.

Mr. Farrell, of Cayuga, used formerly to protect all his grape vines in the winter, but had gradually abandoned the practice, and now only protected newly planted vines during the first winter.

Mr. Bennett, of Brantford, had been in the habit of protecting his vines every winter, and has uniformly had good crops, but last winter he left his vines exposed, and they were badly winter killed. He thought it quite possible that, having been heretofore protected, they were now less able to withstand the winter than if they had never been protected, and hence the injury last winter to even old canes some inches thick.

Mr. Arnold, of Paris, suggested that vines can be too much covered, especially with soil, for if buried too deep, the wood of the vine is kept too moist, and the buds rot.

INSECTS ON THE VINE.

Mr. Bennett, of Brantford, remarked that he had been remarkably exempt; the only insect he had seen was one that had punctured the berries of the Diana.

Mr. Mills, of Hamilton, had been very much troubled with the vine thrips, but could not suggest any mode of getting rid of them.

Mr. Dougall, of Windsor, had noticed that the thrips injured only the thin leaved sorts, such as the Delaware and Clinton, but was unable to injure the thick leaved varieties, such as the Concord, &c. He had been very much afflicted with a worm in the berry of the grape, probably the same as the insect in the Diana mentioned by Mr. Bennett.

Mr. Saunders, of London, mentioned that the thrips could be very much lessened by having a man pass through the vineyard, bearing a lighted torch, while another went with him and shook the vines; the thrips, disturbed from their hiding places under the leaves, flew into the blaze and perished. The flea-beetle could be easily killed in the larva state, and it only required proper attention to keep this pest in subjection.

Members mentioned the varieties of grapes which they had found, on the whole, to be the earliest. The four sorts which were mentioned by nearly all the members, were the following, viz.: Hartford Prolific, Adirondac, Massasoit (Rogers' No. 3), and Creveling.

Mr. W. H. Read, of Port Dalhousie, stated that he had some seedling grapes which ripened in August, and which, he fully expected, would prove to be perfectly hardy, and ripen earlier than any of those that had been named.

PEAR TREES, THEIR CULTIVATION, MANURING AND PRUNING.

Judge Logie, of Hamilton, did not give his pear trees any special cultivation; he supplied them liberally with ashes, and an occasional top dressing of manure; had experienced a little blight, and some spotting and cracking of fruit.

Mr. Jas. Taylor, of St. Catharines, had not found the cultivation of pear trees very satisfactory; has lost a good many trees. His soil is a gravelly loam; trees are dwarfs; some have thrown out roots above the quince stock, and become standards.

Jas. Dougall, of Windsor, has a heavy loam, and a strong clay loam; had tried 350 different sorts on the quince stock. Some of these grew finely, many would not grow at all. Had learned that some sorts were not suited to the quince stock, and should never be grown as dwarfs, such as the Bartlett, Seckel, Doyenne d'Été, &c.; on the other hand, the Beurre d'Anjou, Duchesse d'Angoulême, Ananas d'Été, &c., would thrive well as

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dwarfs. He would plant a pear orchard of standards and dwarfs together, setting the standards thirty feet apart each way, and put dwarf trees between them, so that the trees would stand fifteen feet apart each way. Has no blight. Angiers quinces are the only suitable stock for dwarf pear trees. In cold latitudes, strong shoots should be pruned back to the ripe wood, early enough to heal over before winter.

A. Slaght, of Watford, had found the pear tree to be generally healthy, and prosper best in clay soil; they should not be too highly manured, especially with raw manures. He named the Flemish Beauty as one of the most hardy and desirable varieties.

Thos. Keyes, of Grantham, preferred the standard pear trees, especially of the Bartlett and Flemish Beauty varieties; dwarf pear trees need good culture.

Mr. Arnold, of Paris, said that all young trees should receive good culture.

Mr. Saunders, of London, had just visited two distinguished cultivators in the United States, who advocated and practised opposite systems of pear culture. One adopts the system of no pruning—the other prunes considerably. He thought that if results were a just exhibit of the effect of the two methods, the man who pruned his trees had the advantage decidedly. This was Mr. Quinn, whose pear orchard is near Newark, New Jersey. He plants only dwarf trees, at one year old, setting the point where the bud was inserted six inches below the surface, trains the branches low, and plants only a few sorts. He gets from \$12 to \$16 per barrel in New York for the Duchesse d'Angoulême; from \$12 to \$14 per barrel for the Seckel; \$20 per barrel for Flemish Beauty; for the Bartlett, \$10 per barrel; and for the Beurre Clarigeau, \$25 per barrel. He does his pruning in the spring, about the 15th of March, and cuts the strong growers well back.

Mr. Morse, of Smithville, thinks that while the pear should have liberal culture, yet the trees can be injured by too liberal application of barn-yard manure. He uses leached and unleached ashes with good results, and has never yet failed of having a good crop of pears.

The session having continued until nearly ten o'clock, p.m., at which time many of the members were obliged to leave for the train, the Association adjourned, to meet in Toronto at the annual meeting, to be held on Tuesday evening, the 4th of October.

Some samples of fruit that were sent by express, and intended for exhibition at the meeting, failed to arrive in time; among these, a branch of an apple tree which bears small Russet apples and large smooth apples, resembling the Vandevere. This was sent by D. Hammond, Sheridan P. O., who writes thus: "I also send for your investigation a limb bearing two kinds of fruit. I have shown it to different persons, and told others of it, but none can account for it in any way. You will see what variety the fruit is of, the large apple being the kind it bears, the russet being the mystery. If the Association can explain in any way the cause of its bearing the russet without human agency, which it certainly does, you will confer a favour. I send this last as a fact of interest that has fallen to my experience, as requested in the circular."

The several committees appointed to report on the different fruits exhibited, handed in their reports, but there was not time to read them to the meeting.

Many reports have been received by the Secretary of the growth of the Eumelan vine. Nearly all state that it has made a good growth, and ripened its wood well; two or three state that the leaves were attacked with mildew, in which cases, of course, the wood has not been well ripened.

REPORTS ON FRUITS, 1870.

The Directors instructed the Secretary to send the following inquiries to some of the members located in different parts of the Province, viz.:

1. What varieties of Strawberry do you value most highly, and why?
2. What price did Strawberries bring in your market the past season?
3. What varieties of Raspberry do you find to be most desirable, and why?
4. What is the present prospect of the Apple crop in your vicinity?
5. What price per barrel do Apples bring in your market?
6. At what price per barrel can good Pears be bought in your locality?
7. What is the price per bushel for Plums?

To these the following replies were received:—

Mr. Luke Bishop, of St. Thomas, says that the Hooker and Wilson Strawberries have done best this year, being most productive. The Hooker found readiest sale. The berries sold during the first two weeks of the season for 20 cents per quart, but after that for 10 to 15 cents.

The Philadelphia and Naomi Raspberries do best, the former is most productive, but the latter is more prized and a more solid berry. I have found the Naomi quite as hardy as the Philadelphia. I would recommend the Naomi above all others.

The Apple crop was never better than this season, they are larger and finer than usual. They sell for about \$1.25 per barrel, and I don't think they will be more.

Pears are not so good a crop as apples, and sell at about \$3 to \$3.50 per barrel, according to quality.

Plums sell at about \$2 per bushel.

Mr. Wm. Sanderson, of Brantford, replies, that he values most highly the Wilson, no other sort here equals it in productiveness, and it brings as high a price as any. It produces at least five times as much fruit as any other variety. They sold at from 10 to 20 cents per quart; the average price paid by the retailer to the grower was from 9 to 10 cents per quart, for the season.

The Doolittle Black Cap Raspberry is the only variety of Raspberry that has been cultivated here, and that only to a very limited extent. Other sorts are being placed on trial. The foreign varieties are only cultivated by amateurs.

Summer and Fall varieties of Apples have been a very heavy crop, and quite a drug in the market. Winter Apples promise a crop above the average. Fall Apples are, at present, bringing \$2 per barrel for choice hand picked fruit.

Pears are too scarce here yet for quotation by the barrel. Flemish Beauty and similar sorts bring from \$2 to \$2.50 per bushel, according to quality.

Plums bring from \$2 to \$4 per bushel, according to sort.

Rev. Robert Burnet, of Hamilton, states, that he values the Wilson, La Constant, and Jucunda, the most highly of all the Strawberries with which he is acquainted, the Wilson because it is best for market, the most prolific, and most profitable. The others are good for cultivation by amateurs. They brought in the market 30 cents, 25 cents, 10 cents, and 8 cents, according to season.

He finds the Fastloff, Philadelphia, and Brinckle's Orange, the most desirable. The Philadelphia for market, because it is productive and hardy.

The Apple crop was never better within my experience, the fruit bringing \$2.50, \$3, and \$4 per barrel, according to quality.

Pears are bringing \$5 per barrel, and choice varieties from \$8 to \$10.

Plums bring about \$3 per bushel.

Mr. W. Saunders, of London, values the Wilson Strawberry most highly, because it is by far the most productive, and when well ripened the quality is good. For highest flavour I would recommend Triomphe de Gand, Charles Downing, and Jucunda, but these are much less prolific. The early berries sold this year for 20 cents per quart. As soon as the Wilsons began to come in the price fell to 15 cents, then to twelve, and for a short time, during the period of greatest abundance, to 10 cents.

He finds the Philadelphia Raspberry to be the most desirable, because it is hardy, exceedingly productive, and of very fair quality. I very much prefer Brinckle's Orange for flavour, and in some seasons it is nearly as productive as the Philadelphia, the yield being spread over a longer period, but it requires winter protection.

The Apple crop is very plentiful. Summer varieties, such as the Red Astracan and Early Harvest, brought, at first, \$2.50 to \$3 per barrel, but as the bulk of the crop came in the price fell to \$1.50. Good fall apples have sold at about \$1.50. Winter varieties are held back for higher prices.

Good Pears have been exceedingly scarce, hardly any to be had in our market. Bartletts were comparatively plentiful, but our supply came chiefly from Ohio, and cost about \$5 per bushel. Good pears of home growth, such as Flemish Beauty, Duchesse d'Angouleme, and Louise Bonne de Jersey, brought from \$3 to \$5 per bushel, and very scarce at

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Mr. Simon Roy, of Berlin, writes that the Wilson, and Triomphe de Gand are the most valuable strawberries. The first is an excellent cropper, and the second is the best dessert variety yet introduced. The Wilson brought 10 cents per quart this season and the Triomphe 15 cents.

Wild Raspberries are too abundant here to warrant the cultivation of the fine sorts.

The Apple crop is the best for the past ten years. This season apples will be very cheap, they are now (5th Sept.) selling for 25 to 37 cents per bushel.

The Pear crop is very poor this season, the trees are exhausted by overbearing last season.

What plums I have sold brought \$2.50 per bushel, and in small quantities at the rate of \$3, that is for the finer varieties.

Common blue plums sold at 75 cents to \$1.12 per bushel, and sometimes a drug in the market at that. Damsons are not cultivated to any extent here, but are being introduced.

T. G. Vidal, Esq., of Sarnia, states that the Wilson and Triomphe de Gand strawberries are the most valuable, being good bearers and bearing carriage. The fruit brought 15 cents per quart.

Raspberries are not much cultivated. The Apple crop is very good, bringing from \$1.50 to \$2.50 per barrel, according to quality. Not many Pears to be had. Plums bring about \$4 per bushel.

D. Caldwell, of Galt, thinks that the Wilson is the most valuable because it is the most productive. The price this year was from 9 to 10 cents per quart wholesale. The Philadelphia and Franconia Raspberries are the most desirable because they are the most hardy and productive.

The Apple crop promises to be above an average, and the fruit is bringing \$1 per barrel. Pears bring from \$4 to \$5 per barrel, and plums \$2 per bushel.

Doctor A. Francis, of Delaware, says the Wilson is the most prolific strawberry and best for market. Strawberries bring from 10 to 25 cents per quart. The Philadelphia and Doolittle Black Cap Raspberries are the most desirable, being hardy and productive.

The Apple crop is good, the fruit fine and but little wormy or defective. They are now (8th Sept.) selling at 25 cents per bushel. In summer they bring \$1.50 to \$2, and in winter and Spring \$2.50 per barrel.

Good Pears bring from \$6 to \$7.50 per barrel, and the price of plums is from \$2 to \$3 per bushel.

A. M. Ross, Esq., of Goderich, values most highly the Wilson and Russell Strawberries, because these varieties succeed much better than any other he has tried. There are others he writes, better in quality, but none so prolific. The Russell requires to be planted beside other varieties. The general price of strawberries this season, when the crop was fairly in the market, was 10 cents per quart.

I do not cultivate the Raspberry, the currant worm has rendered the cultivation useless.

There is a prospect of a fair average crop of Apples on heavy soils, on light soils the worm has nearly destroyed all the fruit. They are now selling at 50 cents per bushel, (15th Sept.) but good winter varieties generally bring after October, from 75 cents to \$1 per bushel.

Pears have not heretofore been so extensively grown as to be offered much in market by the barrel. A few are offered at from \$2 to \$3 per bushel. Plums sell from \$1 to \$2 per bushel, they are extensively grown here and succeed well.

James Dougall, Esq., of Windsor, writes I value the Wilson Strawberry most highly on account of its great bearing and carrying qualities. Agriculturist is also profitable and bears well. Russel is large, bears well and sells high. They have averaged 12 cents per quart in this market at wholesale.

No Raspberries are grown for market, have no experience on a large scale.

The prospect of the Apple crop is poor, the fruit is generally imperfect and wormy. Good winter apples will bring \$2 per barrel, wholesale.

No Pears grown in any quantity for market, worth from \$1.50 to \$4 per bushel, according to quality. Plums range from \$3 to \$4 per bushel from small to large, to dealers.

REPORT BY W. SAUNDERS, LONDON, ONTARIO.

STRAWBERRIES. The crop has been a very good one. The steady winter, with its almost perpetual snow, was favourable for the preservation of the plants, and the spring and early summer for their growth and ripening of the fruit. Wilson's Albany comprised by far the greater portion of the berries offered for sale, other kinds are not much cultivated for profit. Although the quantities marketed were large, the sales were ready and brisk.

CHERRIES blossomed well, and many varieties set their fruit very finely, but in some instances the fruit dropped, or a large portion of it, before it was much more than half grown. The common red variety was abundant and cheap, and there were fair crops of Early Purple, Elton, Black Tartarian, and Napoleon Bigarreau. Cherries are not cultivated by any one here on a large scale, for, provided the crop is good, the difficulty of preserving it from birds and rot is considerable, and then the fruit is troublesome and laborious to gather.

RASPBERRIES of the wild sort were common enough, and sold for fair prices, but the finer varieties were almost entirely wanting. Philadelphia is only just being introduced to any extent; it has, during several years' trial, stood the winter well, and borne excellent crops. Most of the finer sorts were winter killed. The summer, last year, was very unfavourable for the ripening of the wood, and the snow and frost set in so early and suddenly that but few people managed to get them covered at all; among my own only a cane here and there survived, so the crop was very light. *Black Caps* are cultivated to some extent but do not meet with a very ready sale, the public do not appear to appreciate them as they deserve to be.

CURRANTS have been scarce and dear. The worms, so destructive to the foliage, have been almost incessant in their labours this year—one generation succeeding another so rapidly, that those who resolved to fight it out with them to the end had to exercise constant vigilance, and be ever ready with hellebore in some form to give them their quietus on first appearance. Few care to take the necessary trouble, so that by far the larger portion of the bushes, both of currants and gooseberries, have been entirely stripped of their foliage, some of them twice or even three times during the season. The Gooseberry moth, too, *pempelia grossularia*, has been troublesome to the currant as well as the gooseberry, the larva living on the fruit, drawing the several berries in the bunch together and fastening them by silken threads, resides within the enclosure thus made, and its presence is soon manifest by the withering and shrivelling of portions of the bunch; even the black currant, which has usually been avoided by insects, has come in for a share of attention from this pest, and in my own garden the loss from this source has not been less than one third of the crop. These combined evils have materially increased the trouble of growing such fruits, and consequently enhanced their price. Gooseberries, I refer to Houghton's Seedling, have been plentiful and cheap enough, the bushes of this variety seem possessed of so much vital force that they ripen the crop pretty well, even if a large proportion of the foliage is lost, and so vigorous is their growth that the leaves are soon reproduced. Foreign varieties mildewed so badly that but few matured. Downing's seedling produced a good crop, larger than the Houghton, and quite free from mildew.

BLACKBERRIES. The larger sorts are almost unknown in this market, and even the wild ones are rather scarce, they command about the same price as the wild raspberries, 10 cents, and sometimes 12 cents, per quart.

PLUMS. The crop has been very abundant all through this section, the quality good, and prices low. The curculio has been less troublesome than usual, but the rot has prevailed to a considerable extent, dependent probably in some measure on the wet character of the season. It is a matter of regret that those who supply the market have not fully awakened to the advantages of growing the finer sorts; the common blue plums have been offered in larger quantities than any other variety. Those who have cultivated the superior kinds have been privileged with a six weeks feast of luscious fruit in such perfection and abundance as we rarely see.

PEACHES are not much in favour owing to the uncertain character of the lives of the trees, they are so often winter killed. As a rule, those who have had any living trees old enough, have had them well laden with fruit during the season.

PEARS have borne but poor crops. Some varieties which usually succeed well, have

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the common variety
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GRAPES. The
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APPLES are
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RASPBERRIES are
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STRAWBERRIES.
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CURRANTS and
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deprive themselves of

Smithville, Co. I

partially or wholly failed, for example, Louise Bonne de Jersey. Again Osbands' Summer, White Doyenne, Duchess, and Seckel, have done moderately well, but much of the fruit has been imperfect. Very few good pears have found their way to our markets, and even the common varieties have been scarce. Our Bartlett's are nearly all brought from the United States, there being no sufficient home supply.

GRAPES. This has been a favourable season for grapes—no early frosts to nip the blossoms, and almost uninterrupted warm weather during the long season, so that almost every variety has ripened well. The wood has also made vigorous growth and is well matured, so that the prospects for another year are good. The crop has been on the whole good, and prices rather lower than usual. Hartfords, Concords, Delawares, and Isabellas have been all sold at about the same price, viz., 7 to 8 cts. wholesale, and 12 to 15 cts. retail.

APPLES are very abundant and cheap. The earlier varieties, in consequence of the plentiful crop, did not bring much more than half the usual price—the same may be said of the fall sorts. The winter supply promises also to be abundant, but prices for these will probably improve.

REPORT BY A. MORSE, SMITHVILLE.

I have much pleasure in submitting the following as my Report for the year 1870:—

The season opened fair and promising for fruit, the trees having a heavy and full bloom, especially the apple, but the setting of the fruit did not equal the expectations of fruit growers, the failure is attributed to heavy showers of rain followed by strong easterly winds at the time of blossoming. Fruits are generally about two or three weeks earlier than last year.

APPLES are somewhat below an average crop, yet the samples and flavour are quite superior to former years, Harvest apples of different varieties, and Red Astracan, are large and well flavoured, perhaps never better, and an abundant yield. Fall apples, such as Gravenstein, Duchess of Oldenburgh, Janetting, Fall Pippins, Colvert, and Sweetbough have done well. Winter apples have not done as well as earlier varieties, Baldwins and Spitzenburgs are lighter crops than some other kinds, Golden Russetts are good. Trees have grown well. The codling moth is somewhat troublesome. No caterpillars or other insects have been on the trees this year.

PEARS may be considered a failure, the trees blossomed well, but few of them bear fruit. The Belle or Windsor Pear, Glout Morceau, Bartlett, Sugar Pear, and White Doyenne, are nearly, or quite, the only successful ones this year. I know only one case of blight. I know one man who has a good crop, and has used ashes under his trees as manure, thinks the ashes caused the crop, while others in the neighbourhood who did not use them have no pears.

PLUMS, like pears, are nearly a failure. Occasionally some Blue Plums, Green and Yellow Gages, and Imperials are found in well-tilled gardens, the quality good, but as a crop, quite deficient.

PEACHES. This delicious fruit is yet more scarce than pears or plums. The trees are thrifty and healthy, but little fruit on them.

CHERRIES were a very good crop, and the quality excellent; nearly all the varieties grown here have borne fruit and ripened well, and free from the attacks of curculio and other insects.

GRAPES are of good size, ripened well, and of superior flavor as compared with former years; all varieties that have been tried here have ripened well, and are free from mildew. The season has been highly favourable to the growth and perfect maturity of the grape.

RASPBERRIES and **BLACKBERRIES** have been abundant wherever cultivated, but this is rather limited. The Black Cap does well. The Lawton Blackberry is grown with success.

STRAWBERRIES. The season has been favourable for the strawberry. The Triomphe de Gand, Wilson's Albany, and the Jucunda are the kinds mostly grown here, but none of them extensively.

CURRENTS and **GOOSEBERRIES** have been good in all cases, except where the currant worm and saw-fly worm have injured or destroyed the bushes. A large majority of people deprive themselves of these valuable fruits by sheer negligence.

A. MORSE.

Smithville, Co. Lincoln, 1st October, 1870.

REPORT ON THE PLUM CURCULIO—(*Conotrachelus nenuphar*).

BY W. SAUNDERS, LONDON, ONTARIO.

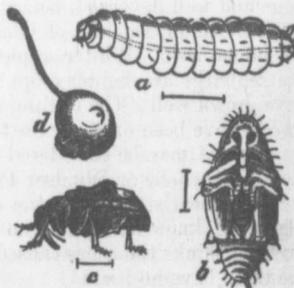
To the Fruit Growers' Association of Ontario.

GENTLEMEN,—When the Directors of this Association agreed to offer the prizes they did for the capture of Curculios, they did not, I apprehend, imagine the extent of the evil. Few would have believed that so many could have been taken in Canada as have been sent to me during the season. I have received in all 13,653.

From George Peacock, <u>Mount Salem, Ontario</u>	506
“ Wm. W. Emery, <u>Wellington</u> , “	869
“ D. Culbert, <u>St. Catherines</u> , “	1,016
“ Samuel H. Cornell, <u>Arkona</u> , “	1,015
“ George Cook, <u>Bloomfield</u> , “	1,040
“ Miss Mary Anderson, <u>East Zorra</u> , “	515
“ F. J. Drew, <u>Oshawa</u> , “	522
“ R. H. Ramsay, <u>Cobourg</u> , “	1,073
“ James Cowherd, <u>Newport</u> , “	1,046
“ John H. Eberlee, <u>Clearville</u> , “	2,280
“ John McLaughlin, <u>Tyrone</u> , “	849
“ Johnson Petit, <u>Grimsbly</u> , “	1,822
“ J. F. Latimer, <u>Port Stanley</u> , “	1,100

13,653

The accompanying figure shows the Curculio in its different stages *a*, is the larva or grub; *b*, the chrysalis; and *c*, the perfect insect, all magnified. The hair line along the side of each object shows its natural size. *d*, shows the Curculio, natural size, working on a young plum, in which one egg has already been deposited.



It was a matter of surprise to find so few other insects sent with the Plum Curculios. I had expected to see many more beetles, resembling in size and colour the genuine article, mixed with them, but in this there was an agreeable disappointment. The Curculio is better known than I anticipated. There were a few of the pea weevil *Bruchus pisi*, several of a much larger Curculio *Hylobius pales*, a few interesting specimens belonging to the family *Conotrachelus*, but distinct from *nenuphar*, and as yet undetermined, with an odd insect or two in some of the bottles belonging to other families of Coleoptera.

I requested all the parties who had forwarded Curculios to send me notes as to their mode of procedure in capturing them, the number of trees operated on, the time of day in which the jarring took place, and whether experience taught that one time of the day was better than another. I also requested details of any observations which might have been made on the habits of the insect, with the hope of bringing something new to light. A number of replies have been received, containing information of considerable value and interest, the substance of which I shall here submit.

The mode of procedure does not vary much. One takes two sheets, and tacks a framework on one side, and two ends of each, and places one on one side of the tree, the other on the other side. Another, two pieces of cotton, six feet by twelve, with a strip of wood at each side only, the inner one wide, with a semi-circular notch cut in the centre, so that when placed together they form a circle in which the trunk of the tree is

enclosed. A third side of the tree single large sheet tree to pass to the spread it readily such material, h than the hand.

Mr. D. Cull 1,016 Curculios, ing and evening, says, “up to this morning, but not year the nights v He commen

Morning
28th, “
30th, “
31st, “
June 1st, “
3rd, “
4th, “
7th, “

The number of
Mr. John Mc from thirty trees. morning, when he He spent about tw took him about on He has found the thinks this is a pec Yellow Gage, Colu Mr. J. H. Ebe ber of any—jarred a large proportion when the blossoms

May 24th
“ 25th
“ 26th
“ 27th
“ 29th
“ 31st,

June 1st, 140; 2nd 89; 16th, 71; 17th caught after this wh was kept, the evenir

Mr. Samuel H. which he operated o and thinks from the about the 25th. H they began to decr “after this I determ until I could get no found that at any tin became very lively fr

enclosed. A third takes four large sheets, without framework, and spreads two on each side of the tree; while a fourth buys 18 yards of cotton, out of which he constructs a single large sheet, the centre stitched only half way up, so as to allow the body of the tree to pass to the middle, a strip of wood is tacked to each side to enable the operator to spread it readily. Some use padded mallets to jar with, or a bag of pea straw, or some such material, held against the tree, and struck with a mallet; others use nothing more than the hand.

Mr. D. Culbert, gardener to T. R. Merritt, Esq., of St. Catharines, sends with his 1,016 Curculios, a valuable table showing the number taken each day. He jarred morning and evening, and his results point to the evening as the best time for jarring. He says, "up to this year I have invariably found that the largest quantity was caught in the morning, but now it is the reverse. At the commencement of the Curculio season this year the nights were very cold and the days warm, which, I think, will account for it."

He commenced jarring on the 27th of May, taking in the

	Morning.....	29	Evening.....	112	Total.....	141
28th,	"	1	"	302	"	303
30th,	"	165	"	112	"	277
31st,	"	0	"	99	"	99
June 1st,	"	57	"	raining	"	57
3rd,	"	0	"	71	"	71
4th,	"	0	"	25	"	25
7th,	"	did not try	"	45	"	45

1,018

The number of trees Mr. Culbert operated on is not given.

Mr. John McLaughlin, of Tyrone, Ontario, sends 849 Curculios, which he obtained from thirty trees. He jarred them at all hours through the day, but found most in the morning, when he thinks the insect is less inclined to walk or fly than at any other time. He spent about two hours per day at the work for the first ten days, after that it only took him about one hour. The jarring was continued for three weeks, every second day. He has found the Washington plum more difficult to save than any of the others, and thinks this is a peculiar favourite with the Curculio. He is also of opinion that Prince's Yellow Gage, Columbia and Reine Claude, are less liable to attack.

Mr. J. H. Eberlee, of Clearville, Oxford, Ontario, who sends 2,280—the largest number of any—jarred twenty plum trees, ten English cherry and thirty peach, but obtained a large proportion of the insects from the plum trees. He began on the 24th of May, when the blossoms were scarcely off the tree, and the fruit just commenced to set.

May 24th,	Morning.....	25	Evening.....	25
" 25th,	"	50	"	66
" 26th,	"	66	"	76
" 27th,	"	86		
" 29th,	"	109		
" 31st,	"	125		

June 1st, 140; 2nd, 136; 3rd, 112; 4th, 109; 5th, 153; 9th, 210; 10th, 74; 12th, 89; 16th, 71; 17th, morning, 54; evening, 61; 13th, 96; 19th, 176. Some more were caught after this which he does not give details of. In this case also, as far as the record was kept, the evening catch was the largest.

Mr. Samuel H. Cornell, of Arkona, sends 1,015. He has about 26 bearing trees, which he operated on. He observed the Curculio at work as early as the 27th of May, and thinks from the quantity of fruit stung at that time, that they commenced working about the 25th. He jarred in the morning and caught 300 the first time, after which they began to decrease until they were reduced to twenty or thirty a day. He says, "after this I determined to try the evening, and caught quite a few for several evenings, until I could get no more, when I gave up the contest, well satisfied with the result. I found that at any time before 7 a.m. was a good time for catching, but after that they became very lively from the effects of the sun and disappeared. We caught quite a num-



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ber about sunset, and I have arrived at the conclusion that they commence ascending the tree about this time, and work during the night or early in the morning, and begin to leave again as soon as the warm rays of the sun are felt, although I have caught a few specimens during the day." Mr. Cornell took his 1,015 Curculios in eleven days. He says he has had no fruit on his trees for two years past, but seeing the prizes offered by the Fruit Growers' Association in the Weekly *Globe*, he resolved to wage a war of extermination against the Curculio, and besides earning a ten dollar prize, he expects to save a crop of twenty-five bushels of plums.

Mr. R. H. Ramsay, of Cobourg, who contributes 1,073, says he caught this number of the "vile wretches" in seven days from twenty-one trees. Beginning on the 2nd of June, he took 242; 3rd, 222; 4th, 230; 6th, 72; 7th, 133; 8th, 90; 9th, 124. He has jarred successfully at all times of the day. When jarring he carries a phial with him half filled with water, into which the Curculios are put as fast as caught. His work has resulted in a good crop of plums, with which he is highly pleased. Some of the trees were so heavily laden that the branches needed propping. Mr. Ramsay thinks that a united effort among plum growers throughout the country, faithfully carrying out the jarring process for two or three years, would almost exterminate the "little Turk." *Let all try it.*

Mr. F. J. Drew, of Oshawa, who sends 522, took this number in five days from fifteen trees. The trees are seven years old this spring, and he thinks the crop will average two bushels per tree, all saved by jarring. He prefers the evening to the morning for the work on account of the dew. He also says that his neighbours, seeing his success, are tapping in earnest in order to save their plums.

Mr. Wm. H. Emery, of Wellington, sends 869 Curculios. He has about 500 plum trees in all, grafted on the wild stock, fifty of them bearing this year. Among them are four wild plum trees, which he says set their fruit earlier than the other varieties, and on these the Curculios first collect, and he can usually gather from 20 to 30 from each tree at each time of jarring. In this way he decimates the enemy considerably before the more valuable fruits can be operated on. He says his neighbours have their fruit all stung and falling off, and if he had not attended closely to his, he should not have had a plum, for in consequence of the neglect of his neighbours he is obliged to look after many of their Curculios as well as his own. However, as it is, his trees are full of nice large fruit, excepting the wild plum trees before referred to, nearly all the fruit of which is stung. It takes him about three hours to go over his trees, and his 869 Curculios is the result of five times operating. He says he has destroyed about 1,500 altogether this season, but this is not half as many as he killed last year. He keeps at them at odd times till the fruit is nearly ripe.

Mr. James Anderson, of East Zorra, not having time to attend to his trees himself, persuaded his daughters to work at them, and with the stimulus of a reward from the Association in view, they jarred bravely and vigorously till they had collected 515.

Mr. George Peacock, of Mount Salem, sends 506. He says that they have been very destructive to his fruit this year, having destroyed all his plums. Every plum has one or more grubs in it, peaches one, two, or three, and that his cherries are badly stung. He usually jarred his trees during the hottest part of the day.

Mr. James Cowherd, of Newport, who sends 1,046, obtained this number by jarring 31 trees, four of which were wild plums. The principal part of the Curculios were taken from twelve trees in full bearing. He began the jarring June 2nd, and continued it till June 22nd. Trees in the warmest and driest situations were attacked first. He observed one wild tree in a cold, damp place, from which no Curculios fell for the first five or six days, but on the last day's jarring six were taken from this tree, and none from any of the others. The result of the first two days operations, June 2nd and 3rd, were thirty each day; on the 5th and 6th, the weather became very warm; on the 6th, took 250; 7th, 140; 8th, 80. Then less every day till June 21st. Several of the trees were young and have never fruited, none were taken from these; but a few were taken from trees which had fruited last year, but were barren this season. He has been jarring his trees every year but one for ten years past, and has never failed to obtain a crop. The year he did not jar, there was so little blossom on the trees that he did not think it worth while, but the result showed that he was in error, for after stinging the few plums which set on the

trees, the Curculio Black Heart was, and besides this, any less plentiful molested on his neighbourhood.

Mr. Johnson were taken on son at a distance from jarring was begun the cherries, and last, as he got but June, the first three were all tall operate. Towards

J. F. Latimer trees in his garden which would other

These packages season, somewhat of the United States they were so abundant on fifteen trees registered more than eight at and this I thought just given, where trifling indeed, and neighbourhood of L I believe this opinion thankfulness were could well spare the efforts of our Association over the country, and of every one interest larger number of the results will, no doubt, some time this year, will

I shall now refer to our add something to our that the Curculio was somewhat sceptical on might with lantern another tree one. Usually remain motion about these creatures on the sheet, and fear were then taken into one of them at once to ing this activity might dark room for a while just enough to enable faster than I have seen that time, and the insect

The next night they were before. These man and along with them (I branch from a plum tree

trees, the Curculios attacked the cherries, destroying nearly all the Napoleon Bigarreau, Black Heart was badly injured, American Amber a little, the Dukes about half destroyed, and besides this, some of the pears were stung. He never could see that Curculios were any less plentiful from year to year, and attributes it to the fact that they remain unmolested on his neighbour's trees, and on the wild plums, which are very plentiful in his neighbourhood.

Mr. Johnson Petit, of Grimsby, who sends 1,822, says that the greater part of them were taken on some seven or eight cherry trees (common red), and a couple of plum trees, at a distance from the house, those in the garden and near the house giving but few. The jarring was begun in the latter part of May, before the Curculio commenced puncturing the cherries, and kept up until the middle of June, though not very regularly towards the last, as he got but few at a time. The greatest numbers were taken in the beginning of June, the first three evenings he got 900, after which they gradually became scarcer. They were all taken in the evening, as this was the only convenient time for him to operate. Towards the last he got more from the peach trees than the cherries.

J. F. Latimer, of Port Stanley, who sends 1,100, obtained his from a few large plum trees in his garden. By attending to the jarring regularly, he saved a fine crop of plums, which would otherwise have been destroyed.

These packages of five hundreds and thousands coming in day after day, through the season, somewhat astonished me. I knew that the large fruit growers in some parts of the United States could catch the Curculio by the 500 or 1,000, but I had no idea that they were so abundantly distributed throughout Canada. I operated in my own garden on fifteen trees regularly, occupying me about half an hour each day, and never captured more than eight at any one time, collecting during the season not more than 100 in all, and this I thought was doing pretty well, but when compared with some of the results just given, where two or three hundred or more have been taken in a day, it appears trifling indeed, and clearly indicates that there are worse places for plum raising than the neighbourhood of London. Probably they may be scarcer than usual with us this year. I believe this opinion is general among our fruit growers. It would be matter for devout thankfulness were this diminution in their numbers to continue to final extinction—we could well spare the creature, but this we need not hope for, so we must fight on. The efforts of our Association this season have awakened a general interest in the subject all over the country, and the jarring process has been brought prominently before the minds of every one interested in the matter, and resulted, doubtless, in the destruction of a much larger number of these injurious insects than we are at present aware of. Besides the results will, no doubt, be lasting, for those who have saved their crop of plums for the first time this year, will not need the stimulus of a bonus to set them at work another season.

I shall now refer to some experiments of my own on this insect which will, I hope, add something to our knowledge of the creature's habits. I had seen it stated somewhere that the Curculio was active at night, and I had also seen the idea ridiculed, and being somewhat sceptical on the point, resolved to test it. Accordingly I went out about midnight with lantern and sheet, and on jarring one tree down came two Curculios, and from another tree one. When they drop to the ground from jarring in the day time, they usually remain motionless for a good while, feigning death. But there was no shamming about these creatures taken at this time of night, for they commenced to run about at once on the sheet, and fearing they would fly they were quickly transferred to a pill box. They were then taken into a room where there was a lamp burning, when on opening the box one of them at once took wing, attracted by the lamp and flew around the light. Thinking this activity might be due in part to the stimulus of a bright light, I placed them in a dark room for a while, and then approached them with the faintest glimmer of light, just enough to enable me to see them, when I observed them running about very quickly, faster than I have seen them move in bright daylight. This ended the experiments for that time, and the insects were closely shut up in a box for safety.

The next night the operation was repeated, and two Curculios taken from one tree as before. These manifested just the same symptoms of activity as their predecessors, and along with them (now five in all), were put into a box having a glass lid, with a small branch from a plum tree having five plums on it, each one of which had been carefully

examined and found quite free from puncture or bite of any sort. The box was placed in a darkened room and covered with a black cloth, so arranged that no light could possibly penetrate until its removal. Early in the morning the cloth was suddenly taken away, and two of the Curculios found working on the plums, while the others were quiet or leisurely walking around in other parts of the box. The branch was at once taken out and examined. Plum No. 1 had a puncture at the tip, hollowed out so that the skin was getting black; No. 2 was in the same state, with a second large puncture in the side; No. 3 had two punctures on the top, one large and one small one; No. 4 a small puncture near the base of the stem, while in No. 5 four eggs were deposited, and it was also punctured in four places, one of the punctures being very large, deep and crescent shaped, a second quite shallow, barely through the skin. I observed that they were much less active in the morning than at night.

Being anxious to see how they would do their work in the day time, another branch was cut with sound plums on it a little before noon, and placed in the box with the same insects. When exposed to the sunlight they were nearly as active as in the night, occasionally flying around the box inside. They were left exposed under a slight shade afforded by a small tree, and examined at noon, when it was found that two eggs had been deposited, this was within an hour from the time of their exposure. Again it was examined early in the evening, when the number of eggs deposited had increased to nine, and a great many punctures had been made on different parts of the fruit where the Curculios had been feeding.

These experiments, I think, clearly prove that they work in the dark as well as in the light, feeding and depositing eggs at night as well as in the day time—that is during the warmer parts of the season, for it should be observed that at the time I operated the nights were quite warm.

With regard to the best time for jarring, experience leads me to believe that the evening is preferable, provided the work is not undertaken too early, say about sunset; or if it is done in the morning, the earlier the better. I will give you a little incident connected with evening jarring. Having just observed a Curculio drop on the sheet where I was at work, and having a few minutes to spare, I resolved to watch to see how long the creature would feign death. For half an hour a careful scrutiny was kept up, during which time it did not move a muscle. How long it would have continued in this state is uncertain, as I had no more time to devote to the experiment just then, an attempt was made to pick the Curculio up, when as soon as it was touched, it began to run vigorously. While watching this specimen another was observed on a low, outer branch of the same tree, which the slight previous jarring had failed to bring down. It remained quite still for a good while on the branch, then walked a few steps, stopping a while again and so on, during the half hour it did not progress more than two inches in all. An attempt was now made to see if shaking would bring it down on the sheet. Beginning lightly the shaking was increased in rapidity every time, until it became quite violent, much more so than any large tree could be shaken, but it maintained its hold on the limb, and became more active between the intervals of shaking. Being satisfied that shaking would not do, jarring was tried, when a single tap brought it to the ground.

A new method of capturing the Curculio has lately been brought into notice by Mr. W. B. Ransom, of St. Joseph, Michigan, which promises to be of great service, although not likely to supersede jarring entirely. Most of the insects, it is believed, pass the winter in the ground either in the larva or chrysalis state, awaking to life during the first warm days of spring. During several weeks, while the weather is chilly and changeable, they are fond of taking shelter in any convenient hiding place. Taking advantage of this habit of theirs, it is proposed to set traps for them. Having made the ground quite smooth and clean for several feet around the base of the tree, place a few pieces of bark or chip, or what is better, pieces of shingle close around and against the trunk of the tree. These will afford convenient hiding places, and under them the Curculios take refuge, and if turned over any time during the day the insects may be found attached to the under side, when they are easily caught and destroyed. In this way Curculios have been taken by the thousand in Michigan in a single day, and as it is a method involving much less labour than jarring, its adoption is likely to become very general. The proper time for

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the employment of this method is from the opening of spring till about the first week in June, turning over the traps once or twice every day, and picking the Curculios off and destroying them. C. V. Riley, Esq., State Entomologist of Missouri, who has thoroughly investigated this subject, and from whose valuable reports some of the information here given is obtained, recommends pieces of new shingle in preference to any thing else, since the Curculios adhering to these would be so much more readily seen. Mr. Ransom, however, prefers small pieces of oak bark, placed close around the tree, with the inner or concave side to the ground. After the first of June the old jarring process should be vigorously resorted to, indeed it might be well to commence even sooner than this, as the heat of the weather in some seasons might predispose them to discontinue their hiding habits earlier than in others. The use of both methods together, which could be easily worked, would make sure work of the enemy, and would, we think, insure good crops of plums in any and every district, no matter how badly infested with this pest.

There is still another method which I wish to refer to, and although it has been sometimes ridiculed, is worthy, I think, of further investigation. I refer to the tying of bottles of sweetened water, or other attractive material, to different parts of the tree. I have no personal experience in this, but I learn from a correspondent who has resorted to this method alone for several years, that he invariably has a good crop. Different liquids have been recommended, such as weak vinegar and sugar, a little sweet wine of any kind, such as myatt or currant, or a mixture of beer and water sweetened with molasses. The bottles are partly filled, and tied to the tree with their mouths close to the main limbs, especially where the branches fork. The theory is that the insect in crawling up the tree, which is probably its usual mode of ascent, is attracted by the odor of the liquid, crawls into the bottle and is drowned. My informant tells me that he has captured a great many Curculios in this way, but never having had the opportunity of examining the contents of a bottle which had been thus exposed, I cannot vouch for the correctness of the testimony. No doubt many other insects would be captured besides Curculios, and we might possibly destroy many of our friends as well as foes. Still the method is worthy of further trial, and as it is easily carried out, I should be glad to receive next season from different parts of the country, the contents of such bottles for examination.

PRIZE ESSAY—AWARD.

To the Directors of the Fruit Growers' Association of Ontario.

The committee appointed to render judgment upon the essays on small fruits, have had placed in their hands three essays, with the following mottoes, viz. :

First. "In labor there is profit."

Second. "Whatever tends to promote production, increases the wealth of any nation."

Third. "Poma mitia ;"

and now beg to report their award.

In their opinion, they are confined to the consideration of the two first mentioned essays, since the third, bearing the motto "Poma mitia," contrary to the resolution offering a prize to the best essay on the raspberry, blackberry, strawberry and currant, treats only of the strawberry.

After a careful perusal of the two essays first above named, the committee have decided to award the first prize to the essay bearing the motto, "In labor there is profit," and the second prize to the essay endorsed with the motto, "Whatever tends to promote production, increases the wealth of any nation."

The committee desire to express their opinion of the great merit and excellence of the essay to which the first prize has been awarded, and earnestly recommend its publication, and a careful perusal of it by the public.

We beg to submit this award.

Given at Hamilton, this 21st day of February, 1870.

W. H. MILLS.
ROBERT BURNET.
W. HOLTON.

SECRETARY'S REPORT.

To the Directors of the Fruit Growers' Association of Ontario.

Gentlemen,—I have this day received the award of the Committee appointed to read the essays that had been received in competition for the prizes offered by this Association, and to adjudge the prizes; and therefore I have proceeded to open the envelopes endorsed with the mottoes to which prizes were awarded, and find that the envelope endorsed with the motto, "In labor there is profit," contains the name of William Saunders, Esq., of London; and the envelope bearing the motto, "Whatever tends to increase production, increases the wealth of any nation," contains the name of David Nichol, Esq., of Cataragui, Kingston.

Your ob't servant,

D. W. BEADLE,

Secretary to Fruit Growers' Association of Ontario.

PRIZE ESSAY ON THE RASPBERRY, BLACKBERRY, STRAWBERRY AND CURRANT.

BY W. SAUNDERS, LONDON, ONT.

THE RASPBERRY.

Our improved varieties of raspberry have all originated from two or three wild native or foreign species—the European sorts chiefly from "the European Raspberry" (*Rubus idæus*)—our own from the common wild red raspberry (*Rubus strigosus*), and the black raspberry (*Rubus occidentalis*). These have been improved chiefly by cultivation, selection, and hybridization, or crossing. A number of plants have been raised from seed, and from these the most promising have been taken and cultivated; when fruited, fresh seeds have been obtained, sown, and subjected in turn to the same process of selection; or a hardy variety, lacking flavour, has been crossed with a tender, high-flavoured sort, with the intention of raising from the resulting seeds, plants inheriting the hardness of the one, and yielding fruit possessing some portion of the delicate aroma of the other.

* [In pursuance of this latter method, we obtained during 1869, ten or twelve berries, more or less perfect, of Philadelphia crossed with Brinckle's Orange. The Philadelphia was taken as the female—the Brinckle's Orange as the male. The crossing was attended with great care, and every precaution taken to exclude any subsequent influence from either atmosphere or insects, so that we are satisfied that the cross is a genuine one. The seed was sown in the fall and the plants obtained this season 46 in all, present very marked differences in foliage and habit—some having the dark reddish wood, and comparative freedom from thorns of the Philadelphia, while others have the light colored wood and thickly set thorns of the Brinckle's Orange, and there are some with these characters blended. We hope when the fruit appears, that some of them will prove valuable.]

The soil best suited for the raspberry, and indeed for all the small fruits to be treated of in this essay, is a rich, moist, deep loam, inclining to clay rather than sand, well drained and thoroughly worked, either trenched with the spade, or ploughed and subsoiled as deeply as possible. Such working, and, where the land has been at all previously exhausted, a liberal manuring, will place it in good heart to give strong growth to the plants placed in it. Individuals who are not favoured with such suitable soil may still grow good crops of fine fruit, even if the soil be very light and sandy; but in this case a far more liberal and continuous manuring will be needed, for the raspberry is a great feeder. It is useless to attempt to grow this, or any other of the small fruits we shall treat of, in a cold, wet soil, for no amount of preparation short of thorough draining will remedy this defect.

* The paragraphs enclosed in brackets, are additions to the original essay, suggested by the experience of the past season, and added to make it more complete.

With regard advocating that it is abundant, six light, and also produce where a large piece advocate the place would allow of the tell so well on the of the soil. The crowd as much as feet apart, and the

The red raspberry from the roots of varieties sucker less ed to increase this the plant, to sever pieces of root thus parative abundance

The black rasp tips of the canes. drooping and slender of fibrous rootlets, well rooted, is severe

The spring is dug up, and transferred the roots unnecessary no preparation in pieces of the ground. It is very unwise to with care, a few berries the young plant, and limited resources.

of fruit may be allowed, but a full crop

Pruning.—Canes be removed as soon young canes may have to the thinning out. Since we depend on crop, any process with young plant, is desirable means to this end.

should be pinched off, turn, should be subjected pinching should be resince it would cause a might be practised subsequent growth not was regard as much less checked throughout. By this latter method duction of wood which in the former case all ripened cane, far better. This treatment is equal raise new plants; they sowed.

With regard to the proper distance for planting, a difference of opinion exists; some advocating that the rows be placed four feet apart, others six feet or more. Where land is abundant, six feet, we think, is little enough, as this allows room for plenty of air and light, and also provides for horse culture, which is a matter of considerable importance where a large piece is under cultivation. For similar reasons, in such a case we would advocate the placing of the plants four feet apart in the rows, rather than two, as this would allow of horse-culture the other way; for we are satisfied that there is nothing will tell so well on the health of the plants and abundance of the crop as a frequent stirring of the soil. Where land is scarce, as in the garden of the amateur, and it is desirable to crowd as much as possible into a small space, the rows may be reduced to three or four feet apart, and the plants from one to two feet in the rows, with fair results.

The red raspberry is propagated by suckers, which usually spring up in abundance from the roots of the plants as soon as they obtain good foothold in the soil. Some varieties sucker less readily than others—the Philadelphia, for example. Where it is wished to increase this propensity, a sharp spade should be thrust down into the soil all around the plant, to sever the roots, say a foot or less from the base of the plant, when the pieces of root thus cut remaining in the soil will usually throw up young plants in comparative abundance.

The black raspberries do not send up suckers, but are propagated by layering the tips of the canes. In the autumn, the extremities of the canes lengthen much, become drooping and slender, finally touching the ground, and from this point sending out a mass of fibrous rootlets, soon developing, when undisturbed, into a vigorous plant; this, when well rooted, is severed from the parent by cutting the cane.

The spring is the proper time for planting; then the well-rooted suckers or tips are dug up, and transferred to their place in the new plantation, taking care not to expose the roots unnecessarily to drying winds or the heat of the sun. The rooted tips require no preparation in planting, but the stems of the suckers should be cut down within a few inches of the ground, so as to induce a strong shoot from the base for next year's fruiting. It is very unwise to attempt to obtain any fruit from raspberries the first year planted; with care, a few berries may be ripened, but the fruiting process is an exhaustive one to the young plant, and it will often take years to recover from this foolish tax on its then limited resources. If the plants become well established the first year, a certain amount of fruit may be allowed the second without injury to the future prosperity of the plantation, but a full crop need not be expected until the third or fourth year.

Pruning.—Canes which have once borne fruit, bear no more. Hence, these should be removed as soon as the fruiting season is over—cut off close to the ground, so that the young canes may have more room and air. At the same time, due regard must be paid to the thinning out of the new canes, removing all that promise to be weakly or slender. Since we depend on the strength of the current year's growth of wood for our next year's crop, any process which will conserve the vigour, and concentrate the energies of the young plant, is deserving of regard. Summer pruning and pinching we deem a valuable means to this end. The young plant, when it has attained the height of about three feet, should be pinched off at the tip; this will cause the side branches to develop, which, in turn, should be subject to similar treatment when from six to eight inches long. This pinching should be repeated, if necessary, but should not be continued too late in the fall, since it would cause a late growth of tender wood, which would suffer during winter. It might be practised safely enough till about the beginning of September, and any subsequent growth not wanted might be removed by a light spring pruning. This method we regard as much less wasteful than that of allowing the summer's growth to proceed unchecked throughout the season, and then prune back in the spring to a proper height. By this latter method the plant is allowed to waste its strength in the unnecessary production of wood which must be removed, and the growth is often long and slender; while in the former case all its energies are concentrated in the development of a stocky, well-ripened cane, far better fitted to bear its destined weight of fruit the ensuing season. This treatment is equally applicable to the Black Caps, unless where it is desirable to raise new plants; then the natural extension of the cane, or portions of it, must be allowed.

Manures.—It is universally conceded that stable manure contains all the elements required to recuperate the soil, stimulate the energies, and increase the vigour of growing plants, and since this is probably readily obtainable by all our readers, we shall not enter into the subject of special manures. Stable manure should be well rotted before being used. If spread out in flattened heaps, about three feet deep, in fall or spring, and turned over several times during the summer following, keeping it properly supplied with moisture, it will be in good condition in the fall to apply to growing plants, and a small quantity thus well prepared will be found more than equal in its effect to a much larger quantity of such as is coarse, and only half decomposed. In this latter condition, however, it often serves a good purpose, as a mulch, to protect the roots either from the severe tax of a summer's drought, or the pinching cold of winter.

Picking and marketing fruit.—Women and children are usually engaged in picking berries, and paid either by the day or quart, most commonly the latter; the price averaging about one cent per quart. The pickers take to the grounds with them the quart wooden boxes in which they are to be shipped, and when they are filled, carry them to a shed, or other suitable place near by, where they are enclosed in well-ventilated cases, holding from thirty to sixty quarts. The pickers receive tickets corresponding to the number of boxes they bring in, which are produced when the time for payment arrives. All small fruits should be gathered carefully, free from leaves and other dirt, and also free from unripe berries. The pernicious practice resorted to by some, of placing a few fine specimens on the top of a box, while below the fruit is inferior, should be carefully avoided. Such a course disgusts both dealer and consumer; the surface should fairly represent the interior. In some localities, where large berries are appreciated, it would doubtless pay to select the fruit, separating what is extra fine from the small and inferior; this applies particularly to strawberries; the latter would have to be sold at a reduced price, but the selected fruit would command a figure very much above the average, and the whole might thus be made more profitable. In all cases, growers should avoid mixing their fruits; an assorted package, even if some of the varieties are superior, will seldom sell as readily as one the contents of which are uniform. All imperfect fruit should be rejected; half a dozen of such in a box will attract the attention of a purchaser far more readily than twice that number of extra good specimens. The best policy is to consign such to the pig-pen or the manure-heap; reputation for quality is quite as valuable to the fruit grower as to any man in any other department of business.

Varieties.—These may be conveniently divided into three classes. 1st. Such red or yellow raspberries as are tender, and require winter protection; suited chiefly for amateur culture. 2nd. The hardy varieties, including some new ones claimed to be so, but as yet unproven in Canada. 3rd. The black raspberries.

Brinckle's Orange.—Of all raspberries we regard this as the finest. Its flavour, aroma, and appearance are equally charming and delicious. It is large and of a beautiful orange yellow colour, and its full and slowly maturing crop supplies the table of the grower with a daily portion for three or four weeks. We think this variety might be grown with profit for a near market, but it is too soft to bear shipping far. In most parts of the country it would need winter covering; but in some of the more northern sections, where the snow lies deep and unbroken throughout the winter, if pruned low this would probably be a sufficient protection. In localities less favoured in this way, the canes might be allowed to grow moderately long, bent over as closely to the ground as possible without breaking, their tips covered with earth, and some loose litter—pea straw or light manure—thrown over them. The expense of covering an acre in this way would not be very great, and we think that the additional price the fruit would bring over any other variety, would more than compensate for the extra labour.

Franconia is a large red variety of fine appearance and flavour, and very productive. In the milder portions of Canada, the Niagara district for example, it is hardy enough to stand most winters without injury, but it cannot be relied on in other sections away from the influence of the lakes. With me it has proved quite as tender as Brinckle's Orange.

Hornet.—This is a still larger red fruit, very productive and of good flavour. Besides these we may enumerate the Fastloff, Belle de Fontenay, Red Antwerp, French, and Marvel of Four Seasons—all good varieties.

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Philadelphia—Of all the hardy varieties this has been most widely tested, and maintains its character for hardiness and productiveness every where. It is dark red, medium to large in size, moderately firm, but very deficient in flavour, not equal we think in this respect to the wild fruit. We doubt very much whether this variety will pay for cultivation in localities where the wild fruit abounds, for although larger, it would necessarily be brought into competition with the native variety, and would hardly sell at a much higher price. A great deal would depend on how it was marketed.

[During the past summer, we have fruited Philadelphia on a larger scale than heretofore, and have found it superior in flavour and larger in size, which might partly be due to the season, but more, we think, to increased strength and greater maturity in the plants—we liked them well, and feel disposed to modify the views expressed above, as to the probability of their producing a paying crop, for their yield has been enormous, and the fruit we know from its appearance, would have sold readily.]

Yellow Canada, and Arnold's Red are two seedlings raised by Mr. Arnold, of Paris, Ont., which promise well. They are undoubtedly hardy, and are said to be very productive. They deserve fair trial, and we hope they will prove to be a valuable acquisition. Mr. Arnold merits great praise for his many efforts to improve our fruits.

Clarke—This new variety is highly esteemed in many parts of the United States on account of its hardiness, but we believe it has not yet been subjected to the test of our Canadian winters. The fruit is said to be large, light crimson, sweet and highly flavoured. It is doubtless worthy of being tested.

Naomi—Much is said in favour of this new variety. In size and quality it is good, but it is doubtful if it will sustain the character claimed for it by its originator for hardiness.

Class 3rd—Black Raspberries—The Doolittle Black Cap has been well tried throughout Canada, and has proved hardy and prolific. The berry is moderately large, black, with a slight bloom, sweet, juicy, and similar in flavour to the wild black cap.

Mammoth Cluster, introduced to public notice by Purdy & Johnston, of Palmyra, N. Y., is doubtless an improvement on the Doolittle, being larger and more productive. We hope this berry will be extensively tried. Its period of ripening is just after the Doolittle.

[The Mammoth Cluster has fruited with us the past season, and we have found it all that it has been represented. It stood the winter well, and produced a large crop of fine fruit. The berries larger and more juicy than the Doolittle.

Negley's Ever-Bearing.—This berry has been brought under the notice of our Canadian fruit growers during the past season, by Charles Arnold, Esq., of Paris, Ont. Originally from the United States, it has proved hardy and very productive in Canada. The fruit is large, nearly the size of the Mammoth Cluster and of good quality. It also bears a second, though smaller crop, late in the season—we hope it will be widely disseminated.]

Davison's Thornless is another new claimant for public favour, ripening about a week earlier than the Doolittle. The absence of thorns on the canes will be of great advantage in gathering the fruit.

Golden Thornless is a new yellow raspberry belonging to the same family, is nearly if not quite as large as the Mammoth Cluster, firm in texture, of handsome appearance, but deficient in flavour.

Although we have now enumerated many varieties, all of which possess some good points, we still feel that they all have their defects. We want a raspberry that will combine the good qualities—hardy, productive, large, juicy, moderately firm and high flavoured. Whether we shall ever attain to this degree of perfection, time alone will disclose. We sincerely believe it to be possible, and trust that the many labourers who are working to produce new varieties will never relax their efforts until something near this desired end is obtained.

Dr. Asa Gray, in his Manual of Botany, speaking of the black and red raspberries, says. "Some curious forms are known, with fruit intermediate between these." We are not aware of any such in cultivation, but the fact of their being met with in a wild state,

would suggest the idea of a natural crossing of these two through the agency of insects. Might not some *valuable* varieties be similarly produced by the more intelligent workings of man? Here is an almost unexplored field for the enthusiastic fruit grower.

[During the summer, we have succeeded in crossing the Doolittle with the Philadelphia, and have sown the seed thus obtained, which seemed perfectly good. Should they germinate as they promise to do, we shall watch with interest the growth and habits of the plants.]

Insects—The raspberry is not without its insect enemies. A borer, the grub of a long horned beetle (*Oberea tripunctata*) burrows its way up and down the middle of the cane, weakening and destroying it. The beetle girdles with its jaws the new cane not far from the tip, in two places, one ring an inch or more below the other, and between these, in a puncture, the egg is deposited, which soon hatches into a grub, furnished with powerful jaws, and which at once enters upon its destructive career. The tip above the upper ring on the young cane withers and droops, by which the presence of the enemy may be readily detected. The operations of the parent insect begin early in July, and continue for several weeks. By looking through the canes occasionally at this season, and removing all the withered tops, down to the lowest ring, this insect may be pretty well subdued, as it is never abundant. The worm lives in the cane, and undergoing its transformation there, appears as a beetle the following June.

[A closer examination into the cause of the girdling of the cane as described above, shows that it is not always due to the beetle referred to—viz: *Oberea tripunctata*. Indeed, we now think it is doubtful whether *that* insect ever girdles the cane as described. We know that it does destroy the raspberry canes, for we have found its larva late in the season boring down the middle of the stem; but at the suggestion of Mr. Riley, State Entomologist of Missouri, we have carefully examined a number of these examples of girdling during the summer, and found in every case, that they were the work of an Orthopterous insect—one of the grasshopper family, which girdling and puncturing the cane as already detailed, deposits a single large, long yellow egg in it, which, when hatched, produces an insect at once similar to the parent, but without wings, which works its way out of the cane to enter it no more.]

A much more troublesome pest is the grub of the raspberry sawfly (*Selandria rubi*), a green worm covered with short green spines. This eats out the soft parts of the leaves, leaving the skeleton frame-work of tougher veins. There are two broods during the year. The fly deposits its eggs early in spring, on the under side of the young leaves, soon after they begin to expand, where they speedily hatch, and in a few weeks become full grown worms, about three-quarters of an inch long. Entering the chrysalis state, just below the surface of the earth, they appear again by the middle of summer as perfect flies, deposit their eggs, and from these the second swarm is produced, the survivors of which pass the winter in chrysalis under ground. Hellebore is a sovereign remedy here; an ounce or so mixed with a pail of water and showered on the bushes with a watering-pot makes short work of them.

The tree cricket (*Ecanthus niveus*) is another enemy—a green, active, grasshopper-looking creature, appearing late in the season, and chirping merrily among the green leaves all the day. The female has a long ovipositor, which she thrusts more than half way through the cane, and by means of which she introduces her long yellow eggs. A row of these, placed closely together, and occupying perhaps an inch or more of space, so weakens the stem that it readily breaks from its own weight as soon as the foliage appears in spring, and thus the crop is lost. We know of no method of destroying these as ready as that of cutting the affected portions out, and burning them sometime between fall and spring. They are readily discovered, appearing as a short seam with little raised dots on it.

THE BLACKBERRY.

Much that has been said about the raspberry applies equally well to the blackberry. The methods of raising new varieties—the soil and its preparation, proper distances for planting, propagation by suckers, time of planting, pruning, and insect enemies all apply here, and need not be repeated. It remains then only to treat of the varieties in cultiva-

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but when well ripe believe. For our o out making a wry favour, judging from Many other var

tion. These, like the raspberry, have originated from our wild sorts, of which there are five or six species.

Lawton or New Rochelle, a very large juicy berry, moderately sweet when fully ripe. This variety has been tried in many parts of Canada, and usually proved a failure. The canes will not stand the winter, and their growth is too robust and thorny to admit of their being laid down for winter protection.

Wilson's Early—A new variety, said to be hardier than the Lawton, a very large, oblong, oval, firm, sweet berry, ripening earlier than the other varieties—will be a great acquisition if it will endure our winters.

Kittatinny—Also recently introduced to notice, and reported to be very hardy. Fruit large to very large, sweet and firm, a good grower, very promising, and should be extensively tried.

Sable Queen—This fruit was first offered to the public last year; it originated in Massachusetts, where it has stood the winters for some years. The fruit is fine looking, and will doubtless be widely tested.

[A plant of this variety, stood the test of last winter with us, and came out perfectly hardy. As we had occasion to transplant it in the spring, we could not judge of the fruit.]

THE STRAWBERRY.

All our large and luscious strawberries, which charm the eye and delight the palate, have had their origin also in the wild vines of the woods. These wonderful changes have been brought about, too, by selection and hybridization, man assisting nature, as it is always his happy privilege to do. New varieties have thus been multiplied, until now their number is almost confusing.

Soil such as has been described as suitable for the raspberry is equally good for the strawberry, for although the wild vines are often found luxuriating in arid sandy spots, yet no fruit shows in grateful growth a readier appreciation of generous treatment than the strawberry. The richer the ground the heavier the crop, is a safe rule to go by, to any reasonable extent.

The vines are usually planted in rows, two, three, or even four feet apart, with the plants set a foot apart in the rows. The wider distances are required when it is intended to use horse culture. The runners are cut off as fast as they appear, and the ground kept free from weeds. Before winter sets in, it is well to cover the entire surface with straw or other litter, removing it only from the crowns of the plants in the spring, leaving it all on the ground until the fruiting season is over, as it will help to keep the earth moist and the fruit clean. After the berries are all picked, it will require removal and the ground well weeding and pulverizing, since it will have become very hard by the continuous tread of the fruit gatherers. The plants may be renewed after two crops have been taken by allowing the runners to spread over the surface, and plough under the old plants and nearly all else, leaving only a narrow strip of young plants every three or four feet. The ground after ploughing may be levelled with a cultivator.

The plants should be carefully set, not thrust into a hole with the roots compacted into a bundle, but in a natural position. Much of the success of a plantation will depend on proper attention to this point. Unless the vines can be got out quite early in the fall, so as to be well rooted before the winter, we prefer spring as the season for planting. There is not much gained in point of time by late fall planting, and the plants are very likely to be injured by the severe frosts of winter.

Varieties.—We think it is generally conceded that there is only one variety as yet in common cultivation which will really pay to cultivate for market purposes—that is, the Wilson's Albany. Every large producer in the country depends on it for his main crop. It is true, when compared with some other varieties, it is acid, and lacks flavour, but when well ripened it is not so far behind in these respects as some would have us believe. For our own part, we can eat Wilson's Albany, when we can get them, without making a wry face, and the general public seem to regard them with equal favour, judging from the immense quantities which ever find a ready market.

Many other varieties claim the attention of the amateur, some for their delicate

flavour or aroma, others for their immense size, but none of them, in my experience, come near the Wilson for productiveness. The following list embraces nearly all of much merit:—Jucunda, Agriculturist, Bishop's Seedling, Nicanor, Charles Downing, French, Ida, Downer, Hooker, Green Prolific, Golden Seeded, Ladies' Pine, Russell, La Constante, Trollope's Victoria, and Triomphe de Gand.

The strawberry has not usually been much afflicted with insect pests. Occasionally the crop will be partially destroyed in some particular field by the ravages of cutworms, the caterpillars of some of our common moths or millers, or by the grub of the cockchafer or May beetle. But of late two new enemies have appeared upon the scene which demand a few remarks, since, should they become generally troublesome, the profits of the strawberry crop would be much diminished. One of them is a leaf-roller, a small green caterpillar which rolls up the leaves and fastens the opening blossoms into a ball with silken threads, and living within consumes them. These are the progeny of a small yellowish moth, who lays her eggs upon the plants quite early in the spring, so that the caterpillars become nearly full grown, and capable of most mischief, just at the time when the plant is coming into full flower. On one patch we examined the past season the damage from this cause alone would be moderately computed at half the crop. We have also observed this insect in several localities on the wild strawberry. The other is a borer, the issue of a still smaller brown moth, who lays her eggs on the crown of the plant late in July or early in August, which soon hatch into small reddish caterpillars, which burrow through the heart of the plant in various directions, through the fall and winter, either killing it outright, or weakening it so much that it sends up in spring only puny barren shoots from about the base. Late in May, when the leaf roller is active and full of mischief, this twin brother in the work of destruction sleeps quietly in chrysalis, appearing in the winged state about the middle of July. The following remedies are suggested—Dusting with fresh air slaked lime, or with soot, or watering with hellebore, mixed as for the currant worm. These would certainly be of service, but whether they would singly or jointly entirely meet the case is a matter of doubt.

THE CURRANT.

Of these we have red, white, and black, varying in foliage and fruit and time of ripening, all requiring a rich soil, well worked and manured, to produce fine crops of large fruit.

They may all be propagated by cuttings, which are best made in the fall, tied in bundles and buried under ground during winter, and planted in spring. The young bushes of one or two years' growth should be planted out in rows, from five to six feet apart, and four feet in the rows. The pruning and management of the red and white currant is somewhat different from that required for the black. The fruit of the former is mainly produced on wood that is two or three years old, hence in pruning the new wood may be shortened considerably to induce the formation of strong fruit spurs; in the black variety the fruit is produced from one year old wood as well as from small spur-like shoots from the older, which should be borne in mind in pruning, so that a sufficient amount of wood of last year's growth be left to insure a full crop of fruit. In both cases a portion of the old wood should be removed from time to time, as well some of the shoots or suckers, when they are likely to become crowded, so as to keep the head open and admit light and air to the centre of the bush. The stool or bush form is the natural mode of growth for the currant, and is less trouble, and, we believe, far better than the method sometimes recommended of growing in tree form with a single stock. The chief objection to the latter is that should the currant borer visit this single stem the bush is lost, for the small hollowed trunk would necessarily break from its weight of foliage.

Varieties—The following are some of the best in cultivation.

Red Dutch—Fruit large, deep red, rich and good, bunches long and tapering, a vigorous grower and very productive, an old and well known sort.

Victoria—Fruit large, bright red, acid, but of good flavour, bunches very long and tapering, very productive.

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Cherry—Fruit very large, dark red, acid, only second in quality, bunches vary much in size, this is the largest red currant in cultivation.

Versailles—Very closely resembling the Cherry, by some thought to be identical.

Prince Albert—Fruit large, bright red, rather acid, not rich in flavour, very productive, later than most of the other varieties, for which it is chiefly valued.

White Grape—Fruit large, yellowish white, transparent, juicy, moderately sweet and rich, bunches medium size, habit vigorous, very productive, the best white currant.

White Dutch—Fruit very similar in appearance and quality to the White Grape, but somewhat smaller.

Black Naples—This variety has now almost entirely superseded the old English black. It is very large, black, sweet, with a peculiar musky flavour, bunches medium size, loose, a vigorous grower and productive.

Insects—There are several insect enemies, affecting chiefly the red and white varieties, with which almost every currant grower has to wage continuous battle, and so troublesome have they become of late that the culture of these valuable fruits has been sadly interfered with, many having given it up almost in despair. First in its destructive powers we should place the currant borer, a small whitish grub with brown head and legs, which lives in the stems of the bushes, burrowing up and down, making them so hollow and weak as to be liable to break with every wind. The parent of this worm is a pretty little clear winged moth (*Egeria tipuliformis*) something like a wasp, with three gold bands across its body. The moths appear about the middle of June, flying in the day-time only, depositing their eggs singly near the buds, where they soon hatch into small worms, which eat their way to the middle of the stem, and there enter on their career of destruction. When mature they are about half an inch long; they live in the stems through the winter, change to chrysalis early in the spring, appearing as moths in June again. These can best be kept within bounds by carefully removing in spring every stem found to be hollow, and burning it.

The caterpillar of a geometric moth (*Ellopiæ ribearia*) called a measuring worm, feeds on the leaves, when numerous stripping the bushes bare. Its colour is yellowish, dotted with black, with its sides streaked with white. It is about an inch long when fully grown, and has its feet placed at each extremity of its body, so that in moving it loops itself up at every step. The moth from which this worm is produced is a delicate-looking creature, measuring about an inch across the wings, which are yellowish in colour, spotted with pale brown; the spots being arranged into one or two irregular bands extending across the wings. The eggs are usually deposited in May, but sometimes later. The worms are found during the month of June, and occasionally in July. The best remedies are hellebore and hand-picking.

The Gooseberry Saw-fly (*Nematus ventricosus*) also deposits its eggs on the currant leaves, and proves usually a much greater pest than the measuring worm. The perfect insect is a small fly nearly as big as a common house-fly, which appears early in spring, and deposits its eggs along the ribs on the under side of the new leaves as soon as they are sufficiently expanded. These speedily change to small green worms dotted with black, which at once begin to devour the leaves. They grow rapidly and are often so numerous as to strip a bush entirely bare in a few days. When fully grown they are about three fourths of an inch long, and at their last moult lose their black dots, appearing in uniform pale yellowish green. They spin a small, tough, papery-looking cocoon, sometimes at or under the surface of the ground, at other times attached to the leaves or stems of the bush, from which the perfect insect escapes early in July. There are two regular broods during the season, and often a few odd specimens appear out of season, between times, so that constant vigilance is necessary to insure successful resistance to their repeated onslaughts. A ready means of destruction we have in powdered hellebore; an ounce of this well mixed with a pail of water, and applied with a watering-pot, clears the bushes effectually in a very short time.

A green worm occasionally affects the fruit, drawing the berries together in a bunch, fastening them with silken threads, and consuming their contents. This, however, is seldom met with, excepting on the gooseberry, and needs only a passing notice. Where they prove troublesome we can suggest nothing better than hand-picking.

[During the past year, this worm has been very abundant and destructive to the red and white currant, as well as the gooseberry. It has also affected the black currant in our own garden, where fully one third of the crop has been thus destroyed. It is the offspring of a small moth, *Peaepelia grossularia*, which, when its wings are expanded, measures nearly an inch. Its fore wings are long and narrow, and pale grey in color, streaked and dotted with brown—its hind wings dusky. The moth appears during the latter part of April, and deposits its eggs singly on the fruit, almost as soon as it is formed. The egg soon hatches into a minute grub, which burrows into the fruit, and as it grows larger draws together three or four, or more of the berries, and fastening them with silken threads—devours their substance at its leisure; making but one hole in a berry, and that but barely large enough to admit its body. When disturbed, it wriggles itself out of this hole backwards and drops to the ground, or hangs suspended near the ground by a silken thread attached to the berry. The fruit is soon discolored and withered.

When full grown, the grub measures in length three-fourths of an inch, and is of a pale shining green color, with sometimes a yellowish, at others, a reddish tint. The head is small, pale brown, and the next segment behind the head, has a pale brown patch above. When ready to change to chrysalis, which is usually about the middle of June, it drops from the bush, and forms a little silken cocoon amongst leaves and rubbish, on, or just below the surface of the ground, where it undergoes the change, and remains inactive till the following spring, when the moth again appears.]